Mowry Village Project

Environmental Impact Report

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Acronyms and Abbreviation

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda-Contra Costa (AC) Transit
ACBM	Asbestos-Containing Building Materials
ACC	Advanced Clean Cars
ACE	Altamont Commuter Express
ACFC&WCD	Alameda County Flood Control and Water Conservation District
ACFD	Alameda County Fire Department
ACWD	Alameda County Water District
ADA	Americans with Disabilities Act
ADFW	average dry weather flow
ADT	average daily trip
AEP	Association of Environmental Professionals
AFY	acre-feet per year
AICUZ	Air Installation Compatible Land Use Zone
AMSL	above mean sea level
ANSI	America National Standards Institute
APE	Area of Potential Effect
APN	Assessor's Parcel Number
Applicant	Mowry Project Owner, LLC
AQP	Air Quality Plan
AWWTP	Alvarado Wastewater Treatment Plan
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
Basin Plan	San Francisco Bay Basin Water Quality Control Plan
BCDC	San Francisco Bay Conservation and Development Commission
Bgs	below ground surface
BMP	best management practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal-IPC	California Invasive Plant Council
CAL EMA	California Emergency Management Agency
Cal EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	Governor's Office of Emergency Services
CALGreen	California Green Building Standards Code

CalOSHA	California Division of Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CHL	California Historical Landmark
CH_4	methane
City	City of Newark
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CPUC	California Public Utilities Commission
CREC	Controlled Recognized Environmental Conditions
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CTC	County Transportation Commission
CUPA	Certified Unified Program Agencies
CWA	Clean Water Act
CY	cubic yards
dB	decibel
dB(A)	A-weighted decibel
DBH	diameter at breast height
DOC	California Department of Conservation
DOF	Department of Finance
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EDD	Employment Development Department
EIR	Environmental Impact Report

EO	Executive Order
ESA	Environmental Site Assessment
ESL	Environmental Screening Level
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GC	Government Code
GHG	greenhouse gas
GIS	geographic information system
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWP	global warming potential
HAP	hazardous air pollutant
HCD	Department of Housing and Community Development
HCP	Habitat Conservation Plan
Helix	Helix Environmental Planning, Inc.
HFC	hydrofluorocarbons
HOA	Homeowner’s Association
HOV	High Occupancy Vehicle
HREC	Historical Recognized Environmental Conditions
HSC	Health and Safety Code
Hz	Hertz
IPaC	Information for Planning and Consultation
I-880	Interstate 880
LAFCO	Alameda County Local Agency Formation Commission
lbs/day	pounds per day
LCFS	Low Carbon Fuel Standard
Ldn	day-night sound level
Leq	equivalent sound level
LID	Low Impact Development
Lmax	maximum sound level
Lmin	minimum sound level
LOS	level of service
LTA	local responsibility area
Lxx	percentile-exceeding sound level
MACT	Maximum Achievable Control Technologies
MBTA	Migratory Bird Treaty Act
MEIR	maximally exposed individual receptor

Mgd	million gallons per day
mg/m^3	milligrams per cubic meter
MTCO2e	Metric tons of carbon dioxide equivalent
MMTCO2e	Million metric tons of carbon dioxide equivalent
Mph	miles per hour
MPO	Metropolitan Planning Organization
MMT	million metric tons
MRZ	Mineral Resource Zone
MTC	Metropolitan Transportation Commission
MWh	megawatt-hour
NAAQS	national ambient air quality standards
NCCP	Natural Community Conservation Planning
NDF	Newark Desalination Facility
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NGVD	National Geodetic Vertical Datum
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO	nitric oxide
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	nitrogen oxide
NO_2	nitrogen oxide
NPD	Newark Police Department
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NUSD	Newark Unified School District
NWIC	Northwest Information Center
N_2O	nitrous oxide
OCP	organochloride pesticides
OEHAA	California Office of Environmental Health Hazard Assessment
OHP	Office of Historic Preservation
OITC	Outside-Inside Transmission Class
OPR	Governor’s Office of Planning and Research
ORC	oxygen release compound
O_3	Ozone
PAH	polycyclic aromatic hydrocarbons

Pb	lead
PBMP	Pedestrian and Bicycle Master Plan
PD-RS-6000	Residential Single-Family with Planned Unit Development Overlay
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric
PI	Plasticity Index
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
PM_{10}	particulate matter ten microns or less in diameter
POTW	publicly owned treatment works
Ppm	parts per million
PPC	peak particle velocity
PRC	Public Resources Code
proposed project	Mowry Village Project
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RHNA	Regional Housing Needs Allocation
ROC	Reactive organic compounds
ROG	Reactive Organic Gas
ROW	Right of Way
RPC-SAT	California Ocean Protection Council Science Advisory Team
RRFB	Rectangular Rapid Flashing Beacon
RSP	RSP Groups, Inc.
RTP/SCS	regional transportation plan/sustainable communities strategy
RWQCB	Regional Water Quality Control Board
RWS	Regional Water System
SAF	San Andreas Fault
SAFE	Safer Affordable Fuel Efficient
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SLCP	Short-Lived Climate Pollutant
SLF	Sacred Lands File
SMARA	California Surface Mining and Reclamation Act
SO_2	sulfur dioxide

SO_4	sulfates
SR	State Route
SSA	Streambed Alteration Agreement
SSC	Species of Special Concern
Stantec	Stantec Consulting Services Inc.
STC	Sound Transmission Class
SWMP	Stormwater Management Plan
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TAZ	Traffic Analysis Zone
TCP	Traffic Control Plan
TDM	Transportation Demand Management
TIA	Transportation Impact Analysis
TPH	petroleum hydrocarbons
TPHd	petroleum hydrocarbons as diesel
TPHg	petroleum hydrocarbons as gasoline
TPHmo	petroleum hydrocarbons as motor oil
TPY	tons per year
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USD	Union Sanitary District
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VMT	Vehicle Miles Traveled
VOC	volatile organic compounds
WDR	Waste Discharge Requirements
WSA	Water Supply Assessment
WTP	Water Treatment Plant
ZEV	zero-emission vehicle
$\mu g/m^3$	micrograms per liter

EXECUTIVE SUMMARY

This document is a Draft Environmental Impact Report (EIR) for the Mowry Village Project (proposed project). This section of the Draft EIR provides a summary of the proposed project, the anticipated environmental impacts of the proposed project, the alternatives, and areas of known controversy to be resolved.

ES.1 SUMMARY OF PROPOSED PROJECT

The proposed project is located in the City of Newark (City) in southwestern Alameda County, California, southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks, west of Cherry Street. The project site is approximately 29 acres and consists of three parcels identified as Assessor's Parcel Numbers (APNs) 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00. The proposed project involves the demolition of existing structures located on the project site and remediation of the site to construct 203 single-family detached homes. The proposed project would include additional on- and off-site improvements including, but not limited to, construction of on-street parking, drive aisles, utility improvements, landscaping and widening of Mowry Avenue.

A detailed description of the proposed project is provided in Section 2.0, Project Description.

ES.1.1 Project Objectives

The primary objective of the proposed project is to provide low density residential housing that incorporates multi-modal transportation for the future residents of Newark. Specific project objectives include the following:

- Implement the City's General Plan by developing the site with low-density residential;
- Support the City in meeting its Regional Housing Needs Allocation (RHNA) target assigned by the Association of Bay Area Governments (ABAG);
- Provide high quality residential development including a mix of lot sizes;
- Minimize environmental impacts associated with residential development by siting the project on developed and disturbed lands;
- Remediate contaminated soil on-site to levels suitable for residential development;
- Create a residential development that integrates multi-modal transportation (pedestrian, bicycle, automobile) and connects the development to existing, nearby bus transit stops and active centers by improving Mowry Avenue and upgrading the at-grade vehicular and pedestrian crossing along Mowry Avenue at the UPRR railroad tracks to increase safety.

ES.1.2 Project Approvals

The proposed project requires, but may not be limited to, the following approvals from the City:

- Rezone from Park to RS-6000: Residential Single-Family with Planned Unit Development Overlay
- Planned Unit Development
- Specific Plan Amendment
- Vesting Tentative Map
- Design Review
- Grading, Building, and Encroachment Permits
- Alameda County Local Agency Formation Commission (LAFCO) Annexation Approval

ES.1.3 Responsible and Trustee Agencies

Under the California Environmental Quality Act (CEQA), a responsible agency is a public agency, other than the lead agency, that has responsibility to carry out or approve a project (Public Resources Code [PRC] Section 21069). A trustee agency is a state agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California (PRC Section 21070).

The following agencies may serve as responsible and/or trustee agencies:

- California Department of Transportation, District 4
- State Water Resources Control Board
- Regional Water Quality Control Board #2
- Bay Area Air Quality Management
- Alameda County LAFCO
- Alameda County Water District (ACWD)
- Union Sanitary District (USD)

ES.2 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

Section 15123 of the State CEQA Guidelines requires that a summary of an EIR identify areas of controversy known to the lead agency, including issues raised by agencies and the public. The City distributed a Notice of Preparation (NOP) of the Draft EIR for the proposed project beginning on November 30, 2021. The NOP was circulated for a 30-day public review and comment period, ending on January 3, 2022. 11 commentors submitted written responses to the NOP. Seven written responses were from interested individuals or organizations and four written comments were from agencies including the Alameda County Transportation Commission, Native American Heritage Commission, Alameda County Water District, and Union Sanitary. An additional three comments were received orally from interested individuals and organizations during the Public Scoping Meeting held on December 14, 2021. The NOP and written comments received are included in Appendix A. Comments in response to the NOP generally identified the following areas of potential concern.

- Sea level rise
- Circulation system safety
- Hazards such as contaminated soils and unstable soil conditions
- Increased demand on infrastructure and public services

This Draft EIR contains substantial evidence to support the conclusions presented herein. It is possible that there will be disagreements among various parties regarding these conclusions, although the City of Newark is not aware of any disputed conclusions at the time of this writing. Both the CEQA Guidelines and case law clearly provide the standards for treating disagreement among experts. Where evidence and opinions conflict on an issue concerning the environment, and the lead agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize the conflicting opinions of the experts, and include sufficient information to allow the public and decision-makers to make an informed judgement about the environmental consequences of the proposed project.

ES.3 ALTERNATIVES TO THE PROPOSED PROJECT

The project alternatives and their potential impacts are discussed in Section 5.0, Alternatives to the Proposed Project, of this Draft EIR. As authorized under CEQA, the alternatives are discussed in less detail than the proposed project.

No Project Alternative

CEQA Guidelines Section 15126.6(e)(1) requires that the no project alternative be described and analyzed, “to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” The no project analysis is required to discuss, “the existing conditions at the time the Notice of Preparation is published . . . as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services” (Section 15126.6(e)(2)).

The No Project Alternative assumes that no additional development would occur on the project site and would continue to use the existing structures on the project site for commercial services.

While the no project alternative would avoid the significant and unavoidable impact to transportation, specifically Vehicle Miles Traveled (VMT), it would not meet any of the project objectives, including providing housing in the City.

Multi-family Residential Alternative (Alternative 2)

The Multi-family Residential Alternative would construct 405 multi-family residential units on the 29 acre project site, resulting in a density of approximately 14 units per acre. This alternative would require modifications to the site plan and layout and would require a General Plan Amendment from low density residential to medium density residential to increase density on-site. This alternative would include the demolition of existing uses and remediation of the existing groundwater and soil contamination on-site and would include on- and off-site utility and circulation improvements. This alternative would provide multi-family residential units that range from garden apartments and condominiums to townhomes and row houses that would have a maximum building height of 60 feet, in accordance with the development standards of the Areas 3 and 4 Specific Plan. The Multi-family Residential Alternative would not reduce the significant and unavoidable impact to VMT.

Reduced Density Alternative (Alternative 3)

The Reduced Density Alternative would develop the 29 acre project site with 64 single-family detached residential homes. The Reduced Density Alternative would have a resulting density of approximately two units per acre which is within the allowable density of 8.7 units per acre for the low density residential land use designation. This alternative would also include the demolition of existing uses and structure on-site, remediation of the existing groundwater and soil contamination on-site and would include on- and off-site utility and circulation improvements. Though the Reduced Density Alternative's density of two units per acre would be within the allowable density for low density residential General Plan land use designation, it would underutilize the allowable density of the designation of the project site. The Reduced Density Alternative would not reduce the significant and unavoidable impact to VMT.

100 Percent Affordable Housing Alternative (Alternative 4)

The 100 Percent Affordable Housing Alternative would develop the 29 acre project site with 405 multi-family residential units, similar to the Multi-family Residential Alternative. However, under this alternative, 100 percent of the residential units developed would be provided as affordable housing. This alternative would also include the demolition of existing uses and structure on-site, remediation of the existing groundwater and soil contamination on-site and would include on- and off-site utility and circulation improvements. This alternative would result in a density of approximately 14 units per acre and therefore, would require a General Plan Amendment from low density residential to medium density residential to allow for the increased density. This alternative assumed that no density bonus law would be applied. This alternative would provide multi-family residential units that range from garden apartments and condominiums to townhomes and row houses that would have a maximum building height of 60 feet, in accordance with the development standards of the Areas 3 and 4 Specific Plan. The 100 Percent Affordable Housing Alternative would not reduce the significant and unavoidable impact to VMT.

ES.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table ES-1, Executive Summary of Impacts and Mitigation Measures, summarizes the potential environmental effects of the proposed project, the recommended mitigation measures, if applicable, and the level of significance after mitigation. Per CEQA Section 15093, should the project be approved as proposed, any impact noted in the summary as "significant" after mitigation would require the adoption of a statement of overriding considerations. As shown in Table ES-1, development of the proposed project would result in significant and unavoidable impacts. Therefore, a statement of overriding considerations would be required.

Additionally, CEQA requires public agencies to establish a mitigation monitoring and reporting program for the purpose of ensuring compliance with those mitigation measures identified in an EIR and/or adopted as conditions of approval in order to mitigate or avoid significant environmental impacts identified in an EIR. A mitigation monitoring and reporting program, incorporating the mitigation measures set forth in this document, will be adopted at the time of certification of the Final EIR.

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Table ES-1: Executive Summary of Impacts and Mitigation Measures

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Section 3.3 Air Quality			
Impact AIR-1: The proposed project could conflict with or obstruct implementation of the applicable air quality plan.	Potentially Significant Impact	**MM AIR-1: Implement Construction Best Management Practices.** The applicant shall require all construction contractors to implement the basic construction mitigation measures recommended by the BAAQMD to reduce fugitive dust emissions. Emission reduction measures will include, at a minimum, the following measures. Additional measures may be identified by the BAAQMD or contractor as appropriate: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site will be covered. • All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. • All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations; clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications.	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		• All equipment shall be checked by a certified visible emissions evaluator or checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at the City regarding dust complaints. This person will respond and take corrective action within 48 hours. The Bay Area Air Quality Management District's phone number will also be visible to ensure compliance with applicable regulations. **MM AIR-2: Tier 4 Certified Construction Equipment.** The project applicant or designated contractor shall specify, and the City shall verify that all grading, building, and other construction permits for the project, include the following requirement: All diesel-powered off-road equipment used for project remediation and construction activities shall be U.S. EPA Tier 4 certified, or have CARB approved engine retrofit kits certified to have emissions equivalent to Tier 4 standards.	
Impact AIR-2: The proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.	Potentially Significant Impact	Mitigation Measures AIR-1 and AIR-2 are required.	Less Than Significant Impact with Mitigation
Impact AIR-3: The proposed project could expose sensitive receptors to substantial pollutant concentrations.	Potentially Significant Impact	Mitigation Measure AIR-1 and HAZ-1 are required.	Less Than Significant Impact with Mitigation
Section 3.4 Biological Resources			
Impact BIO-1: The proposed project could have a substantial adverse effect, either directly or through habitat modifications on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially Significant Impact	**MM BIO-1: Standard Construction Best Management Practices.** The applicant shall require implementation of standard construction BMPs outlined, but not limited to, throughout construction. • The project limit shall be delineated and/or fenced prior to the start of construction.	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation

		• Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from leaving the proposed project site. The integrity and effectiveness of the BMPs shall be inspected daily by the resident engineer. Corrective actions and repairs shall be carried out immediately.
		• Construction by-products and pollutants such as petroleum products, chemicals, or other deleterious materials shall not be allowed into off-site wetlands or marsh habitats.
		    ○ A plan for the emergency clean-up of any spills of fuel or other materials shall be available when construction equipment is in use.
		• Construction vehicles and equipment shall be maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease.
		• Leaking vehicles and equipment shall be removed from the site.
		• Building materials storage areas containing hazardous or potentially toxic materials such as herbicides and petroleum products shall have an impermeable membrane between the ground and the hazardous material and shall be bermed to prevent the discharge of pollutants to ground water and runoff water.
		• Equipment shall be re-fueled and serviced at designated construction staging areas, a minimum of 100 feet from any aquatic resource.
		• All construction material and fill shall be stored and contained in a designated area that is located away from aquatic habitats to prevent transport of materials into adjacent water bodies.
		    ○ The preferred distance is 100 feet from any wetlands or marsh habitats.	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		○ A silt fence shall be installed to collect any discharge, and adequate materials shall be available for spill clean-up and during storm events. • No litter, debris, or side cast shall be dumped or permitted to enter wetlands or marsh habitats. • During project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.	
		MM BIO-2: Environmental Awareness. Prior to initial ground disturbance, all project personnel shall attend an environmental awareness and compliance training. The training program shall present applicable environmental regulations and permit conditions. The training program shall include applicable measures established for the proposed project to minimize impacts to avoid sensitive resources, habitats, and species. Subsequent training events shall be scheduled to support the training of new personnel. Dated sign-in sheets for attendees at these meetings shall be maintained and submitted to the City prior to the issuance of grading permit.	
		MM BIO-3: Pre-Construction Nesting Bird Survey. If project activities such as vegetation removal activities commence during the avian breeding season (February 1 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to initiation of project activities and again within 48 hours prior to initiation of project activities. The survey area should include suitable raptor nesting habitat within 500 feet of the project boundary (inaccessible areas outside of the project parcels can be surveyed from the parcel or from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project activities have been continuous since prior to February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season must be re-surveyed prior to	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		resumption of project activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure shall be implemented: • A suitable buffer (e.g., 300 to 500 feet for northern harrier and white-tailed kite; 200 to 300 feet for common raptors; 50 to 100 feet for non-raptors) shall be established by a qualified biologist around active nests and no construction activities within the buffer shall be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest, or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted.	
		MM BIO-4: Burrowing Owl Pre-Construction Surveys. Pre-construction surveys for burrowing owls shall be completed no more than 15 days prior to the start of construction in areas planned for fill placement and construction areas in general conformance with the California Burrowing Owl Consortium's and the CDFW Staff Report (2012) protocols. Because owls are known to occur in the vicinity of the project site, these surveys shall be completed no more than 15 days prior (rather than 30 days prior, as per the Consortium's protocol) to the start of importing fill and construction to minimize the probability of immigration of owls between the time surveys are completed and the initiation of grading. If the initial disturbance is followed by periods of inactivity exceeding 15 days, or if the development is phased spatially and/or temporally such that an area in which construction activities are to commence has not been disturbed by construction activities within the prior 15-day period, a new burrowing owl pre-construction survey shall be completed prior to the start of disturbance. If burrowing owls are detected on or within 250 feet of the site, the mitigation measures below shall be implemented. • If burrowing owl is located during the non-breeding season (generally 1 September to 31 January), a 150-foot	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		buffer zone shall be maintained around the occupied burrow(s) if practicable. If such a buffer is not practicable, then a buffer adequate to avoid injury or mortality of owls shall be maintained, or the birds shall be evicted as described below. During the breeding season (generally 1 February to 31 August), a 250-foot buffer, within which no new activity shall be permissible, shall be maintained between project activities and occupied burrows. Owls on site after 1 February shall be assumed to be nesting unless direct observations indicate otherwise. This protected buffer area shall remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently, or the nest is no longer active. Owls that are not nesting can be evicted using the methods below during the period from 1 February to 31 August. • If construction would directly impact occupied burrows, eviction of owls may occur outside the nesting season (or during the nesting season if the owls are determined to be not nesting) to prevent injury or mortality of individual owls. No burrowing owls shall be evicted from burrows during the nesting season (1 February through 31 August) unless evidence indicates that nesting is not actively occurring (e.g., because the owls have not yet begun nesting early in the season, or because young have already fledged late in the season). Relocation of owls during the nonbreeding season shall be completed by a qualified biologist using one-way doors, which shall be installed in all burrows within the impact area and left in place for at least two nights. These one-way doors shall then be removed, and the burrows backfilled immediately prior to the initiation of grading. • If resident burrowing owl(s) are found in the proposed project site during pre-construction surveys and eviction is necessary to facilitate construction, Mitigation Measure BIO-6 shall be implemented. These measures do not apply to short-term use of the site by a burrowing owl for	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		foraging, as a stop-over during migration, or temporary use of the site by wintering birds or dispersing juveniles.	
		MM BIO-5: Burrowing Owl Mitigation. To reduce impacts of the project on the local (South Bay) burrowing owl population, habitat shall be preserved and managed for burrowing owls off-site if eviction of resident owls is required. California burrowing owl mitigation guidelines recommend that 6.5 acres of foraging habitat be preserved and managed per occupied burrowing owl burrow (whether by a pair or singly) in mitigation sites. Therefore, mitigation shall be required for each pair or single resident burrowing owl that is evicted, up to a maximum of 13 acres. Mitigation may take the form of off-site habitat preservation and management (in which case all the monitoring and habitat requirements in the following paragraphs would apply) or the purchase of credits in an off-site mitigation bank. Because the nearest burrowing owl mitigation banks are currently located outside of the South Bay, this mitigation may occur outside the region. If off-site habitat is to be preserved, a mitigation and monitoring plan shall be prepared by a qualified biologist and submitted to the City and the CDFW for review and approval. This plan shall detail the following: • Areas to be preserved for owls. • Methods for managing habitat for owls and their prey. • Plans to enhance burrow availability within the mitigation site (potentially including the provision of artificial burrows, although long-term management for ground squirrels would be important as well). • A monitoring program and adaptive management program. At least 50 percent of the mitigation area must consist of upland habitat suitable for use by burrowing mammals, and no wetlands supporting tall vegetation shall be included within the mitigation site. The mitigation area must be contiguous with habitat that is permanently preserved as open space to avoid having the site surrounded by development in the future. The	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		mitigation area shall be protected in perpetuity through a conservation easement, deed restriction, conveyance to a qualified land trust or the Don Edwards National Wildlife Refuge, or through equivalent means. Assuming burrowing owl habitat mitigation would occur off-site, some on-site enhancements shall also be made to reduce impacts of the project on the local (South Bay) burrowing owl population. Such enhancements shall include the provision of two artificial burrow complexes on the sides of the adjacent levees (if allowed by levee managers) and management of at least portions of levee side slopes around these burrow complexes to provide suitable conditions for burrowing owls and ground squirrels (e.g., periodic mowing to maintain short vegetation). Given the extent of natural habitat with short vegetation, and the continued presence of seasonal wetlands near the proposed project site, providing and maintaining burrows for use by owls is expected to maintain some burrowing owl presence near the proposed project site even if most or all the owl habitat mitigation occurs off-site. Signage shall be placed in appropriate locations to prohibit individuals from entering areas where the artificial burrow complexes would be located. Signage shall be placed along the levee slopes to instruct recreational users of these levees against leaving the levee tops to protect sensitive species such as the burrowing owl.	
		MM BIO-6: Special Status Bat Species. A survey for roosting bats shall be completed prior to the removal of any building or tree with potential for day-roosting by bats, or prior to the initiation of any construction activities within 250 feet of such potential roost sites. The survey shall be completed by a qualified biologist. If suitable roost sites are found but a visual survey is not adequate to determine presence or absence of bats (which would be particularly likely in the case of potential roost trees), acoustical equipment could be used to determine occupancy. This survey shall be completed prior to the beginning of the breeding season (i.e., prior to 1 March) in the year in which construction or demolition in each area is scheduled to occur so that adequate measures can be	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		implemented, if necessary, to evict the bats during the non-breeding season. The survey results shall be provided to the Community Development Director for review and approval prior to the start any construction related activities. • Because the initial surveys would be completed prior to the breeding season, several months may pass between that survey and the initiation of construction or demolition in each area. Therefore, a second pre-demolition/pre-construction survey for roosting bats, following the methods described above, shall be completed within 15 days prior to the commencement of these activities in each area to determine whether bats have occupied a roost in or near the development impact areas. This survey shall be facilitated considerably by information (e.g., on potential roost trees) gathered during the previous survey. If bats are found to be roosting, additional mitigation as follows must be implemented. • If a maternity roost of any special-status bat species is found, the bat biologist shall determine the extent of a construction-free buffer around the active roost that would be maintained. This buffer would be maintained from 1 March until the young are flying, typically after 31 August. If a roost of any kind is found in an area (e.g., a building or tree) that would not be disturbed by construction, or that can be avoided, the roost structure shall not be impacted. • If a day roost is found in a building, or in a tree that is to be completely removed or replaced, individual bats shall be safely evicted under the direction of a qualified biologist. Eviction of bats shall occur at dusk, so that bats would have less potential for predation compared to daytime roost abandonment. Eviction shall occur between 1 September and 31 March, outside the maternity season, but shall not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey is not available, or bats are in torpor. If a day roost is found within a building, eviction shall occur by opening the roosting area to allow air flow through the cavity. Demolition may then follow no sooner than the following	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		day (i.e., there must be no less than one night between initial disturbance for air flow and the demolition). This action shall allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. If feasible, one-way doors shall also be used to evict bats from tree roosts. If use of a one-way door is not feasible, or the exact location of the roost entrance in a tree is not known, the trees with roosts that need to be removed shall first be disturbed by removal of some of the trees' limbs not containing the bats. Such disturbance shall occur at dusk to allow bats to escape during the dark hours. These trees would then be removed the following day. These activities shall be performed under the supervision of the qualified biologist. • If a day roost for pallid bats or another rare bat would be impacted, an alternative bat roost structure shall be provided. The design and placement of this structure would be determined by a qualified biologist based on the location of the original roost and which species is located. This bat structure shall be erected at least one month (and preferably a year or more) prior to removal of the original roost structure. This structure shall be checked during the breeding season for up the three years following completion of the development, or until it is found to be occupied by bats, to provide information for future development projects regarding the effectiveness of such structures in minimizing impacts to bats.	
		MM BIO-7: Reduce the Spread of Invasive Species. Prior to issuance of any building or grading permits, the project shall develop and implement an Invasive Species Management Plan to reduce the presence and spread of non-native, invasive plant species for the area to be developed. The Plan shall be developed prior to importing any fill material required to elevate building sites and prior to grading any areas on the Specific Plan site. The overarching goal of this mitigation is to halt the further expansion of existing invasive species and introduction of new invasive species into sensitive habitats on	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		site. The Invasive Species Management Plan shall include, but not be limited to, the following, summarized below: • Prior to construction, map populations of invasive species within all areas proposed to be graded; quantify the extent and location of invasive populations in sensitive habitats. • Areas identified to have weed infestations shall be treated prior to ground disturbance according to weed control methods detailed below and Best Management Practices within all upland areas to be graded, after review and approval of methodologies by the City of Newark. • Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods approved for application. The timing of the weed control treatment shall be determined for each plant species with the goal of controlling populations before they start producing seeds and/or encroach into adjacent areas from rhizomatous shoots. Consultation with a City of Newark approved wildlife biologist or plant ecologist shall be required prior to weed control treatments in sensitive habitats with the intent of avoiding any adverse impacts to special-status species in the area. • Surveying and monitoring for weed infestations shall occur annually while grading operations are occurring. Treatment of all identified weed populations shall occur at a minimum of once annually. • During project construction, all seeds and straw materials used on site shall be weed free rice straw, and all gravel and fill material shall be certified weed free. • During project construction, vehicles and all equipment shall be washed before and after entering the project area.	
		MM BIO-8: Post-Construction Predator Management Plan and Program. This program shall focus on education of occupants of the new residential areas regarding measures to minimize the potential for subsidizing predator species and to minimize the potential effects of pets on sensitive species and	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		enforcement of the program's measures, and restrictions on certain activities that could increase predation of sensitive species. A plan shall be developed. The details of the program would be developed during construction but shall include, at a minimum, the following: • Minimize disturbance from the development by educating the public about the importance of preserving the ecological integrity of the adjacent natural areas instructing recreational users to stay on the levee tops out of sensitive habitats and keep dogs on leashes. • To prevent the spread of invasive non-native plants into the nearby sensitive habitats, plants contained on the California Exotic Plant Pest Council List of Invasive Plants shall be barred from use within the landscaping of the Mowry Village development area. A list of plants suitable for landscape use shall be provided to property buyers. • Feeding pets outdoors shall be prohibited so that pet food does not attract or subsidize the diets of nuisance species. • Pets shall be prohibited from ranging freely (off-leash dogs shall be prohibited in off-site wetland areas and no free-roaming outdoor cats shall be permitted), to prevent their entry into sensitive species habitat. • All food waste shall be contained so that it does not attract or subsidize the diets of predators.	
Impact BIO-5: The proposed project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy.	Potentially Significant Impact	**MM BIO-9: Tree Preservation Plan.** Prior to the issuance of any construction-phase permit, a construction-phase Tree Preservation Plan shall be prepared by a certified arborist to the satisfaction of the City's Community Development Director for all areas with trees. The construction-phase Tree Preservation Plan shall include the following tree protection measures which are based on guidelines established by the International Society of Arboriculture: • Establish Tree Protection Zones. • Protect tree root systems.	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		• Install wood bark mulch. • Trees removed by the project shall be replaced at a 3:1 ratio unless the City's Community Development Director determines that a higher ratio is required. • Trees greater than 18 inches in diameter at breast height (DBH) shall not be removed unless a Tree Removal Permit, or equivalent, has first been approved for the removal of such trees. • The species and exact number of trees to be planted on the site during the construction phase shall be determined in consultation with the City and to the satisfaction of the Community Development Director. • In the event the developed portion of the development site does not have sufficient area to accommodate the required tree mitigation, one or more of the following measures shall be implemented at the development permit stage: • An alternative site(s) shall be identified for additional tree planting. Alternative sites may include local parks or schools, or installation of trees on adjacent properties for screening purposes, to the satisfaction of the City's Community Development Director. The size of a 15-gallon replacement tree can be increased to 24-inch box and counted as two replacement trees.	
Section 3.5 Cultural Resources			
Impact CUL-2: The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	Potentially Significant Impact	**MM CUL-1: Archaeological Monitoring Program.** Prior to the start of construction activities, the Applicant shall prepare a monitoring program that would be implemented during demolition and construction activities. The monitoring program shall include: • **Retention of a Qualified Archaeologist.** Qualified archaeological shall be retained to implement a monitoring and recovery program during all ground-disturbing activity associated with the proposed project, including grubbing, grading, and excavation activities. The qualified	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		archaeologist shall meet the Secretary of Interior's Professional Standards for prehistoric and historic archaeology. • **Agreement of Disposition of Recovered Artifacts.** A written agreement shall be secured with a recognized museum repository regarding the final disposition and permanent storage and maintenance of any unique archaeological resources or historical resources recovered as a result of the archaeological monitoring, as well as corresponding geographic site data that might be recovered as a result of the specified monitoring program. • **Preconstruction Briefing.** Construction personnel shall be briefed by the qualified archaeologist on procedures to be followed in the event that unique archaeological resources, historical resources, tribal cultural resources, or human remains are encountered during construction. The qualified archaeologist shall be required to provide a telephone number where they can be reached by the construction contractor, as necessary. • **Construction Monitoring.** An archaeological monitor, working under the supervision of the qualified archaeologist shall observe all ground disturbing activities associated with the proposed project, including grubbing, grading, and excavation activities on- and off-site. The monitor shall be authorized to halt construction in the immediate area where buried cultural resources are encountered. In the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project Applicant shall notify the City and consult with a qualified archaeologist, as applicable, to assess the significance of the find. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find,	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the find are implemented. • **Monitoring Report.** A complete set of daily monitoring logs shall be kept on-site throughout the earth moving activities and be available for inspection. The daily monitoring log shall be keyed to a location map to indicate the area monitored, date, assigned personnel, and results of monitoring, including the recovery of archaeological material, sketches of recovered materials, and associated geographic site data. Within 90 days of the completion of archaeological monitoring, a monitoring report shall be submitted to the City and filed with NWIC. • **Tribal Cultural Resources.** If buried resources discovered during construction are identified to be tribal cultural resources, a Native American tribal representative from a tribe that is traditionally and culturally affiliated to the geographic area where the project is located will be consulted to determine the significance of the discovered resource and determine the appropriate avoidance or preservation measures or action to take in accordance with PRC Section 21084.3.	
Impact CUL-3: The proposed project could disturb any human remains, including those interred outside of dedicated cemeteries.	Potentially Significant Impact	**MM CUL-2: Human Burials Encountered During Construction.** In the event of accidental discovery or recognition of human remains during project construction activities, PRC Section 5097.98 shall be followed and the following steps shall be taken: 1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native America, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		persons it believes to be the "most likely descendant" of the deceased Native America. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or 2. Where the following conditions occur, the landowner or his/her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project area in a location not subject to further subsurface disturbance: • The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission; • The descendent identified fails to make a recommendation; or • The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation of the NAHC fails to provide measures acceptable to the landowner.	
Section 3.7 Geology and Soils			
Impact GEO-1: The proposed project could directly or indirectly cause potential substantial adverse effects, including risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.	Potentially Significant Impact	Mitigation Measure HAZ-1 is required.	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
ii) Strong seismic ground-shaking. iii) Seismic-related ground failure, including liquefaction. iv) Landslides.		**MM GEO-1: Implement Recommendations included in the Geotechnical Studies.** Prior to issuance of grading permits, the Applicant shall be required to incorporate all mitigation measures and design recommendations contained within the preliminary and design level geotechnical reports prepared by Berlogar Stevens and Associates in 2019 and 2020 into relevant project plans and specifications. These specifications pertain to but are not limited to expansive soils, building foundations, foundation drainage, and backfill of excavations. The geotechnical reports prepared for the proposed project includes recommendations such as the use of post-tension concrete slab-on-grade foundation to support structures placed on expansive soils, excavation of uncontrolled fill, utility trench excavation and backfill requirements, placement of retaining walls, and implementation of California Building Code Seismic Design Parameters. The project site plans shall be submitted to the City and reviewed as part of the development review process.	
		MM GEO-2: Mitigation of Liquefaction-Induced Impacts on Buildings. Prior to issuance of grading permits, the Applicant shall be required to incorporate all mitigation measures and design recommendations relating to liquefaction contained within the preliminary and design-level geotechnical reports prepared by Berlogar Stevens and Associates in 2019 and 2020 into relevant project plans and specifications. Structural mitigation for liquefaction should, at a minimum, include the use of relatively stiff structural concrete slab-on-grade foundations, such as post-tensioned concrete slabs-on-grade, to ensure foundations resist the effects of liquefaction-induced differential settlement. Strengthening connections within each structure may also be necessary, subject to review by the City. The project site plans, with all geotechnical design measures incorporated, shall be submitted to the City and reviewed as part of the development review process.	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Impact GEO-2: The proposed project could result in substantial soil erosion or the loss of topsoil.	Potentially Significant Impact	Mitigation Measure HYD-1 is required.	Less Than Significant Impact with Mitigation
Impact GEO-3: The proposed project could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	Potentially Significant Impact	Mitigation Measure GEO-1, GEO-2, and HAZ-1 are required. **MM GEO-3: Prepare and Implement Dewatering and Shoring Plans.** A dewatering plan shall be submitted to the City for approval prior to the issuance of a grading permit. At a minimum, the dewatering plan shall detail dewatering methods, location of dewatering activities, equipment, groundwater sampling, disposal, and discharge point in accordance with the applicable waste discharge requirements of the San Francisco Bay Regional Water Quality Control Board. In the event that shoring methods are implemented for any excavations, shoring plans shall be prepared and submitted to the City for approval prior to issuance of a grading permit. Shoring activities required for the jack and bore operations to connect utility lines under the Union Pacific Railroad tracks shall be prepared in accordance with the Union Pacific Engineering Project Specifications and Guidelines for Temporary Shoring.	Less Than Significant Impact with Mitigation
Impact GEO-4: The proposed project could be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	Potentially Significant Impact	Mitigation Measure GEO-1 and HAZ-1 are required.	Less Than Significant Impact with Mitigation
Impact GEO-6: The proposed project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant Impact	**MM GEO-4: Procedures for Paleontological Resources Discovered During Construction.** If any paleontological resources are encountered during ground-disturbing or subsurface construction activities (e.g., trenching, grading), all construction activities within a 50-foot radius of the identified resource shall cease and the City shall immediately be notified. The applicant shall retain a qualified paleontologist (as approved by the City) to evaluate the find and recommend appropriate treatment of the inadvertently discovered	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		paleontological resource. The appropriate treatment of an inadvertently discovered paleontological resource shall be implemented to ensure that impacts to the resource are avoided.	
Section 3.9 Hazards and Hazardous Materials			
Impact HAZ-1: The proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Potentially Significant Impact	**MM HAZ-1: Remediation of On-Site Contamination.** Prior to the start of construction activities, the Applicant shall remediate existing on-site contamination at the project site to residential standards. Remediation activities shall be completed prior to site grading and construction of buildings. Remediation activities shall include: • The Applicant shall implement the Corrective Action Plan and Remedial Excavation Work Plan as approved by the ACWD. The Corrective Action Plan and Remedial Excavation Work Plan provides detailed plans to remediate contaminated soil, soil gas, groundwater, surface water, and sediments through a combination of removing the soil contamination through excavation, groundwater containment through in-situ remediation, and surface water contamination through dewatering, and if conditions warrant, natural attenuation, to residential standards. • The project site shall be remediated below relevant screening levels under oversight by an appropriate regulatory agency, in this case the ACWD. The oversight agency shall be responsible for overseeing and directing all site investigation and cleanup activities in a manner that ensures that the standards and requirements of the State of California are fully addressed. • Confirmation sampling shall be completed after the conclusion of remediation activities to ensure existing on-site contamination has been remediated to residential standards. • Prior to any demolition of the existing buildings (Pick-n-Pull), an asbestos survey is required by local authorities and/or National Emissions Standards for Hazardous Air	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		Pollutants (NESHAP) guidelines. NESHAP guidelines require the removal of potentially friable Asbestos-Containing Building Material (ACBMs) prior to building demolition or renovation that may disturb the ACBM. The results of the survey shall be submitted to the City for review and approval, prior to issuance of demolition permits.	
Impact HAZ-2: The proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Potentially Significant Impact	Mitigation Measure HYD-1 and HAZ-1 are required.	Less Than Significant Impact with Mitigation
Impact HAZ-4: The proposed project could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.	Potentially Significant Impact	Mitigation Measure HAZ-1 is required.	Less Than Significant Impact with Mitigation
Section 3.10 Hydrology and Water Quality			
Impact HYD-1: The proposed project could violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	Potentially Significant Impact	Mitigation Measure HAZ-1 is required.	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		MM HYD-1: Prepare and Implement a SWPPP. Prior to the issuance of any construction-related permits, the applicant shall prepare and submit a Notice of Intent (NOI) to the SWRCB and prepare a SWPPP in compliance with the NPDES General Construction Permit. The SWPPP shall include a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills); description of the type and location of erosion and sediment control BMPs to be implemented at the project site; and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the project site. A copy of the SWPPP must be current and remain on-site. Water quality BMPs identified in the SWPPP could include but are not limited to the following: a. Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures, such as terraces, dikes, and ditches, shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. b. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion. c. Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of groundwater. d. Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		e. Fuel and vehicle maintenance areas shall be established away from all drainage courses, and these areas shall be designed to control runoff. f. Temporary erosion control measures, such as silt fences, staked straw bales, and temporary revegetation, shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months. g. A spill prevention and countermeasure plan shall be developed to identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site. The plan will also require the proper storage, handling, use, and disposal of petroleum products. Construction activities shall be scheduled to reduce land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.	
Impact HYD-2: The proposed project could substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Potentially Significant Impact	Mitigation Measure GEO-3 is required.	Less Than Significant Impact with Mitigation
Impact HYD-3: The proposed project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) Result in substantial erosion or siltation on- or off-site; ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	Potentially Significant Impact	Mitigation Measure HYD-1 is required.	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) Impede or redirect flood flows.			
Impact HYD-5: The proposed project could conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Potentially Significant Impact	Mitigation Measures HYD-1 and GEO-3 are required.	Less Than Significant Impact with Mitigation
Section 3.13 Noise			
Impact NOI-1: The proposed project could result in a generation of a substantial temporary or permanent increase in ambient noise level in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Potentially Significant Impact	**MM NOI-1: Project-Specific Acoustical Study.** A project-specific acoustical analysis shall be completed at the time detailed development plans are prepared, so that the design of the residential units would be sufficient to adequately reduce interior noise level to 45 dBA Ldn or lower. Building sound insulation requirements shall include the provision of forced-air mechanical ventilation for all new units with direct line of sight to significant transportation noise sources or railroad lines in the project vicinity. Special building sound insulation treatment may be required. These treatments shall include, but are not limited to, sound rated windows and doors, sound rated wall construction, acoustical caulking, protected ventilation openings, etc. The specific determination of what treatments are necessary shall be determined on a unit-by-unit basis. The results of the analysis, including the description of the necessary noise control treatments to achieve the acceptable noise levels inside the living units, shall be submitted to the City along with building plans and shall be reviewed and approved by the Community Development Director prior to the issuance of a building permit. The project-specific acoustical study shall have the following minimum attributes: • Be the responsibility of the development applicant.	Less Than Significant Impact with Mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		• Be prepared by qualified persons experienced in the fields of environmental noise assessment ad architectural acoustics. • Include representative noise level measurements with sufficient sampling periods and locations to adequately describe existing local conditions. • Include estimates for existing and projected (20 years hence) noise levels in terms of (a) Ldn or CNEL and (b) any future noise regulations to be adopted by the City. Those existing and projected noise levels shall be compared to the adopted policies of the Newark General Plan Noise Element. • Include recommended mitigation measures to achieve compliance with the adopted policies and standards of the Newark General Plan Noise Element. Where the noise source in question consists of intermittent single events, the report should address the effects of maximum noise levels in sleeping rooms and potential sleep disturbance issues. • Include estimates for interior and exterior noise exposure after the prescribed mitigation measures have been implemented. • Describe a post-project assessment program that could be used to evaluate the effectiveness of the proposed mitigation measures.	
		MM NOI-2: Project Fixed-Source Noise. The noise from all mechanical equipment associated with the project, including air conditioning units, shall comply with the requirements in Section 17.24.100, Paragraph A.2.a in the Newark Municipal Code. When the actual on-site equipment is selected, a noise analysis shall be prepared by a qualified acoustical engineer and the equipment shall incorporate measures as needed, such as shielding, barriers, and/or attenuators to reduce noise levels that may affect nearby properties, including adjacent homes. Noise levels from the project's fixed-source equipment at any point outside of the property plane will not exceeds 70	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		dB(A) between the hours of 7:00 a.m. and 9:00 p.m. or 60 dB(A) between the hours of 9:00 p.m. and 7:00 a.m.	
		MM NOI-3: Construction Activity. All construction and remediation activity shall follow the City's time and noise reduction measure requirements for construction activity. Development of the project site shall include the following construction-noise mitigation measures, to reduce noise impacts from project construction to a less than significant level. • Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturdays. Construction shall be prohibited on Sundays and holidays. • Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment. • Unnecessary idling of internal combustion engines shall be strictly prohibited. • Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. • Construct temporary noise barriers to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA. • Utilize "quiet" air compressors and other stationary noise sources where technology exists. • Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction related heavy truck traffic in residential areas where feasible. • Control noise from construction workers' radios to a point where they are not audible at existing residences bordering the project site.	

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		• The contractor shall prepare and submit to the City for approval a detailed construction plan identifying the schedule for major noise-generating construction activities. • Designate a “disturbance coordinator” who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include in it the notice sent to neighbors regarding the construction schedule.	
Section 3.17 Transportation			
Impact TRANS-1: The proposed project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision(b).	Potentially Significant Impact	**MM TRANS-1: Implementation of a Transportation Demand Management (TDM) Plan.** The applicant shall prepare and implement a TDM Plan prior to the start of construction activities. Impacts on VMT can be reduced through implementing a robust TDM program to reduce VMT through measures that discourage the use of single-occupant automobiles and encourage the use of other travel modes. The TDM Plan would reduce VMT, as well as automobile trip generation and parking demand. Due to the project location, type of development, availability of transit service, and other area characteristics, limited TDM measures would be effective for the proposed project. The TDM Plan could include the following strategies: • Explore the feasibility and, if feasible, coordinate with other nearby developments and/or AC Transit to provide shuttle or bus service between the project site and a BART station and/or other major destinations. • Offer to provide free parking spaces for at least two car share vehicles (Zipcar, etc.) for residents to use to reduce the need for personal vehicle ownership. • Offer to provide carpool matching to project residents.	Significant and Unavoidable Impact

Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Section 3.18 Tribal Cultural Resources			
Impact TRIB-1: The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to California Native American tribe, and that is: i) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k), or ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Potentially Significant Impact	Mitigation Measures CUL-1 and CUL-2 are required.	Less Than Significant Impact with Mitigation

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ES.5 REVIEW OF THE DRAFT EIR

The Draft EIR will be available for public review for the statutory 45-day review period and will circulate from August 2, 2023, to September 18, 2023. The document will be available for public review at the locations listed below. In addition, the Draft EIR is available electronically on the City of Newark's project webpage: https://www.newark.org/departments/community-development/planning-division/projects-under-environmental-review.

Agencies, organizations, and interested parties will have the opportunity to comment on this Draft EIR during the 45-day public review period. The City of Newark encourages the electronic submission of comments. Please indicate a contact person for your agency or organization and send your comments to: ART.INTERIANO@newark.org. Please include Mowry Village Project in the subject line.

Written comments on this Draft EIR should be addressed to:

City of Newark
Attention: Art Interiano, Deputy Community Development Director
37101 Newark Boulevard,
Newark, CA 94560
Phone: (510) 578-4330

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1.0 INTRODUCTION

This Draft Environmental Impact Report (EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the Mowry Village Project (proposed project). This document is prepared in conformance with CEQA (California Public Resources Code [PRC] Section 21000, et seq.) and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, Section 15000, et seq.). This Draft EIR is intended to serve as an informational document for the public agency decision makers and the public regarding the proposed project.

1.1 THE ENVIRONMENTAL REVIEW PROCESS

CEQA requires public agencies to identify, disclose, and consider the potential environmental impacts of proposed discretionary actions that lead agencies are considering for approval. A project that may have a significant impact on the environment cannot be approved unless the lead agency makes the approval contingent upon the implementation of mitigation measures that would reduce or avoid that impact to the extent feasible. When a project may have significant environmental impacts, the lead agency must prepare an EIR before it considers whether to approve the project.

The City of Newark (City), as the lead agency for the proposed project, has prepared this Draft EIR for public review and comment. As discussed below, the Draft EIR will be available for review and comment by public agencies and the general public for a period of 45 days. Prior to considering the proposed project, the City will prepare a Final EIR that includes the Draft EIR, the comments received on the Draft EIR, written responses to those comments, a list of commenters, and any revisions being made to the Draft EIR in response to the comments. The Final EIR will be considered by the City's discretionary bodies when taking action on the proposed project.

1.1.1 Purpose and Authority

This Draft EIR has been prepared pursuant to the State CEQA Guidelines (14 CCR 15000 et seq.). CEQA requires that State and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects (PRC 21000 et seq.).

According to CEQA Guidelines Section 15064(f)(1), preparation of an EIR is required whenever a project may result in a significant adverse environmental impact. The purpose of this Draft EIR is to analyze the potential environmental impacts of the proposed project, to indicate ways to reduce or avoid potential environmental impacts associated with the proposed project, and to identify alternatives to the project that reduce or avoid significant environmental impacts. CEQA requires that each public agency mitigate or avoid the significant environmental effects of projects it approves or implements whenever feasible.

An EIR is an informational document used in state, regional, and local planning and decision-making processes to meet the requirements of CEQA. The purpose of the EIR is not to recommend approval or denial of a project. However, the City's decision whether to approve or to deny the project must take into consideration the information provided by the EIR. A public agency may approve a project even if it would result in significant and unavoidable environmental impacts, provided the agency adopts a statement of overriding considerations.

The Draft EIR must disclose the following: the proposed project's environmental effects, including those that cannot be avoided; the proposed project's growth inducing effects; the project-related effects found not to be significant; alternatives to the proposed project; and cumulative impacts.

1.1.2 Types of Environmental Impact Report

In accordance with CEQA Guidelines Section 15161, this document is a project EIR that examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from a specific project. In accordance with CEQA Guidelines Section 15161, a project EIR must examine the environmental effects of all phases of the project, including construction and operation. Additional resource-specific studies, such as air quality, biological resources, cultural resources, noise, and traffic, have been prepared for this Draft EIR to provide detailed information about the proposed project's potential impacts on the environment. The mitigation measures identified in this Draft EIR are sufficiently detailed to ensure that they would be effectively carried out to reduce the proposed project's impacts.

1.1.3 Lead Agency Determination

The City is designated as the lead agency for the proposed project. CEQA Guidelines Section 15367 defines the lead agency as, "...the public agency, which has the principal responsibility for carrying out or approving a project." Other public agencies may use this document in their decision making or permit processes (e.g., Department of Water Resources, Bay Area Air Quality Management District [BAAQMD], California Department of Transportation [Caltrans], etc.).

This Draft EIR was prepared by the City with technical assistance provided by Stantec Consulting Services Inc. (Stantec), an environmental consultant. Prior to public review, this Draft EIR was extensively reviewed and evaluated by the City staff and, as such, the Draft EIR reflects the independent judgment and analysis of the City, as required by CEQA. Lists of organizations and persons consulted and the report preparation personnel are provided in Section 7.0, List of Preparers, of this Draft EIR.

1.2 SCOPE OF DRAFT EIR

The City determined that an EIR was required for the proposed project and this Draft EIR addresses the potential environmental effects of the proposed project. The City distributed a Notice of Preparation (NOP) of a Draft EIR for the proposed project beginning on November 30, 2021. The NOP was distributed for a 30-day comment period that ended on January 3, 2022. The comments on the NOP were considered in the preparation of this Draft EIR. The scope of this Draft EIR includes the potential impacts identified in the NOP and issues raised by agencies and the public in response to the NOP.

The City has determined that the proposed project has the potential to result in significant environmental impacts on the following resources, which are addressed in detail in this Draft EIR.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Table 1.2-1 lists the comment letters received during the project scoping period.

Table 1.2-1: Comments Received on the NOP

Affiliation	Signatory	Date	Comment Description	EIR Section Where Comment is Addressed
Private Parties – Written				
Interested Individual	Kelly	December 15, and 16, 2021	Concerns about sea level rise	• EIR Section 3.10: Hydrology and Water Quality
Interested Individual	Pat Callaway	December 18, 2021	Concerns about additional housing increasing crime, traffic congestion, and noise as well as burden on public service resources; concerns about sea level rise and water shortages; concern with being located in an earthquake liquefaction zone and shallow groundwater	• EIR Section 3.7: Geology and Soils • EIR Section 3.9: Hazards and Hazardous Materials • EIR Section 3.10: Hydrology and Water Quality • EIR Section 3.13: Noise • EIR Section 3.15: Public Services

Affiliation	Signatory	Date	Comment Description	EIR Section Where Comment is Addressed
				• EIR Section 3.17: Transportation • EIR Section 3.19: Utilities and Service Systems
Interested Individual	Victoria Richard	December 3, 2021	Requested more designated park space (park for elementary age kids and enclosed space for dogs)	• EIR Section 3.16: Recreation
Interested Individual	Robert Lucey	December 7, 2021	Concerns with significant increase in vehicular traffic and design of proposed travel lanes along Mowry Avenue. Requests provision of four traffic lanes (two in each direction) from Cherry Street to the new subdivision.	• EIR Section 3.17: Transportation
Cargill, Incorporated	Ric Notini	December 29, 2021	Concerns with impacts related to air quality, transportation, and hydrology and water quality effects that may occur to the adjacent salt ponds from development of the project	• EIR Section 3.3: Air Quality • EIR Section 3.10: Hydrology and Water Quality • EIR Section 3.17: Transportation
Several Organizations – Joint Letter of Concern (Greenbelt Alliance, CCCR, Sierra Club, Center for Biological Diversity, San Francisco Baykeeper, Alameda Creek Alliance, Santa Clara Valley Aubudon Society, Ohlone Aubudon Society, Mission Peak Conservancy)	Zoe Siegel, Carin High, Martha Kreeger, Lisa Belenky, Eric Buescher, Jeff Miller, Shani Kleinhaus, William Hoppes, William Yragui	December 13, 2021	Concerns with sea level rise and site being located within a significant wildlife habitat	• EIR Section 3.4: biological Resources • EIR Section 3.10: Hydrology and Water Quality
Alameda County Transportation Commission	Cathleen Sullivan	January 3, 2022	Outlined requirements for conducting transportation impact analysis and modeling for the project; outlined requirements for impacts and mitigation measures that should be discussed in the DEIR	• EIR Section 3.17: Transportation

Affiliation	Signatory	Date	Comment Description	EIR Section Where Comment is Addressed
Native American Heritage Commission	Katy Sanchez	December 6, 2021	Discussed compliance with AB 52 and SB 18 and recommendations for Cultural Resources Assessments	• EIR Section 3.5: Cultural Resources • EIR Section 3.18: Tribal Cultural Resources
Alameda County Water District	Laura J. Hidas	January 3, 2022	Outlined that the WSA prepared in 2008 for the Specific Plan is still applicable unless Areas 3 and 4 demands have increased in which case would require ACWD review; outlined groundwater resource impacts that is required to be addressed in the EIR; outlined utilities and service system requirements for the project	• EIR Section 3.10: Hydrology and Water Quality • EIR Section 3.19: Utilities and Service Systems
Citizens Committee to Complete the Refuge	Carin High	January 3, 2022	Concerns with sea level rise; concerns with effect of raising ground elevation of the project site resulting in displacement of flood waters to adjacent properties and flood control capabilities of Line D; concerns with the potential presence of wetlands adjacent to the project site and associated impacts and proximity of the site to significant wildlife habitat	• EIR Section 3.4: Biological Resources • EIR Section 3.10: Hydrology and Water Quality
Union Sanitary	Rollie Arbolante	January 5, 2022	Outlines requirement of project to enter into agreement with Union Sanitary that the developer of the project would be responsible for replacement of the Cherry Street pump Station as the pump station does not have capacity to serve the development	• EIR Section 3.19: Utilities and Service Systems
Private Parties – Oral[1]				
Interested Individual	Kelly Abreo	December 14, 2021	Questioning merits of the project, made references to preference of vertical development. Concerns with pedestrian safety, community continuity and land use planning, sea level rise, and flooding.	• EIR Section 3.1: Aesthetics • EIR Section 3.10: Hydrology and Water Quality • EIR Section 3.11: Land Use and Planning

Affiliation	Signatory	Date	Comment Description	EIR Section Where Comment is Addressed
				• EIR Section 3.17: Transportation
Several Organizations	Josh Senefeld	December 14, 2021	Concerns with sea level rise and sea level rise revealing contamination that will seep into waterways; concern with preservation of wildlife habitats	• EIR Section 3.4: Biological Resources • EIR Section 3.9: Hazards and Hazardous Materials • EIR Section 3.10: Hydrology and Water Quality
Sierra Club	William Yragui	December 14, 2021	Concerns about sea level rise, liquefaction, and believes building housing on built up dirt mound is irresponsible. Would like the habitat to be preserved.	• EIR Section 3.4: Biological Resources • EIR Section 3.7: Geology and Soils • EIR Section 3.10: Hydrology and Water Quality
City of Newark	John Becker	December 14, 2021	Concerns about only one access point in proposed development and emergency access to the site, would like to study access to the site. Concerns with sea level rise and noise as development would be near railroad and railroad crossing	• EIR Section 3.9: Hazards and Hazardous Materials • EIR Section 3.10: Hydrology and Water Quality • EIR Section 3.13: Noise • EIR Section 3.17: Transportation
City of Newark	William Fitts	December 14, 2021	Concerns about safety aspect of transportation and would like to add second route out of site for public safety	• EIR Section 3.9: Hazards and Hazardous Materials • EIR Section 3.17: Transportation
City of Newark	Debbie Otterstetter	December 14, 2021	Concerns with soil contamination and hazardous impacts	• EIR Section 3.9: Hazards and Hazardous Materials

Affiliation	Signatory	Date	Comment Description	EIR Section Where Comment is Addressed
City of Newark	Jeff Aguilar	December 14, 2021	Would like safety crossing at railroad evaluated, would like a crosswalk included	• EIR Section 3.9: Hazards and Hazardous Materials • EIR Section 3.17: Transportation

[1] Oral comments taken at the public Scoping Meeting held on December 14, 2021.

1.2.1 Location and Overview

The project site is located within the City of Newark in southwestern Alameda County, California, southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks, west of Cherry Street. The 29 acre project site consists of three parcels identified as Assessor's Parcel Numbers (APNs) 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00. The project site is within the Newark Areas 3 and 4 Specific Plan and the proposed project lies within Sub Area D of Area 4.

Mowry Project Owner, LLC (Applicant) is proposing to demolish the existing on-site structures, remediate the site, and construct 203 single-family detached homes. Additional improvements would include on-street parking, drive aisles, underground utilities, storm drainage systems with Low Impact Development (LID) techniques incorporated and water quality treatment areas, lighting, sidewalks, and landscaping. The proposed project would also include off-site improvements and widening of Mowry Avenue. Section 2.0, Project Description, includes more detailed information about the proposed project.

1.3 ORGANIZATION OF THE DRAFT EIR

This Draft EIR is arranged into the following sections, which contain the contents of an EIR as required by CEQA Guidelines Section 15120 through 15132.

Section ES: Executive Summary. The Executive Summary provides a summary of the proposed project and the project alternatives, including a summary of project impacts, recommended mitigation measures, and the level of significance after mitigation for each environmental issue.

Section 1.0: Introduction. The Introduction provides an overview of the proposed project and the CEQA process and describes the purpose, scope, and components of this Draft EIR.

Section 2.0: Project Description. The Project Description provides a detailed description of the proposed project, including the location and project characteristics. The intended uses of this Draft EIR, project background, project objectives, and required project approvals are also addressed.

Section 3.0: Environmental Impact Analysis. The Environmental Impact Analysis analyzes the environmental effects of the proposed project. Impacts are organized into major environmental topic areas. Each topic area includes a description of the regulatory setting, environmental setting, significance criteria, project impacts, mitigation measures, and level of significance after mitigation. The specific environmental topic areas that are addressed in Section 3.0 include the following:

- Section 3.1: Aesthetics
- Section 3.2: Agricultural and Forestry Resources
- Section 3.3: Air Quality
- Section 3.4: Biological Resources
- Section 3.5: Cultural Resources
- Section 3.6: Energy
- Section 3.7: Geology and Soils
- Section 3.8: Greenhouse Gas Emissions
- Section 3.9: Hazards and Hazardous Materials
- Section 3.10: Hydrology and Water Quality
- Section 3.11: Land Use and Planning
- Section 3.12: Mineral Resources
- Section 3.13: Noise
- Section 3.14: Population and Housing
- Section 3.15: Public Services
- Section 3.16: Recreation
- Section 3.17: Transportation
- Section 3.18: Tribal Cultural Resources
- Section 3.19: Utilities and Service Systems
- Section 3.20: Wildfire

Section 4.0: Cumulative Effects. Section 15130 of the CEQA Guidelines requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. A cumulative impact consists of an impact created because of the combination of the project evaluated in the EIR together with other reasonably foreseeable projects causing related impact.

Section 5.0: Alternatives to the Proposed Project. Describes and compares the proposed project alternatives to the proposed project.

Section 6.0: Other CEQA Considerations. The Other CEQA Considerations section provides a summary of significant environmental effects, including unavoidable, irreversible, and growth-inducing impacts.

Section 7.0: List of Preparers and Organizations Consulted. The List of Preparers and Organizations Consulted section provides a list of the organizations and persons consulted, and the various individuals who contributed to the preparation of this Draft EIR. This section also includes a list of the lead agency personnel and technical consultants used to prepare this Draft EIR.

Section 8.0: References. This section provides a list of the technical studies and other documents used to prepare this Draft EIR.

Appendices. The appendices contain the NOP (including comments) and technical studies prepared to support the analyses and conclusions in this Draft EIR.

1.4 REVIEW OF THE DRAFT EIR

CEQA does not require formal hearings at any stage of the environmental review process (CEQA Guidelines Section 15202[a]). However, it does encourage, “wide public involvement, formal and informal, in order to receive and evaluate public reactions to environmental issues…” (CEQA Guidelines Section 15201). The City distributed an NOP of a Draft EIR for the project beginning on November 30, 2021. The NOP was distributed for a 30-day comment period that ended on January 3, 2022. The comments on the NOP were considered in the preparation of this Draft EIR. Appendix A contains the written comments received on the NOP.

The City of Newark has filed a Notice of Completion (NOC) with Governor’s Office of Planning and Research (OPR) to begin the public review period (PRC, Section 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as to all parties requesting a copy of the Draft EIR in accordance with PRC Section 21092(b)(3). During the public review period, the Draft EIR, including the technical appendices, are available for review online at: https://www.newark.org/departments/community-development/planning-division/projects-under-environmental-review.

Agencies, organizations, and interested parties have the opportunity to comment on this Draft EIR during the 45-day public review period, which will begin on August 2, 2023, and end on September 18, 2023. The City of Newark encourages the electronic submission of comments.

Send your comments by email to: ART.INTERIANO@newark.org. Please include Mowry Village Project Draft EIR in the subject line.

Written comments on this Draft EIR should be addressed to:

City of Newark
Attention: Art Interiano, Deputy Community Development Director
37101 Newark Boulevard
Newark, CA 94560
Phone: (510) 578-4330

Upon completion of the public review period, written responses to all environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to any public hearing on the proposed project at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision-makers for the proposed project.

1.4.1 Effectively Commenting on an EIR

Readers are invited to review and comment on the adequacy and completeness of this Draft EIR in describing the potential impacts of the proposed project, the level of severity of each impact, the mitigation measures being proposed to reduce or avoid those impacts, and the project alternatives being considered. The most effective comments are those that focus on the adequacy and completeness of the environmental analysis and that are supported by factual evidence. Comments that focus on whether the proposed project should be approved or denied are not comments on the adequacy of this Draft EIR.

1.4.2 Final EIR

After the end of the review period, the City will review the comments received, prepare written responses to those comments, make any related revisions to the Draft EIR, and publish the Final EIR, which will include the Draft EIR, comments on the Draft EIR, responses to comments and any revisions to the Draft EIR.

The Final EIR will be considered by the City's Planning Commission and City Council when taking action on the proposed project. If the proposed project is approved, CEQA requires the City to adopt findings describing how each of the significant impacts identified in the EIR is being mitigated. The findings are required to describe the reasons why significant unavoidable impacts, if any, cannot be mitigated; in this case, all significant effects of the project would be mitigated to less than significant levels by the adoption of feasible mitigation measures except for impacts to transportation. The findings will also describe the project alternatives analyzed in the EIR and explain whether or not any alternative or portion of an alternative has been adopted. Because the proposed project has significant and unavoidable impacts, the City would be required to adopt a statement of overriding considerations describing the benefits of the proposed project that outweigh its environmental impacts. Finally, the City would adopt a mitigation monitoring and reporting plan that describes how it will ensure the mitigation measures being required of the proposed project would be carried out.

2.0 PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

The Applicant is proposing development of the Mowry Village Project in the City of Newark, California. The project site consists of a 29 acre site within the Areas 3 and 4 Specific Plan that is currently developed as an auto part and scrap metal salvage lot, known as "Pick-n-Pull." The Applicant is proposing to demolish the existing on-site structures, remediate the site, and construct 203 single-family detached homes. Additional improvements would include on-street parking, drive aisles, underground utilities, LID drainage and water quality treatment areas, lighting, sidewalks, and landscaping. The proposed project would also include off-site improvements and widening of Mowry Avenue.

2.1.1 Project Site

The project site is located within the City of Newark in southwestern Alameda County, California, southwest of the intersection of Mowry Avenue and the UPRR tracks, west of Cherry Street (Figure 2-1). The project site consists of three parcels identified as APNs 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00 (Figure 2-2). The proposed project would include off-site utility and circulation improvements along Mowry Avenue.

2.1.2 General Plan and Zoning

The project site is designated Low Density Residential by the City of Newark 2013 General Plan and zoned Park. In accordance with the General Plan, the allowable density for Low Density Residential is less than 8.7 dwelling units per acre. The proposed project would be consistent with this requirement and construct 203 single-family detached units, resulting in a density of 7 units per acre. The City's General Plan defines this designation as:

- **Low Density Residential (Less than 8.7 units per net acre).** This designation is intended for single-family residential developments on lots larger than 5,000 square feet. It corresponds to most of Newark's residential neighborhoods. Multiple zoning districts apply within Low Density Residential areas to distinguish areas with different minimum lot sizes. Other compatible uses, such as schools, childcare centers, parks, and religious facilities may also locate in areas with this designation, subject to appropriate permitting requirements (City of Newark 2013a).

The project is proposing to rezone the project site from Park to RS-6000: Residential Single-Family with Planned Unit Development Overlay (PD-RS-6000). The rezoning request is to better align the zoning with the proposed use of the project and the existing General Plan designation. RS-6000 refers to residential single-family zoning district with a minimum lot size of 6,000 square feet. The residential single-family district implements the low density residential General Plan land use designation.

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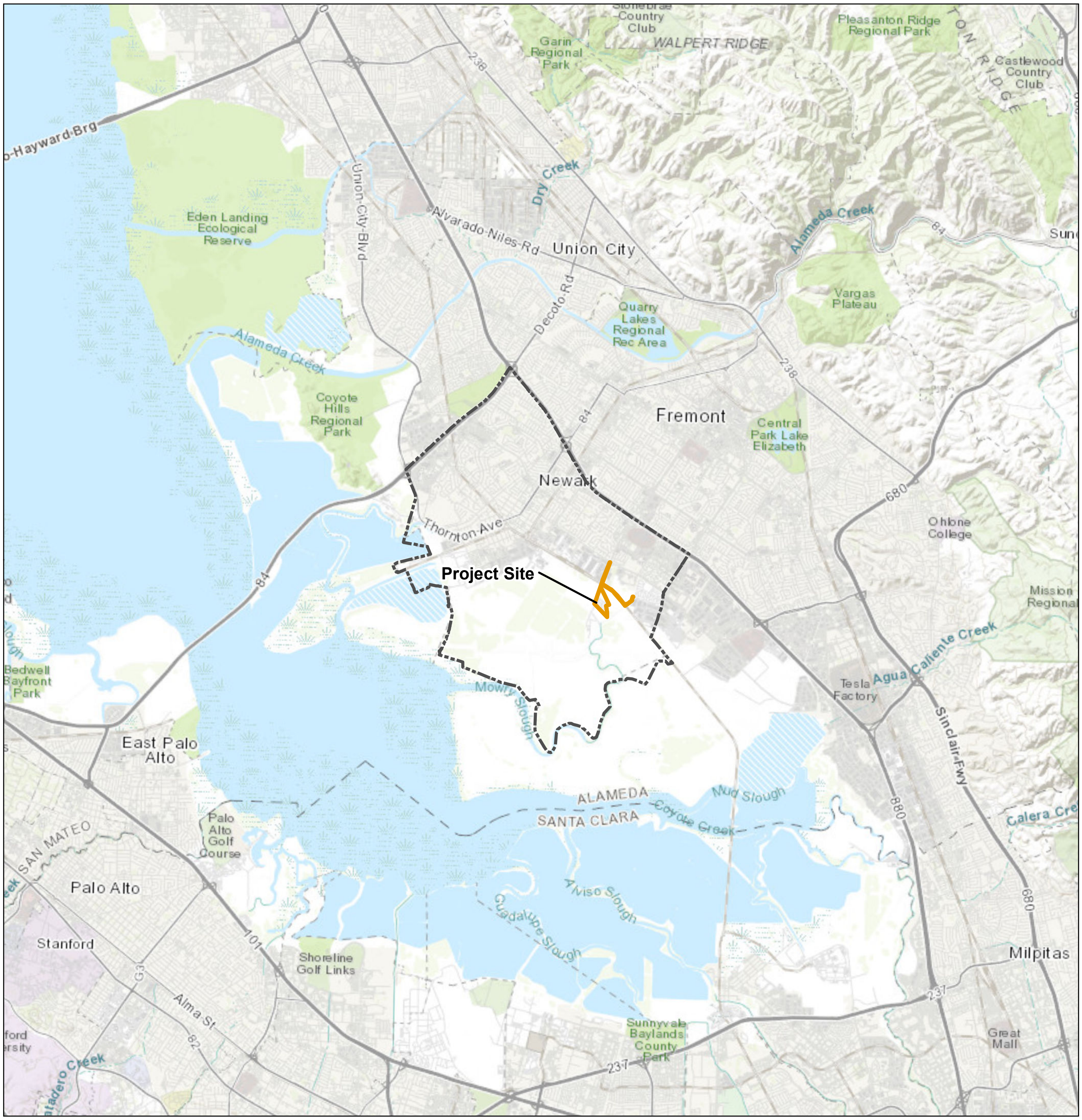

Legend

- Project Site (includes boundaries of proposed roadway and utility improvements)
- City Boundary

0 1 2 Miles
(At original document size of 8.5x11)
1:150,000

N

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
1

Title
Regional Location

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

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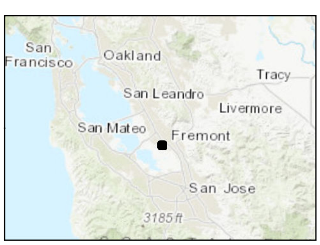

Legend

Project Site (includes boundaries of proposed roadway and utility improvements)

Railroad

0 300 600
Feet
(At original document size of 8.5x11)
1:10,000

N

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-2

Title
Project Site

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

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Due to the minimum lot size and setbacks prescribed in the RS-6000 zoning district, a Planned Unit Development is being proposed to allow a deviation from the standards listed in the RS-6000 development standards in the Newark Municipal Code. Figure 2-3 shows the existing zoning designation for the project site and surrounding areas and Figure 2-4 shows the proposed zoning designation.

Additionally, the project site is within the Areas 3 and 4 Specific Plan which is comprised of Area 3, encompassing 296 acres, and Area 4, encompassing 560 acres. Areas 3 and 4 are further divided into Sub Areas A through F. The proposed project lies within Sub Area D of Area 4 and is designated for a golf course or other recreational uses. The proposed project is not consistent with the land use identified by the Areas 3 and 4 Specific Plan. As such, the proposed project also requires a Specific Plan Amendment to change the use to residential single-family. The standards for single-family developments are outlined in the Specific Plan. Additionally, the Areas 3 and 4 Specific Plan allocated 1,260 residential units to be constructed within the Specific Plan area and designated specific areas within the Specific Plan area for the development of these allocated residential units. Though the Specific Plan's allocated 1,260 units have not yet all been developed, the Development Agreement for the Sanctuary West Project, which is located within the Specific Plan area east of the project site, were assigned the remaining allocated units within the Specific Plan area. Therefore, the development of the proposed project's 203 residential units would not be within the Specific Plan allocated residential units of 1,260 units and would be above the allowed number of units for the Specific Plan area. Therefore, approval of the proposed Specific Plan Amendment and rezoning would allow for the development of more units within the Specific Plan area above the planned number of units.

2.1.3 Existing Site Conditions

The project site is located in an area with agricultural and industrial uses in the southwestern portion of the City. The majority of the project site is developed as an auto part and scrap metal salvage lot, known as "Pick-n-Pull," that includes a 13,000 square foot warehouse, 1,500 square foot sales office, 3,000 square foot workshop, and a large parking area for storing vehicles that consists of crushed rock and asphalt. The northern parcel of the project site is currently undeveloped land.

The undeveloped northern parcel of the project site is roughly triangular in shape and occupies an area of approximately 10 acres. Site topography is generally flat although fill has been placed in the central area of the undeveloped parcel. The surface elevation is about 10 feet above mean sea level (AMSL) around the perimeter of the parcel with a mound up to about 15 feet AMSL in the center. The surface elevation of the middle and southern parcels of the project site is about 10 feet AMSL along the northern property line where it abuts the undeveloped northern parcel as well as along the Mowry Avenue frontage and in the southwestern area of the salvage yard where the warehouse building is located. The topography of the parcels throughout the main yard area varies from about 10 feet AMSL at the west to 5 feet AMSL at the far east end of the yard. There is a pair of constructed water quality basins along the eastern boundary and at the southern tip of the project site.

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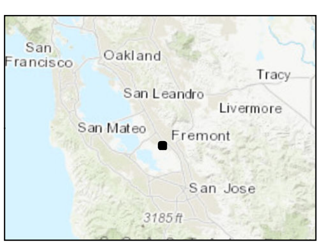

Legend

Project Site (includes boundaries of proposed roadway and utility improvements)

Railroad

City of Newark Zoning Districts

- Business and Technology Park
- Limited Industrial
- Park
- Public Facilities
- Residential Single Family-6000
- Resource Production

0 250 500 Feet
(At original document size of 8.5x11)
1:8,163

N

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-3

Title
Existing General Plan Land Use Designations and Zoning Districts

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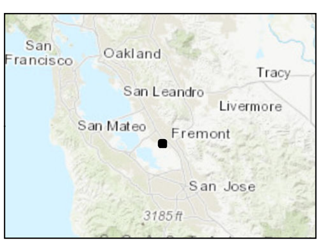

Legend

Project Site (includes boundaries of proposed roadway and utility improvements)

Railroad

City of Newark Zoning Districts

- Business and Technology Park
- Limited Industrial
- Park
- Public Facilities
- Residential Single Family-6000
- Resource Production

0 250 500 Feet
(At original document size of 8.5x11)
1:8,163

N

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-4

Title
Proposed Zoning

V:\1857\Active\185705508\mxd\fig_2-4_proposed_zoning.mxd Revised: 2023-04-19 By: KAEJOHNSON

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2.1.4 Existing Operations

A portion of the project site is currently developed and occupied by an auto parts and scrap metal salvage lot known as “Pick-n-Pull.” The Pick-n-Pull hours of operation are from 9:00 AM to 5:00 PM on weekdays and 8:00 AM to 5:00 PM on weekends.

2.1.5 Surrounding Land Uses

The project site is generally bounded to the northeast and east by the City’s open space parcel, formerly used for agriculture. Mowry Avenue and Alameda County Flood Control and Water Conservation District’s (ACFC&WCD) Line B canal lies to the west. The property to the south and southwest, known as the Harwinder Singh site, was previously developed with one warehouse type structure near Mowry Avenue, and the site was used as an auto wrecking yard. The building has since been demolished, and there are presently no buildings on the Harwinder Singh site. The UPRR tracks are approximately 300 to 1,000 feet northwest of the project site. Additionally, Cargill owns and operates salt production ponds located west of the project site, and Mowry Slough begins approximately 1,500 feet southwest of the site.

2.1.6 Residential Development

The project site plan is shown in Figure 2-5. The proposed project includes construction of 203 single-family detached homes on the 29 acre project site, resulting in a density of 7 units per acre. The proposed single-family homes would be located on three typical lot sizes that are 3,375 square feet, 3,600 square feet, or 4,000 square feet. Each home would be two stories tall and feature various floor plans with four to five bedrooms, a two-car garage, and a rear yard. The various lot sizes would feature New Traditional Mediterranean, Contemporary Spanish, or Farmhouse architectural styles. The New Traditional Mediterranean would provide a combination of horizontal stone masonry and sanded stucco, while the Contemporary Spanish would provide a red tile roof covering with prominent arches above the doors or windows. The Farmhouse architectural style would provide gable roofs, exposed wood, and covered porches (Figure 2-6).

According to the U.S. Census Bureau, the City’s average household size between the years 2017 and 2021 was 3.32 people per household (U.S. Census 2022). The proposed project would construct 203 single-family homes, which would generate up to 674 residents if fully occupied.

2.1.7 Residential Open Space

The proposed project would provide 212,922 square feet (4.89 acres) of on-site open space which would include both common and private open space areas. The proposed project would provide 40,802 square feet (0.94 acres) of common open space consisting of landscaping and bioretention areas. The on-site open space area that would provide recreational opportunities would be located in the center of the project site and would include amenities such as a lawn, pedestrian path, and picnic tables. The proposed project would also provide a rear yard for each home, resulting in a total of 172,120 square feet (3.95 acres) of private open space.

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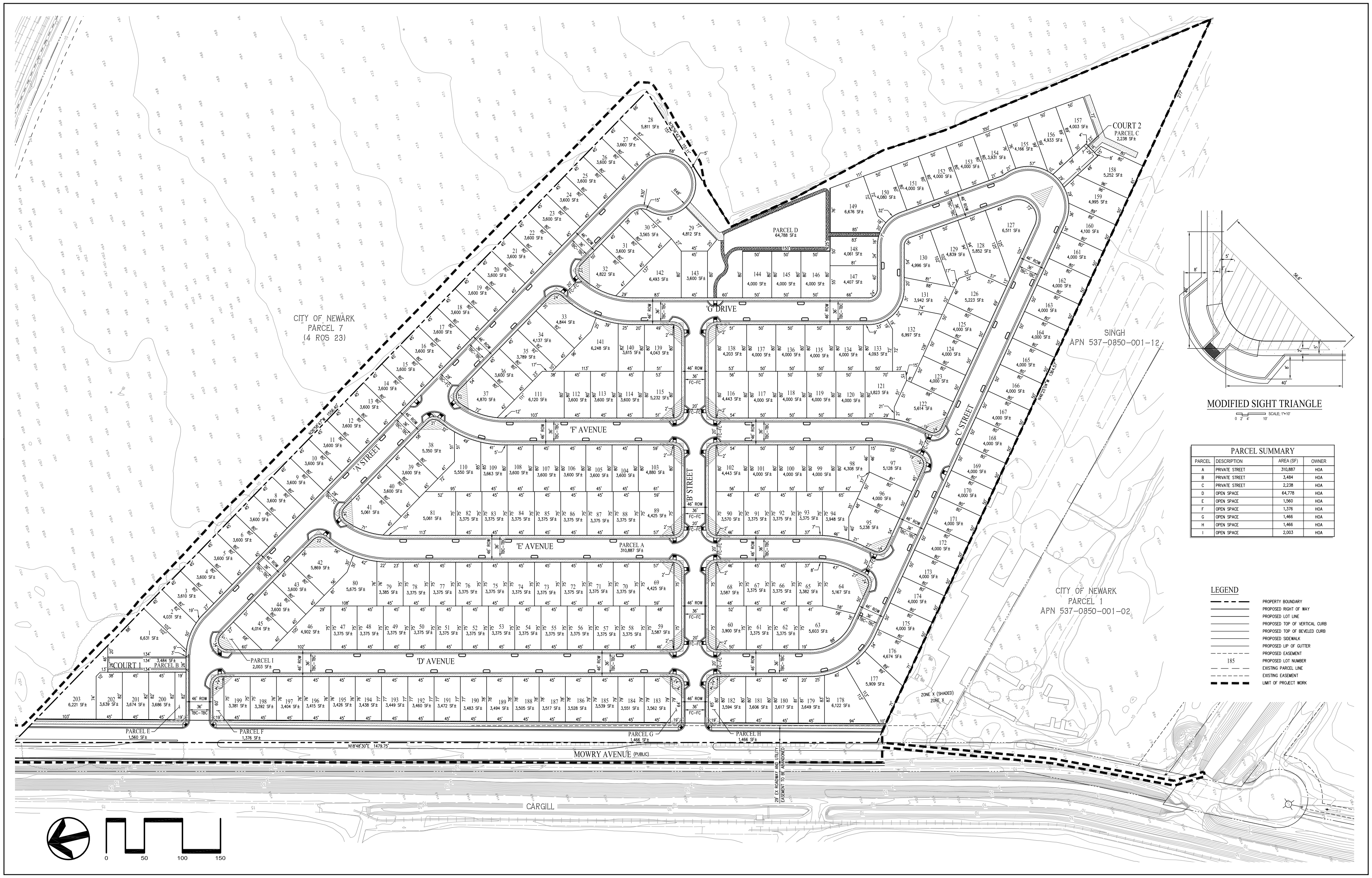

PARCEL SUMMARY

PARCEL	DESCRIPTION	AREA (SF)	OWNER
A	PRIVATE STREET	310,887	HOA
B	PRIVATE STREET	3,484	HOA
C	PRIVATE STREET	2,238	HOA
D	OPEN SPACE	64,778	HOA
E	OPEN SPACE	1,560	HOA
F	OPEN SPACE	1,376	HOA
G	OPEN SPACE	1,466	HOA
H	OPEN SPACE	1,466	HOA
I	OPEN SPACE	2,003	HOA

Source: CBG, September 2021

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-5

Title
Project Site Plan

Stantec

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NEW TRADITIONAL MEDITERRANEAN CONTEMPORARY SPANISH COTTAGE

AGRARIAN / FARMHOUSE COUNTRY EUROPEAN CONTEMPORARY SPANISH

NEW TRADITIONAL COLONIAL AGRARIAN / FARMHOUSE COTTAGE

Source: CBG, September 2021

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-6

Title
Proposed Elevations

Stantec

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2.1.8 Circulation

Mowry Avenue Roadway Improvements

Mowry Avenue along the project frontage to the UPRR rail crossing is proposed to be widened to include a single travel lane, a center median with left turn pocket, bike lanes with buffers, landscaped parkways, stormwater treatment, and sidewalk along the project frontage (Figure 2-7). The proposed project would widen the right-of-way (ROW) of Mowry Avenue, south of the UPRR tracks, from 49.5 feet to 96 to 104 to accommodate one 12 foot vehicle lane in the southbound direction, one 12 foot vehicle lane in the northbound direction, a 12 foot wide median and left turn pocket to access the project site. A 6 foot bicycle lane with 3 foot buffer would also be provided in each direction of travel. A 5 foot parkway strip, 5 foot sidewalk, and 3 foot landscape strip on the northbound side would be provided with a 4 foot landscape strip and a minimum 10 foot setback from face of curb to the top of bank of the ACFC&WCD's Line B channel on the southbound side.

The proposed sidewalk along the frontage of Mowry Avenue would conform to the existing UPRR crossing to the north. The proposed project would provide pedestrian crossing improvements at the UPRR crossing, which would be equipped with crossing arms, upgraded roadway panels, signage, striping, and pedestrian path and bicycle crossing improvements to encourage safer access to the proposed project, surrounding development, and recreation facilities. The UPRR crossing would also include any required gate signals, visual, and/or audio equipment, as required by UPRR or the Newark Municipal Code.

Additionally, existing Mowry Avenue north of the UPRR tracks and extending to Cherry Street would be re-striped and a mid-block crossing to the Silliman Center would be constructed. Re-striping the road would eliminate one travel lane in the southbound direction to accommodate a single 14 foot vehicle travel lane, a 3 foot bike buffer, a 6 foot bike lane and a 10 foot parking lane matching the northbound side of Mowry Avenue. These striping improvements would accommodate the proposed mid-block crossing proposed at the Silliman Center.

The mid-block crossing would be located approximately mid-point between the UPRR tracks and Cherry Street, along the Silliman Center frontage. Improvements would include construction of high visibility crosswalk markings, Rectangular Rapid Flashing Beacons (RRFBs), advance pedestrian crossing yield markings, advance pedestrian crossing signage, median refuge, curb extensions, and Americans with Disability Act (ADA) compliant curb ramps.

Vehicular Access/Street Design

The residential development would be accessible directly from Mowry Avenue and would be oriented along several internal streets serving the neighborhood. The proposed private streets include three east/west oriented roadways referred as, "A" Street, "B" Street, and "C" Street, with "A" Street and "B" Street functioning as the main arterials through the neighborhood. The proposed private streets also include four north/south oriented roadways referred as, "D" Avenue, "E" Avenue, "F" Avenue, and "G" Drive, all of which intersect with the east/west oriented roadways within the residential development. The proposed private streets would total approximately 7.3 acres of the project site. Each street would include two travel lanes, parking and sidewalks on both sides, and trees along the frontages. Two courts are proposed within the project site, branching off the private streets. The streets are proposed to be privately owned and maintained by a Homeowner's Association (HOA). Bulb-outs are proposed at street intersections to promote traffic calming and provide shorter street crossings for pedestrians.

Parking

Parking supply requirements are based on the Newark Municipal Code, Section 17.23.040 - Required Number of On-Site Parking Spaces. Based on the City's requirements of two spaces per unit for single-family homes (detached), a total of 508 parking spaces would be required. The proposed project would provide 962 parking spaces, including 406 off-street covered spaces, 406 off-street driveway spaces, and 150 on-street guest spaces. With a planned supply of 962 spaces, the proposed parking supply would exceed the City's requirements with a surplus of 454 spaces.

Pedestrian Circulation

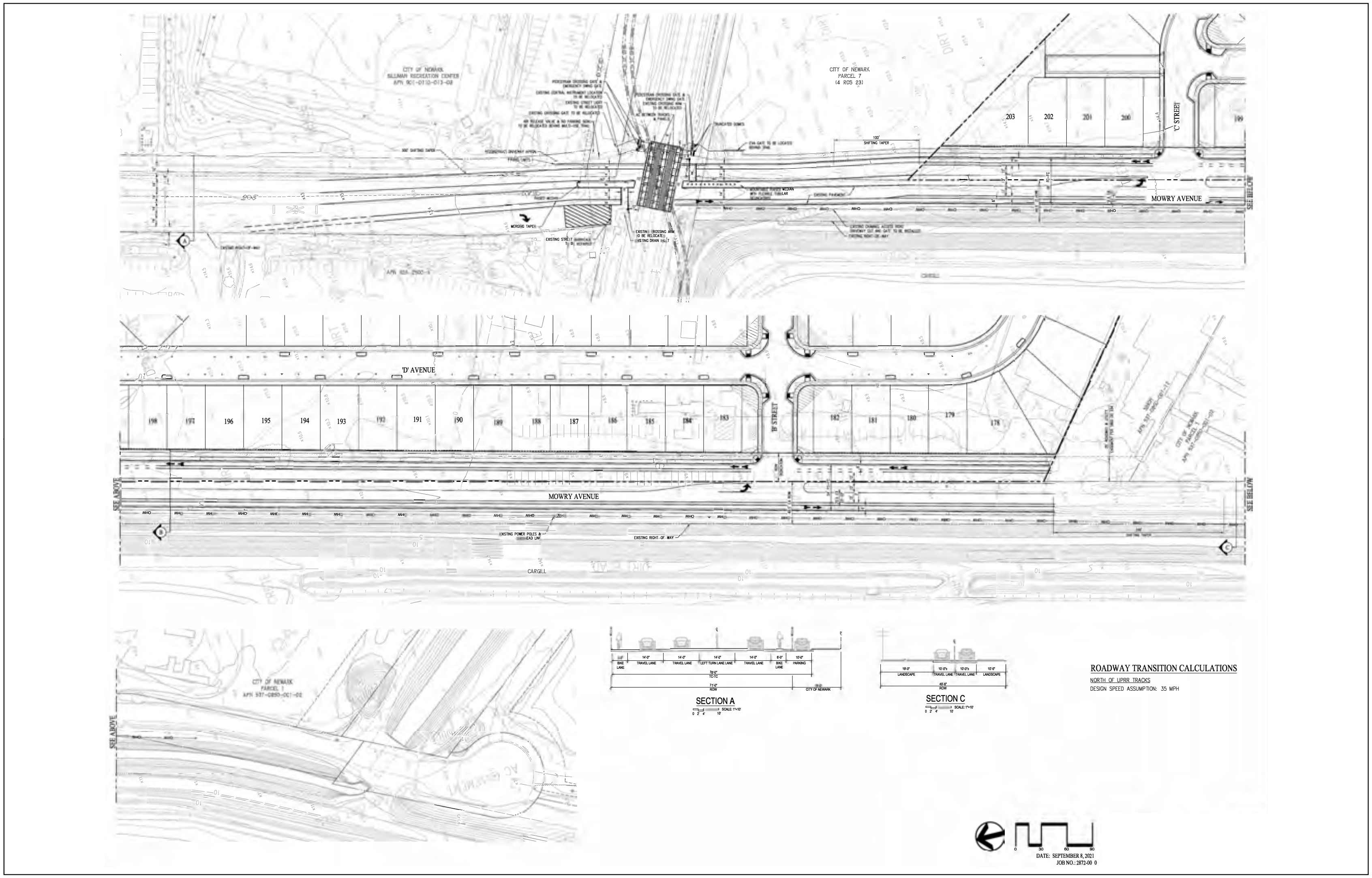
Sidewalks would be provided along both sides of each private street and would connect to sidewalks along Mowry Avenue to be developed as part of the proposed project. Construction of the proposed project would include a sidewalk along the project frontage on Mowry Avenue. The sidewalk would connect to the proposed crossing provided at the UPRR tracks.

Fire Access

The minimum width available for driving or turning movements throughout the project site would be 20 feet. The neighborhood streets would be at least 36 feet wide. The project roadway and neighborhood design would provide adequate turning radii and drive areas for fire trucks and other emergency vehicles.

2.1.9 Landscaping

Although there is currently some landscaping on the project site, including existing trees and vegetation, the existing landscaping would be removed during the demolition phase and redeveloped as part of the proposed project. There are currently 13 trees within the project site proposed for removal. The project is proposing 213 trees to be planted to replace the existing removed trees and provide landscaping throughout the site. Any tree that would be removed would be required to comply with Chapter 8.16 - Preservation of Trees on Private Property, of the Newark Municipal Code. Landscaping for the proposed project would be placed along the project frontage on Mowry Avenue and along the new private streets created throughout the development (Figure 2-8). Landscaping for the proposed project would consist of trees, shrubs, and groundcover plants. Mailbox kiosks would be located within the landscaped areas and seating would be installed within these areas. These landscaping features would provide pedestrian-friendly frontages throughout the project site. All proposed landscaping would consist of low water use plants and would meet the requirement of the Model Water Efficient Landscape Ordinance and city, state, and water agency water conservation regulations.



Source: CBG, September 2021

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-7

Title
Mowry Avenue Roadway Improvements

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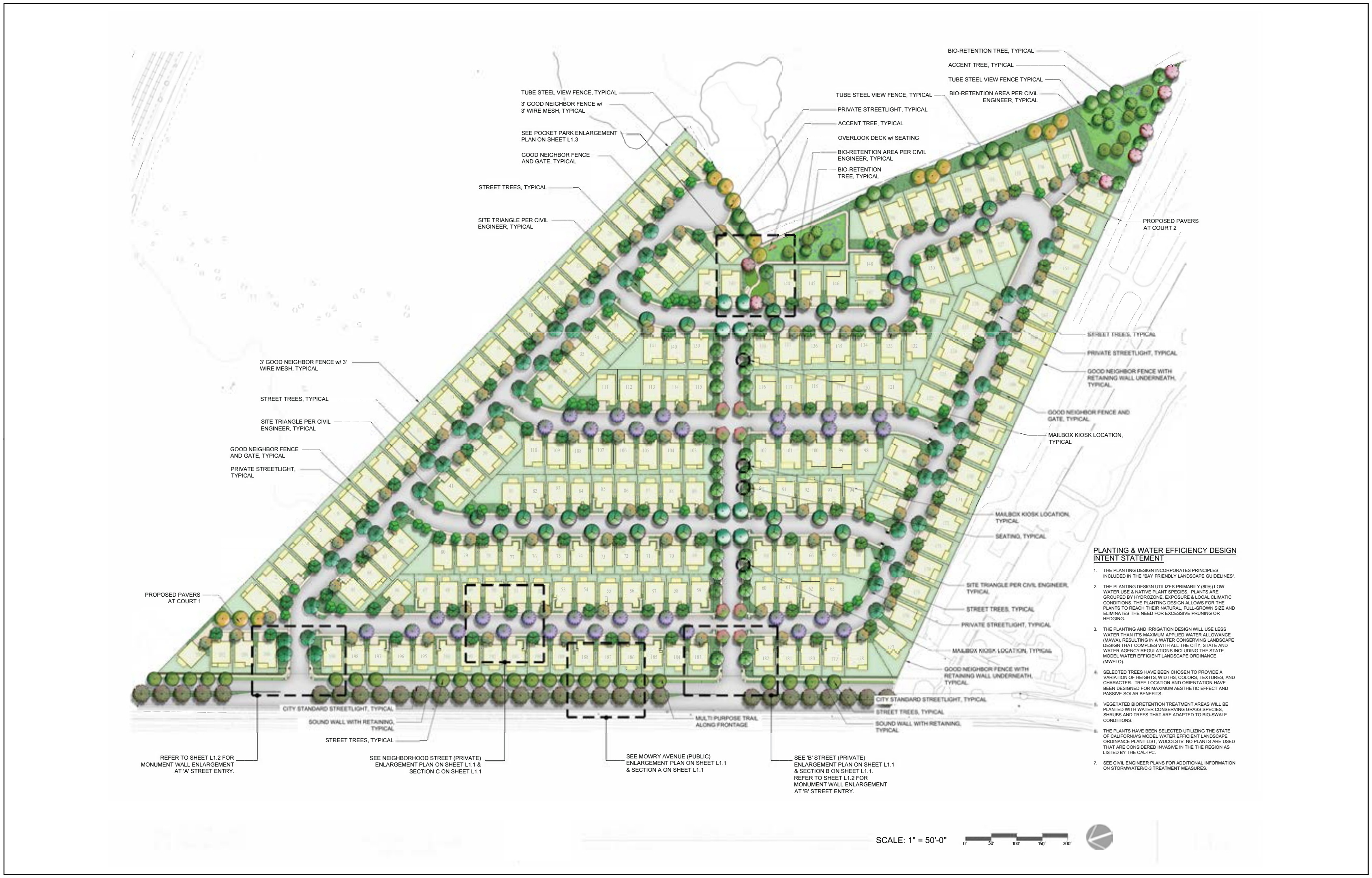

Source: Van Dorn Abed Landscape Architects, Inc., September 2021

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-8

Title
Landscape Plan

Stantec

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2.1.10 Lighting

The proposed project would provide exterior lighting throughout the site to illuminate the main entrances of the single-family homes, private streets, sidewalks, common space areas, and driveways for security and safety purposes. Additional lighting would be installed along the project frontage on Mowry Avenue. Outdoor lighting installed for the proposed project would be designed in accordance with lighting regulations and standards outlined under Newark Municipal Code Section 17.17.060, Lighting and Illumination.

2.1.11 Utility Infrastructure

Water Supply

Currently, municipal water is the primary sources of water for the project site. The Alameda County Water District (ACWD) approved a Water Supply Assessment (WSA), prepared November 2008, for the Areas 3 and 4 Specific Plan area that indicated sufficient supplies exist to meet the ACWD's projected demands for its service area as well as the Areas 3 and 4 Specific Plan's demands, including the proposed project, under normal year conditions. Though the WSA utilized the Specific Plan's proposed land uses to determine projected demand within the Specific Plan area, the change to the project site's proposed land use from golf course or other recreational use to residential would not result in changes to the determination included in the WSA as the proposed project's residential units would reduce the water demand for the site from what was assumed for the development of the golf course and the water demand for the Specific Plan area has been reduced since the preparation of the WSA. During critically dry or multiple dry years, the ACWD service area may be facing water supply shortages. Because the Specific Plan's demands are already factored into the 2020-2025 Urban Water Management Plan (UWMP), the development of these 203 homes which fall within the 1,260 residential units foreseen by the Specific Plan would not result in increased shortages beyond those which are already factored into ACWD's planning under current and foreseeable conditions (City of Newark 2014).

An 8 inch water main, totaling approximately 6,300 linear feet, is proposed to serve the residents on-site and connect to a proposed 12 inch water main within Mowry Avenue. The 12 inch water main is proposed to be extended from the terminus of the existing 16 inch water main on the north side of the UPRR tracks within Mowry Avenue toward the project site. The water main extension would be constructed through a jack-and-bore operation under the UPRR tracks, totaling approximately 1,850 linear feet. Fire hydrants are proposed throughout the development and along Mowry Avenue consistent with ACWD, Alameda County Fire Department (ACFD), and California Fire Code (CFC) standards.

In addition, potable and non-potable water mains would be extended approximately 900 linear feet from the southwest corner of the Sanctuary West Development, within the old Addition Road alignment adjacent and parallel to ACFC&WCD Line D channel, to the UPRR ROW (Figure 2-9). The potable and non-potable water mains would be jack-and-bored, approximately 250 linear feet, under the Line D channel and the UPRR ROW. The non-potable water main would be stubbed on the western edge of the UPRR ROW for future connection. The potable water main would extend 2,500 linear feet northwest along the UPRR ROW, within an existing utility easement, to Mowry Avenue and then an additional 500 linear feet down Mowry Avenue to the project entrance at future 'A' Street.

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Source: CBG, April 2023

LEGEND

12" W	PROPOSED POTABLE WATER LINE (UPRR-ADJACENT)
EX 12" W	EXISTING POTABLE WATER LINE (SANCTUARY)
12" NPW	PROPOSED NON POTABLE WATER LINE (UPRR-ADJACENT)
EX 12" NPW	EXISTING NON POTABLE WATER LINE (SANCTUARY)
12" W	PROPOSED POTABLE WATER LINE (MOWRY AVENUE)
EX 12" W	EXISTING POTABLE WATER LINE (MOWRY AVENUE)
12" W	PROPOSED POTABLE WATER LINE (IN-TRACT)
	PROJECT BOUNDARY
	RAILROAD TRACKS
	EXISTING UTILITY EASEMENT

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Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-9

Title
Water Line Improvements

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Wastewater

The Union Sanitary District (USD) would provide sanitary sewer service to the project site. Area 3 is within the existing USD service area boundary, but USD has indicated Area 4 would need to be annexed into their jurisdictional boundaries through Alameda County Local Agency Formation Commission (LAFCO). The proposed project would install 8 inch sanitary sewer lines throughout the development, totaling approximately 5,950 linear feet, to connect to a proposed 8 inch sanitary sewer line within Mowry Avenue. The wastewater flow would be directed north towards Mowry Avenue and routed to a proposed sewer pump station on Mowry Avenue, between the UPRR tracks and the project frontage. The flows would then be conveyed to the existing 8 inch sewer main on the north side of the UPRR tracks. The pump station system would provide redundant dual pump facilities, including backup generators, as required by USD for public use installations and would be designed to function independently in case of overload or mechanical failure. The sewer main extension would be constructed through a jack-and-bore operation under the UPRR tracks. The proposed project's wastewater would then be conveyed south to the Boyce Avenue pump station and ultimately to the Alvarado Treatment Plant.

Stormwater and Drainage

The proposed on- and off-site improvements would result in approximately 881,450 square feet of impervious area, and approximately 465,680 square feet of pervious area. The proposed project would install a storm drain system consisting of bioretention areas, curbs and gutters along the roadways, and underground storm drain pipes (Figure 2-10). The storm drainage system would utilize LID techniques which may include directing roof runoff to vegetated areas, storm drain stenciling, and site design that promotes infiltration. Storm drain pipes installed throughout the project site would range from 15 to 24 inches in size and would convey stormwater to the two on-site bioretention areas. The two bioretention areas would total approximately 24,665 square feet in size with 6 inches of ponding over the treatment areas. The bioretention treatment areas would be planted with water conserving grass species, shrubs, and trees that are adapted to bio-swale conditions. The bioretention treatment areas would discharge flow through the on-site storm drain system, into the adjacent City-owned open space parcel, consistent with the historic drainage path.

The proposed project would also involve off-site stormwater improvements associated with the widening of Mowry Avenue. These improvements would consist of storm drains ranging from 15 to 24 inches in size within Mowry Avenue, which would collect and convey flow towards the ACFC&WCD Line B at the terminus of Mowry Avenue. Additionally, the proposed roadway improvements would include four bioretention treatment areas along Mowry Avenue, totaling approximately 3,212 square feet.

Electricity, Gas, and Telecommunications

The proposed project would be 100 percent electric and electric services at the site would be provided by Pacific Gas and Electric Company (PG&E). Telecommunication services would be provided by AT&T and Comcast.

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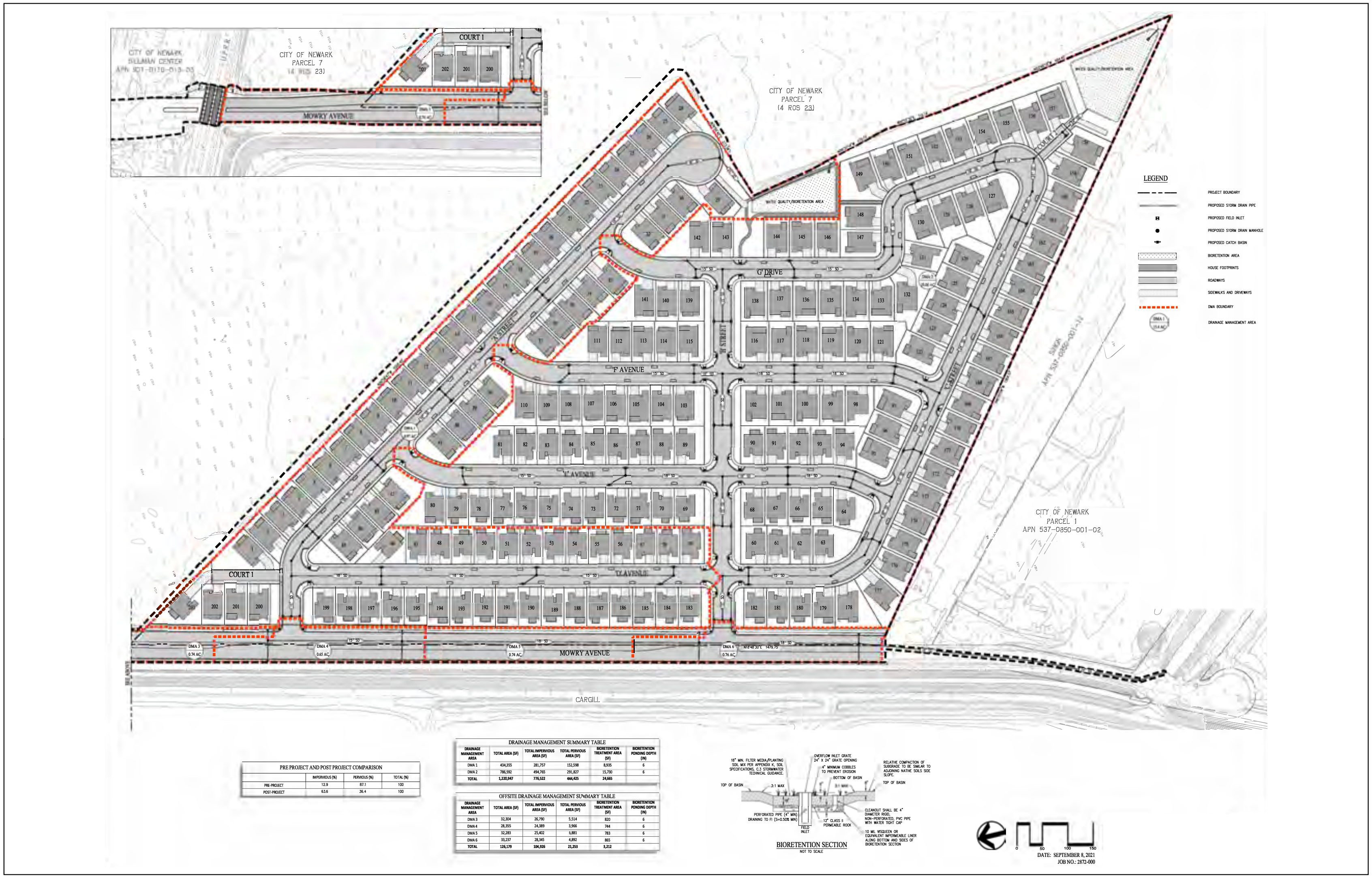

Source: CBG, September 2021

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2-10

Title
Stormwater Improvements

Stantec

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2.1.12 Alternative Transportation

Alameda-Contra Costa (AC) Transit provides local bus service in the East Bay and Transbay bus service to the Transbay Terminal in San Francisco. Bay Area Rapid Transit (BART) provides regional rail service connecting San Francisco, northern San Mateo County, and the East Bay. Altamont Commuter Express (ACE) and Amtrak also provide regional rail service within the San Francisco Bay Area and beyond.

Three AC Transit bus routes operate near the project site (Lines 200, 216, and 251). The closest stop to the project site for Lines 200 and 216 is at the Mowry Avenue/Cherry Street intersection located approximately 0.5 mile northeast of the project site, and the closest stop for Line 251 is at the Cherry Street/Jasmin Avenue intersection, located approximately 0.5 mile north of the project site. On weekends, the closest stop for Lines 216 and 251 is at the Silliman Recreation Center, located approximately 0.25 mile northeast of the project site. The closest BART Station to the project site is the Fremont Station, located approximately three miles north of the project site. The nearest ACE station and Amtrak station is located in the City of Fremont, on Fremont Boulevard near Peralta Boulevard, approximately 3.2 miles north of the project site.

2.2 PROJECT CONSTRUCTION

2.2.1 Construction Schedule and Equipment

It is anticipated construction of the proposed project would take approximately two years to complete, starting in Spring 2023 and ending Fall 2025. The proposed project would be completed in the following six phases:

1. Demolition, on-site soil remediation, and Mowry Avenue improvements
2. Site preparation
3. Grading/underground utilities
4. Paving
5. Building construction
6. Architectural coating

Construction of the residential development and Mowry Avenue improvements would use typical heavy construction equipment, such as backhoes, bulldozers, front loaders, scrapers, graders, excavators, concrete saws, cranes, off-road trucks, and jackhammers. No pile driving is proposed. As required by the Newark Municipal Code, Section 17.24.100 – Noise, project construction activities would occur between 7:00 A.M. and 7:00 P.M., Monday through Saturday, and between 10:00 A.M. and 6:00 P.M. on Sundays and holidays. Construction workers would access the project site from Mowry Avenue. All construction equipment and materials would be stored on-site.

2.2.2 Demolition and On-Site Soil Remediation

Prior to project construction, the existing 13,000 square foot warehouse, 1,500 square foot sales office, 3,000 square foot workshop, and large asphalt parking area servicing the Pick-n-Pull operation would be demolished and removed. Due to the site's previous use as an auto part and scrap metal salvage lot, Phase I and Phase II Environmental Site Assessments (ESA) were conducted by Haley & Aldrich, Inc in

January 2019 to assess whether known or suspect Recognized Environmental Conditions (RECs), Historical RECs (HRECs), or Controlled RECs (CRECs) are associated with the project site. The Phase II ESA determined contaminated soils are present in shallow portions of the project site ranging from 0.5 to 1.5 feet below ground surface (bgs); however, the site soils could be remediated to levels compatible with residential use through removal (Haley & Aldrich, Inc 2019). Additionally, contaminated groundwater was detected at the project site. Soil gas samples were planned to be collected for the preparation of the Phase II ESA; however, soil gas samples could not be collected at the site due to the presence of perched groundwater. Prior to construction, the proposed project is estimated to remove approximately 39,000 cubic yards (CY) of vegetation, contaminated soil, demolition debris, and other cleared materials.

A Corrective Action Plan and Remedial Excavation Work Plan was approved by the ACWD in March 2021 (Appendix A). The Corrective Action Plan and Remedial Excavation Work Plan provides detailed plans to remediate contaminated soil, soil gas, groundwater, surface water, and sediments through a combination of removing the soil contamination through excavation, groundwater containment through in-situ remediation, and surface water contamination through dewatering, and if conditions warrant, natural attenuation, to residential standards. RPS Groups, Inc. (RPS) prepared the Corrective Action Plan and Remedial Excavation and Work Plan and is proposed to oversee the implementation of the plan and remediation activities. Below are brief summaries of the remediation plan for the project site.

Soil on the project site can be remediated to residential levels through removal of shallow soil in select portions of the auto wrecking yard. The top 0.5 feet of gravel and asphalt would be removed and stockpiled on-site. Once the gravel and asphalt layer has been removed, confirmation samples would be collected at surface elevation and, consistent with the prior soil investigation, at depths of one feet and two feet bgs, and analyzed for petroleum hydrocarbons (TPH), lead, arsenic, and polycyclic aromatic hydrocarbons (PAHs) in areas previously inaccessible due to the presence of cars. Soil scraped from the excavation areas would be stockpiled on-site and characterized for disposal or on-site reuse. Once soil remediation has been completed, a groundwater monitoring network will be developed with ACWD concurrence. Wells would be installed and developed after completion of soil remediation.

In accordance with the Corrective Action Plan issued for the proposed project, the impacted groundwater would be exposed via remedial excavation and treated with the rapid chemical oxidizing agent PersolfOx as well as a time-released oxygen release compound (ORC) to treat residual levels of benzene, toluene, ethylbenzene, and xylenes (BTEX) after the excavation has been backfilled. ORC will be added to any remedial excavation that extends to groundwater elevation. Benzene in soil gas would be released during the remedial soil excavation process. RSP would obtain a permit exemption by the Bay Area Air Quality Management District (BAAQMD) for any minor atmospheric VOC released from this process.

Surface water, upon receiving a USD discharge permit, would be removed from the retention basins and piped to a USD sewer inlet in conformance with USD permit requirements. Existing stormwater retention basins would be graded and replaced with an updated stormwater conveyance system. The surface water in all three stormwater retention basins would be removed and discharged to the sanitary sewer system under the permit. After all surface water has been removed from the northernmost stormwater retention basin, the top one foot of sediment would be removed, stockpiled on-site, and characterized for off-site disposal.

2.2.3 Grading, Fill, and Drainage

The entire 29 acre project site would be disturbed during site preparation and grading. Construction of the proposed residential development and Mowry Avenue improvements would involve the import of approximately 252,000 CY of clean fill. Clean imported fill would be used to elevate the proposed pad grades for the homes above the Federal Emergency Management Agency (FEMA) 100-year flood plain elevation. The lowest proposed pad elevation for the proposed project is 13.0 feet National Geodetic Vertical Datum (NGVD) with the average pad elevation for the proposed project at 14.2 feet NGVD. The proposed pad grades would exceed the City's standards, which state residential structures shall be "elevated to or above the base flood elevation or to a minimum of six inches above the building pad which shall be at a minimum elevation of 11.25 feet on the NGVD, whichever affords the greater degree of flood damage protection." Additionally, the site is being elevated to accommodate the San Francisco Bay Conservation and Development Commission's (BCDC) currently adopted sea level rise guidance which recommends a minimum building pad elevation of 12.2 feet. Additionally, the proposed project's pad elevation would meet the minimum pad elevation requirements of the California Ocean Protection Council Science Advisory Team's (RPC-SAT) projected likely range for sea level rise by the year 2100 of 3.4 feet. Proposed grading conforms are also proposed along the northeast property line of the project site on the City's open space parcel adjacent to the project. Clean imported fill would contain no deleterious matter or rocks greater than 4 inches in largest dimension and have Plasticity Index (PI) less than 20. Clean imported fill materials would be subject to the evaluation by the Geotechnical Engineer prior to their use. The properties of the soil with respect to corrosivity would also be evaluated.

2.3 PROJECT OBJECTIVES AND REQUIRED PROJECT APPROVALS

2.3.1 Objectives

The primary objective of the Mowry Village Project is to provide low density residential housing that incorporates multi-modal transportation for the future residents of Newark. Specific project objectives include the following:

- Implement the City's General Plan by developing the site with low-density residential;
- Support the City in meeting its Regional Housing Needs Allocation (RHNA) target assigned by the Association of Bay Area Governments (ABAG);
- Provide high quality residential development including a mix of lot sizes;
- Minimize environmental impacts associated with residential development by siting the project on developed and disturbed lands;
- Remediate contaminated soil on-site to levels suitable for residential development;
- Create a residential development that integrates multi-modal transportation (pedestrian, bicycle, automobile) and connects the development to existing, nearby bus transit stops and active centers by improving Mowry Avenue and upgrading the at-grade vehicular and pedestrian crossing along Mowry Avenue at the UPRR railroad tracks to increase safety.

2.3.2 Approvals

The proposed project requires, but may not be limited to, the following approvals from the City:

- Rezone from Park to PD-RS-6000
- Planned Unit Development
- Specific Plan Amendment
- Vesting Tentative Map
- Design Review
- Grading, Building, and Encroachment Permit
- Alameda County LAFCO Annexation Approval

The proposed project requires, but may not be limited to, the following approvals from the other agencies:

- USD Stormwater Discharge Permit
- State Water Resources Control Board (SWRCD) National Pollutant Discharge Elimination System (NPDES) Construction General Permit

The following agencies may serve as responsible and/or trustee agencies:

- California Department of Transportation (Caltrans), District 4
- San Francisco Bay SWRCB
- Regional Water Quality Control Board (RWQCB) #2
- BAAQMD
- Alameda County LAFCO
- ACWD

3.0 ENVIRONMENTAL IMPACT ANALYSIS

Approach to Environmental Analysis

In accordance with CEQA Guidelines Section 15126.2, this Draft EIR identifies and focuses on the significant direct and indirect environmental effects of the proposed project, giving due consideration to both its short- and long-term effects. Short-term effects are generally those associated with construction of the proposed project, while long-term effects are generally those associated with operation of project components. As described in Section 1.0, Introduction, this analysis focuses on all environmental topics required to be analyzed by CEQA. Section 3.1 through 3.20 of this Draft EIR contain discussions of the potential environmental impacts related to the construction and operation of the proposed project.

Environmental Resource Topics

The potential environmental effects associated with the implementation of the proposed project are evaluated in the following environmental resource areas:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Material
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Organization of Environmental Resource Section

Each environmental resource section contains the following:

Regulatory Setting presents the laws, regulations, plans, and policies that are relevant to each resource topic. Regulations originating from the federal, state, and/or local levels are each discussed as appropriate.

Environmental Setting presents the existing environmental conditions on the project site and within the surrounding area as appropriate, in accordance with CEQA Guidelines Section 15125. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected. For example, air quality impacts are assessed for the air basin (macro-scale), as well as the site vicinity (micro-scale), whereas aesthetic impacts are assessed for the project vicinity only.

In determining the level of significance of environmental impacts associated with the proposed project, the analysis in this Draft EIR assumes that the proposed project would comply with relevant federal and state laws and regulations, and City of Newark General Plan policies, ordinances, and other adopted City documents, unless otherwise noted. Therefore, such mandatory policies, ordinances, and standards are not identified as mitigation measures, but rather are discussed as part of the “regulatory setting” governing the proposed project.

Thresholds of Significance identifies the thresholds of significance used to determine the level of significance of the environmental impacts for each resource topic, in accordance with CEQA Guidelines Sections 15126, 15126.2, and 15143. The thresholds of significance used in this Draft EIR are based on the checklist presented in Appendix G of the CEQA Guidelines; best available data; and regulatory standards of federal, state, and local agencies.

Project Impacts identify the level of each environmental impact by comparing the effects of the proposed project to the environmental setting. Key methods and assumptions used to frame and conduct the impact analysis, as well as issues or potential impacts not discussed further (i.e., such issues for which the project would have no impact), are also described.

Project impacts are organized numerically in each subsection (e.g., Impact AES-1, Impact AES-2, Impact AES-3). A bold-font environmental impact statement precedes the discussion of each impact while its level of significance succeeds the discussion of each impact. The discussion that follows the impact summary includes the substantial evidence supporting the impact significance conclusion.

Mitigation Measures describe any feasible measures that could rectify, reduce, or compensate for significant adverse impacts, with measures having to be fully enforceable through incorporation into the project (PRC Section 21081.6[b]). Mitigation measures are not required for environmental impacts that are found to be less than significant. Where feasible mitigation for a significant environmental impact is available, it is described following the impact. Where sufficient feasible mitigation is not available to reduce environmental impacts to a less than significant level, or where the lead agency lacks the authority to ensure that the mitigation is implemented when needed, the impacts are identified as significant and unavoidable.

Level of Significance After Mitigation describes the level of impact significance remaining after mitigation measures are implemented.

Level of Significance

Determining the severity of project impacts is fundamental to achieving the objectives of CEQA. CEQA Guidelines Section 15091 requires that decision makers mitigate, to the maximum extent feasible, the significant impacts identified in the Final EIR. If the EIR identifies any significant unmitigated impacts, CEQA Guidelines Section 15093 requires decision-makers to balance the economic, legal, social, technological or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If a lead agency approves a project which will result in the occurrence of significant effects which are identified in the final EIR but are not avoided or substantially lessened, the decision-maker must adopt a statement of overriding considerations that explains why the benefits of the project outweigh the adverse environmental consequences identified in the EIR.

The level of significance for each impact examined in this Draft EIR is determined by considering the predicted magnitude of the impact against the applicable threshold. Thresholds were developed using criteria from the CEQA Guidelines and Appendix G Checklist; federal, state, and local regulatory schemes; regional and local plans and ordinances; accepted practice; consultation with recognized experts; and other professional opinions.

Format Used for Impact Analysis and Mitigation Measures

The format adopted in this Draft EIR to present the evaluation of environmental impacts is described and illustrated below.

Summary Heading of Impact

Impact AIR-1:	**An impact summary heading appears immediately preceding the impact description (Summary Heading of Impact in this example). The impact abbreviation identifies the section of the report (AIR for Air Quality in this example) and the sequential order of the impact (1 in this example) within that section. To the right of the impact number is the impact statement, which identifies the potential impact.**

Impact Analysis
A narrative analysis follows the impact statement.

Level of Significance Before Mitigation
This section identifies the level of significance of the impact before any mitigation is proposed.

Mitigation Measures
In some cases, following the impact discussion, reference is made to federal and state regulations and agency policies that would fully or partially mitigate the impact. In addition, policies and programs from applicable local land use plans that partially or fully mitigate the impact may be cited.

Project-specific mitigation measures, beyond those contained in other documents, are set off with a summary heading and described using the format presented below:

MM AIR-1: Project-specific mitigation is identified that would reduce the impact to the lowest degree feasible. The mitigation number links the particular mitigation to the impact with which it is associated (AIR-1 in this example);

Abbreviations used in the mitigation measure numbering are shown in Table 3.0-1.

Table 3.0-1: Environmental Resource Abbreviations

Code	Environmental Issue
AES	Aesthetics
AG	Agricultural and Forestry Resources

Code	Environmental Issue
AIR	Air Quality
BIO	Biological Resources
CUL	Cultural and Historical Resources
EN	Energy
GEO	Geology and Soils
GHG	Greenhouse Gas Emissions and Climate Change
HAZ	Hazards and Hazardous Materials
HYD	Hydrology and Water Quality
LU	Land Use and Planning
MIN	Mineral Resources
NOI	Noise and Vibration
POP	Population and Housing
PUB	Public Services
REC	Recreation
TRANS	Transportation
TRIB	Tribal Cultural Resources
UTIL	Utilities and Service Systems
WF	Wildfire

Level of Significance After Mitigation

This section identifies the resulting level of significance of the impact following mitigation.

3.1 AESTHETICS

This section describes the environmental and regulatory setting for aesthetics. It also describes existing conditions and potential impacts related to aesthetics that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.1.1 Environmental Setting

Regional Visual Character

The City of Newark contains a diverse variety of neighborhoods and districts, including a range of established and planned residential neighborhoods, commercial districts, business parks, industrial facilities, and the Don Edwards National Wildlife Refuge. The Southwest Newark Residential and Recreational Focus Area, where the project site is located, covers an area of approximately 637 acres. Its western portion largely consists of vacant fields with some existing industrial development. A panoramic view of the East Bay Hills to the southeast and south is available from vantage points in the vicinity of the Sportsfield Park. Most of the western portion of the Southwest Newark Residential and Recreational Area is flat, vacant land with little vegetation, except some emergent wetland areas, particularly near Mowry Slough which runs through a portion of the focus area and along its western boundaries. The City does not contain any officially designated scenic corridors or highways (City of Newark 2013b).

There are no officially designated scenic vistas or view corridors in the City. However, views of the undeveloped Coyote Hills to the northwest, of Mission Peak to the east, and the East Bay Hills to the east and southeast are available from open spaces within the City. Additionally, views of low-lying wetlands fronting San Francisco Bay are available from vantage points along the western perimeter of Newark (City of Newark 2013b).

Project Site Visual Character

The proposed project is located on an approximately 29 acres partially developed site. The southern portion of the site is currently being operated by Pick-n-Pull Auto Dismantlers as an auto wrecking and scrap metal salvage yard. The northern portion of the site is vacant and covered with wild grasses. The northern parcel of the site is roughly triangular in shape and is undeveloped. The surface elevation is approximately 10 feet around the perimeter of the site and rises to approximately 15 feet in the center of the northern parcel. The southern portion of the site is slightly sloping with an approximate elevation of 10 feet on the west and 4.5 feet on the east. There are no existing developments surrounding the site and the project site does not contain any General Plan designated scenic resources.

Light and Glare Conditions

The urbanized portion of Newark between the freeways and along major arterial roads are developed with a mix of commercial, industrial, and residential uses. Existing sources of light and glare in the City are similar to those found in any urbanized area, and include streetlamps, parking lot lighting, storefront and signage lighting, and car headlamps.

Though the project site is developed with existing uses, no substantial light and glare sources exist on-site or along adjacent lands. Lighting at the Pick-n-Pull site consists of outdoor lighting located on existing structures. There is currently no street lighting located along the portion of Mowry Avenue in front of the project site and vehicle headlight glare is limited in the area, as this section of Mowry Avenue does not have a lot of vehicle traffic. There are no electrical signs, billboards, or flashing or oscillating light sources at the project site.

3.1.2 Regulatory Setting

State

California State Scenic Highway Program

The California Scenic Highway Program, maintained by Caltrans, protects scenic state highway corridors from changes which would diminish the aesthetic value of lands adjacent to the highways. There are no officially designated or eligible State scenic highways within or adjacent to the project site.

California Energy Code Title 24 Parts 1 and 6 – Outdoor Lighting Zones

In 2001, the California Legislature passed a bill requiring the California Energy Commission (CEC) to adopt energy efficient standards for outdoor lighting for both the public and private sector. In November 2003, the CEC adopted changes to the Building Energy Efficient Standards within Title 24. These standards became effective on October 1, 2005, and specify outdoor lighting requirements for residential and nonresidential development. The intent of the new standards is to improve the quality of outdoor lighting and help reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics, such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population figures in the 2003 Census and the areas can be designated as LZ1 (dark), LZ2 (low), LZ3 (medium), or LZ4 (high). Lighting requirements for dark and rural areas are stricter in order to protect the areas from new sources of light pollution and light trespass.

Local

City of Newark General Plan

The following lists goals and policies from the City of Newark General Plan pertaining to aesthetics that are applicable to the proposed project.

Goal LU-1: Quality of Life. Maintain a desirable quality of life in Newark by preserving a small town, neighborhood-oriented atmosphere and sustaining a balanced mix of land uses.

- **Policy LU-1.12: Large Scale Development.** Plan and design Newark's remaining large-scale development sites in a manner which sensitively integrates these areas with existing uses and adjacent neighborhoods, and which includes a mix of uses that makes these areas more conductive to walking, bicycling, and transit use.

Goal LU-2: Land Use Compatibility. Ensure compatibility between adjacent land uses.

- **Policy LU-2.2: Context-Sensitive Design.** Require that new structures, additions, and major renovations are aesthetically compatible with existing structures and the surrounding context and contribute positively to the visual quality of neighborhoods.
- **Policy LU-2.4: Buffering from Transportation Facilities.** Ensure that the design of new residential development near rail lines, truck routes, freeways, or major thoroughfares includes setbacks, landscape screening, and other provisions to minimize exposure to negative impacts such as noise and air pollution.
- **Policy LU-2.7: Design Guidelines.** Maintain design guidelines and a design review process that applies to building and site design throughout the city.

Goal LU-4: Community Design and Identity. Enhance Newark's identity as a city of high quality development that is distinctive from other cities in the Bay Area.

- **Policy LU-4.5: Gateways.** Maintain high standards for the design and appearance of development at major gateways into Newark, and along major arterials. Public art, landscaping, paving, lighting, and signage should be used to create a positive visual impression at these locations.
- **Policy LU-4.6: Streetscapes.** Ensure that medians, sidewalks, planting strips and other areas within the right-of-way of major thoroughfares are attractively landscaped and well maintained.
- **Policy LU-4.7: Lighting.** Manage exterior lighting to reduce potential light and glare impacts, improve public safety, and enhance the character of the streetscape.
- **Policy LU-4.13: Bayfront Identity.** Reinforce Newark's identity as a bayfront city by orienting new development on the western and southern edges of the city toward the bay and shoreline areas. Future projects in these areas should enhance views to the water and wetlands and be compatible with the area's scenic and recreational qualities. The bayfront identity should be emphasized in gateways and public art as well.
- **Policy LU-4.14: View Protection.** Protect and enhance panoramic views and vistas of horizon features such as Coyote Hills, Mission Peak, the East Bay and Peninsula Hills, and San Francisco Bay.

Goal LU-7: Southwest Newark Residential and Recreational Project. Develop the Southwest Newark Residential and Recreational Project as one of the Silicon Valley's premier new neighborhoods, with executive housing and high quality recreation.

- **Policy LU-7.1: Southwest Newark Residential and Recreational Project (Area 3 and 4 Development).** Facilitate the development of the 637 acres formerly known as "The Area 3 and 4 project" consistent with previously approved plans for this area. The residential holding capacity of this area shall be 1,260 units.

Areas 3 and 4 Specific Plan

The Areas 3 and 4 Specific Plan contains siting standards and architectural design guidelines which apply to the Southwest Newark Residential and Recreational Focus Area. The standards and guidelines provide guidance on heights, setbacks, lot coverage, architectural theme, street design, and landscaping.

For single-family lots, five lot sizes are contemplated in the Specific Plan along with attached or stacked housing. No criteria are provided for custom lots since they will be irregularly shaped. The Community Development Director will establish appropriate setbacks during site and architectural review of a particular home on a custom or irregular lot. All residential streets will be standard City of Newark “Type I – Minor Streets” with a 56-foot right-of-way. Cul-de-sacs will be designed per City standards as well with a curb radius of 45 feet and right-of-way radius of 50 feet.

Newark Zoning Code

The Newark Zoning Code identifies development standards for the various zoning districts throughout the City, and describes the purpose, intent, and uses allowed in each zoning district. The relevant development standards related to visual resources in the City include building coverage, height, setbacks, and lighting. The development standards for residential districts are provided under Chapter 17.07.030 of the City’s Zoning Code.

Chapter 17.34, Design Review

Chapter 17.34 of the Newark Municipal Code establishes the design review procedure to ensure that new development supports the goals and objectives of the general plan and other adopted plans and guidelines. Design review is required for all projects that require a permit for new construction, reconstruction, rehabilitation, alteration, or other improvements to the exterior of a structure, site, or parking area. The Planning Commission has the design review authority for all projects requiring planning commission approval such as conditional use permits and variances.

3.1.3 Environmental Impacts

This section analyzes the project’s potential to result in significant aesthetics impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

Analysis of the proposed project’s visual impacts is based on an evaluation of the changes to the existing visual resources that would result from implementation of the proposed project. In determining the extent and implications of the visual changes, consideration was given to: the existing visual quality of the affected environment; specific changes in the visual character and quality of the affected environment; the extent to which the affected environment contains places or features that provide unique visual experiences or that have been designated in plans and policies for protection or special consideration; and the sensitivity of viewers and their activities and the extent to which these activities are related to the aesthetic qualities affected by the proposed project.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's aesthetic impacts are significant. Would the proposed project:

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?
- In non-urbanized areas, substantially degrade the existing visual character or quality of the public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
- Create a new source of substantial light or glare that would adversely affect day- or nighttime views in the area?

Project Impact Analysis and Mitigation Measures

Scenic Vista

Impact AES-1	**The proposed project would not have a substantial adverse effect on a scenic vista.**

Impact Analysis
The General Plan EIR indicates that there are no officially designated scenic vistas or view corridors in the City and the General Plan does not identify any specific vistas or views for special protection in the future (City of Newark 2013b). From the project site, there are views of Mission Peak to the east and northeast of the project site. Additionally, views of hills located across the bay are available from the project site. The proposed project would construct 203 new single-family residences which would be two stories tall. Given the amount of separation between the project site and these views (across the bay), and no official designated scenic vistas or view corridors being located in the City, the development of the proposed project would not substantially alter views and the proposed project would not have a substantial adverse effect on a scenic vista. Therefore, there would be no impact.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
No Impact.

Scenic Resources within a State Scenic Highway

Impact AES-2	**The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.**

Impact Analysis

According to the General Plan EIR and the Caltrans California State Scenic Highway System Map, there are no officially designated state scenic highways within the City or near the project site (Caltrans 2021). The closest officially designated state scenic highway is a section of Interstate 680 located approximately 5.5 miles northeast of the project site. The project site does not contain vegetation, trees, rock outcroppings, or historic buildings that are identified as a scenic resource by the General Plan. Therefore, the proposed project would not substantially damage scenic resources within a state scenic highway and there would be no impact.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Visual Character and Scenic Quality

Impact AES-3	**In an urbanized area, the proposed project would not conflict with applicable zoning and other regulations governing scenic quality.**

Impact Analysis

The Newark Zoning Code designates the project site as Park. However, the proposed project includes rezoning of the project site from Park to PD-RS-6000 to better align the zoning designation of the project site with the proposed use of the project and the existing Low Density Residential General Plan land use designation. Due to the minimum lot size and setbacks prescribed in the RS-6000 zoning district, a Planned Unit Development is being proposed to allow a deviation from the standards listed in the RS-6000 development standards in the Newark Zoning Code. The proposed project would be designed and constructed in accordance with all applicable regulations governing scenic quality to ensure that the proposed project is consistent with the proposed zoning district. The proposed project would be reviewed during the City's design review and project review process to ensure that the proposed project does not conflict with applicable zoning standards and requirements. The proposed project would comply with the City's Zoning Code provisions related to scenic quality including Citywide regulation related to landscaping described under Chapter 17.21 of the City's Zoning Code and the lighting and illumination regulations described under Chapter 17.17.060 of the City's Zoning Code, As such, with the approval of rezoning and compliance with the City's Zoning Code regulations related to scenic quality, the proposed project would not conflict with any applicable zoning or other regulations governing scenic quality, and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Light and Glare

Impact AES-4	**The proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**

Impact Analysis
The project site is developed with an auto wrecking and scrap metal salvage yard and sources of light and glare exists at the project site. Existing sources of lighting at the project site include outdoor lighting located on existing structures. There is no existing street lighting along Mowry Avenue and vehicle lights and glare from passing cars is limited due to the location of the project site and low volume of traffic.

The proposed project would include new sources of nighttime lighting at the project site. The proposed project would provide exterior lighting throughout the site to illuminate the main entrances of the single-family homes, private streets, sidewalks, common space areas, and driveways for security and safety purposes. Additional lighting would be installed along the project frontage on Mowry Avenue. All site entrances will be visible from a public street and well lit. The proposed project would be required to comply with General Plan Policy LU-4.7 which requires management of exterior lighting to reduce potential light and glare impacts. The proposed project would install lighting according to the City's lighting standards and requirements as outlined in the Newark Municipal Code Section 17.17.060 and would include shielding to ensure light spillage does not occur on adjacent properties. The proposed project would also introduce new sources of glare at the site through the construction of new structures and increased vehicle usage of the area; however, the proposed project would minimize the use of reflective exterior building materials to minimize new sources of glare at the site. Reflective surfaces within the new detached single-family homes would be generally limited to window glazing and the traditional architectural styles proposed within this project would not result in any imbalanced window to wall ratios that could create new glare impacts. The proposed project would be required to comply with Newark Municipal Code Section 17.24.070 which requires that no use shall be operated such that significant, direct glare is visible beyond the boundaries of the lot where the use is located. Compliance with the City's requirements would ensure that light and glare impacts associated with the proposed project would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

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3.2 AGRICULTURAL AND FORESTRY RESOURCES

This section describes the environmental and regulatory setting for agricultural and forestry resources. It also describes existing conditions and potential impacts related to agricultural and forestry resources that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.2.1 Environmental Setting

The City of Newark is located near the southern part of San Francisco Bay in a highly urbanized area of Alameda County. According to the General Plan EIR, there are no forestry resources or timberland resource zones in the City or the surrounding area, and there is no active timberland production in the general vicinity of the City (City of Newark 2013b). There are no lands classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as mapped by the California Resources Agency within the City. However, the General Plan EIR does identify some parcels under Williamson Act contracts within the City. Parcels under Williamson Act contracts within the City are comprised of approximately 3,000 acres of privately owned properties used for salt harvesting.

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) classifies the project site as Urban and Built-Up Land (DOC 2021). The project site is designated as Low Density Residential by the General Plan and is zoned Park by the Newark Zoning Code. The proposed project includes rezoning the project site from Park to PD-RS-6000. Additionally, the project site is within the Areas 3 and 4 Specific Plan area and is designated for a golf course or other recreational uses by the Specific Plan. Therefore, the proposed project also includes a Specific Plan Amendment to change the use to residential single-family. While the Specific Plan land use designation and zoning would change following approval of the proposed project, the Specific Plan amendment and rezone would better align the project site's allowed uses with the General Plan designation.

3.2.2 Regulatory Setting

Federal

Natural Resources Conservation Service (NRCS)

The NRCS maps soils and farmland uses to provide comprehensive information necessary for understanding, managing, conserving, and sustaining the country's limited soil resources. The NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses.

State

California Department of Conservation

In 1982, the State of California created the FMMP within the DOC to continue the mapping activity of the NRCS. The DOC administers the California Land Conversion Act of 1965. Also known as the Williamson Act.

California Land Conversion Act (Williamson Act)

The Williamson Act is the only established agricultural program that directly involves state government in an administrative or fiscal capacity. The Williamson Act creates an arrangement whereby private landowners voluntarily restrict their land to agricultural and compatible open space uses under a rolling two-year contract through the Farmland Security Zones provisions. In return, parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than their potential market value.

Local

City of Newark General Plan

The City's General Plan does not include any goals or policies related to agricultural and forestry resources.

3.2.3 Environmental Impacts

This section analyzes the project's potential to result in significant agricultural and forestry impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of documents pertaining to the project site, including the General Plan, General Plan EIR, and the DOC Important Farmland Map.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's agricultural and forestry impacts are significant. Would the proposed project:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- Conflict with existing zoning for agricultural use, or a Williamson Act contract?
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC section 12220(g)), timberland (as defined by PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- Result in the loss of forest land or conversion of forest land to non-forest use?
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Project Impact Analysis and Mitigation Measures

Convert Farmland

Impact AG-1	**The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.**

Impact Analysis

As described above under Section 3.2.1, Environmental Settings, the project site is designated by the DOC's FMMP as Urban and Built-Up Land and is designated Low Density Residential by the City's General Plan. The project site is not designated or zoned as farmland and does not allow for agricultural uses. The proposed project includes a Specific Plan Amendment and rezone to develop the site for residential uses. While the Specific Plan designation and zoning would change following approval of the proposed project, the proposed project would not convert farmland to non-agricultural uses. Therefore, the proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses and no impact would occur.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Agricultural Zoning

Impact AG-2	**The proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract.**

Impact Analysis

The project site is currently zoned Park and is not under a Williamson Act contract. The proposed project includes rezoning the project site from Park to PD-RS-6000. Neither the Park nor RS-6000 zoning districts allow for agricultural uses. Therefore, the project site is not zoned for agricultural uses and the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract. There would be no impacts from the proposed project.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Forest Land or Timberland Zoning

Impact AG-3	**The proposed project would not conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g]).**

Impact Analysis

The project site does not contain forestland (as defined in PRC Section 12220[g]), or timberland (as defined by PRC Section 4526). Furthermore, the project site is not zoned Timberland Production (as defined by Government Code section 51104[g]). The project site would not require rezoning of forestland or timberland production. Therefore, the proposed project would not conflict with existing zoning or cause rezoning of forestland or timberland and there would be no impacts.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Loss or Conversion of Forest Land

Impact AG-4	**The proposed project would not result in the loss of forestland or conversion of forestland to non-forest use.**

Impact Analysis

The project site is designated Low Density Residential by the General Plan and there are no forestland resources that exist on the project site. Therefore, the proposed project would not result in the loss of forestland or conversion of forestland to non-forest use and no impact would occur.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Change to Existing Environment

Impact AG-5	**The proposed project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use.**

Impact Analysis

The project site is classified as Urban and Built-Up Land by the DOC and surrounding areas are classified as Other Land or Grazing Land. The project site is designated by the City's General Plan as Low Density Residential and lands surrounding the project site are designated as Low Density Residential; Park and Recreation Facilities; and Salt Harvesting, Refining and Production. Lands located to the west of the project site are used for salt production ponds. The project site is generally surrounded to the northeast and east by land that was formerly used for agriculture, however, the parcels are currently being used by the City as open space. The area surrounding the project site is not under agricultural use and therefore, the proposed project would not cause changes to the existing environment that could result in conversion of farmland outside the project site boundary to non-agricultural use and there would be no impact.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

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3.3 AIR QUALITY

This section describes the environmental and regulatory setting for air quality. It also describes existing conditions and potential impacts related to air quality that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.3.1 Environmental Setting

San Francisco Bay Area Air Basin

The proposed project is in Alameda County within the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the BAAQMD. The SFBAAB comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, southern Sonoma County, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions.

Climate and Meteorology

The regional climate within the San Francisco Bay Area is driven by a summertime high-pressure cell centered over the northeastern Pacific Ocean that dominates the summer climate of the West Coast. The persistence of this high-pressure cell generally results in negligible precipitation during the summer, and meteorological conditions are typically stable with a steady northwesterly wind flow. This flow causes upwelling of cold ocean water from below the surface, which produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold-water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts to the south, resulting in wind flows offshore, the absence of upwelling, and an increase in the occurrence of storms. Winter stagnation episodes are characterized by nocturnal drainage wind flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the Air Basin.

Air Pollutants of Concern

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards for outdoor concentrations. The federal and state standards have been set at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons such as children, pregnant women, and the elderly, from illness or discomfort. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), particulate matter ten microns or less in diameter (PM_{10}), and lead (Pb). Note that Reactive Organic Gases (ROGs), which are also known as reactive organic compounds (ROCs) or volatile organic compounds (VOCs), and nitrogen oxide (NOx) are not classified as criteria pollutants. However, ROGs and NOx are widely emitted from land development projects and participate in photochemical reactions in the atmosphere to form O_3; therefore, NOx and ROGs are relevant to the proposed project and are of concern in the air basin and are listed below along with the criteria pollutants (USEPA 2022).

- **Ozone.** O_3 is a gas that is formed when NOx and ROGs, both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when the combination of direct sunlight, light wind, and warm temperature conditions create conditions favorable to the formation of this pollutant. Exposure to O_3 can cause throat irritation, damage to the airways, increase susceptibility to lung infection, aggravate lung diseases (i.e. asthma, emphysema, and chronic bronchitis), and increase the frequency of asthma attacks.

- **Reactive Organic Gases.** ROGs are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of these hydrocarbons. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary air pollutants, including ozone. ROG exposure can result in eye, nose, and throat irritation, headaches, and damage to the liver, kidney, and nervous system. The health impacts from ROG varies greatly based on the toxicity of the chemical.

- **Nitrogen Dioxide and Nitrogen Oxides.** Fuel combustion produces nitrogen which combines with oxygen to produce nitric oxide (NO). Further oxidation of NO results in the formation of NO_2, which is a criteria pollutant. NO_2 is a reddish-brown, highly reactive gas which acts as an acute irritant and, in equal concentrations, is more injurious than NO. NO and NO_2 are referred to together as oxides of nitrogen. As noted above, NO_x is involved in photochemical reactions that produce ozone. NOx exposure can also result in severe respiratory problems. Short-term NOx exposure can irritate the airways and aggravate respiratory symptoms while long-term exposure may contribute to the development of asthma and increased susceptibility to respiratory infections.

- **Carbon Monoxide.** CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines and motor vehicles operating at slow speeds, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections. CO exposure can reduce the amount of oxygen that is transported in the blood stream to critical organs. High levels of exposure, which are possible in enclosed spaces, can dizziness, confusion, unconsciousness, and death.

- **Sulfur dioxide.** SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO_4). People with asthma, particularly children, are sensitive to the health effects of SO_2. Exposure to SO_2 can harm the human respiratory system and make breathing difficult.

- **Respirable Particulate Matter.** PM_{10} consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM_{10}, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM_{10} is caused by road dust, diesel soot, and combustion products, abrasion of tires and brakes, and construction activities. PM_{10} exposure can lead to premature death in people with heat or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms.

- **Fine Particulate Matter.** $PM_{2.5}$ refers to particulate matter that is 2.5 microns or smaller in size. The sources of $PM_{2.5}$ include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, NO_X, and VOCs are transformed in the air by chemical reactions. $PM_{2.5}$ has the same health risks can PM_{10} exposure. However, $PM_{2.5}$ has increased levels of risk as particulates 2.5 microns or smaller can penetrate deeper into the lungs.

- **Lead.** Pb occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so most such combustion emissions are associated with off-road vehicles such as racecars that use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters. Lead exposure can cause health impacts to almost every organ and system in the human body. Once exposure, lead is circulated through the blood and stored in bones along with calcium. Depending on the level of exposure, health effects of lead in adults include cardiovascular effects, decreased kidney function, and reproductive problems in men and women. Exposure to children may result in behavior and learning problems, lower IQ, anemia, and slowed growth.

Ambient Air Quality

Each year, BAAQMD summarizes data collected from the Bay Area air quality monitoring stations. The nearest air quality monitoring station to the project is Hayward-La Mesa at 3466 La Mesa Drive, located approximately 10 miles northwest of the project site. Table 3.3-1 includes a summary of the air quality monitoring data from 2019 to 2021. The table shows the number of times each station recorded pollutant concentrations above federal and state air quality standards and the highest annual reading for each pollutant. The Hayward-La Mesa Station only monitors 1-hour and 8-hour ozone.

Table 3.3-1: Hayward-La Mesa Air Quality Monitoring Station Data

Pollutant	Air Pollutant, Averaging Time (Units)	2019	2020	2021
Ozone (ppm)	Maximum 1-hour	0.106	0.116	0.097
	California 1-hour number of days over standard	2	3	1
	Maximum 8-hour	0.085	0.092	0.082
	National 8-hour number of days over standard	2	4	3
	California 8-hour number of days over standard	2	5	3

Notes:
ppm = parts per million
Source: CARB 2022

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold and health impacts are assumed to occur at any level. Cancer risks are expressed as excess cancer cases per one million. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

The California Air Resources Board (CARB) has designated 244 compounds as TACs. CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds. Diesel particulate matter (DPM) differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances, including 40 cancer-causing substances. Diesel exhaust is a complex mixture of particulates and gases produces when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics.

The nearest sensitive receptor is the Silliman Center Preschool which lies approximately 1,100 feet north of the site (and 100 feet east of the roadway improvements along Mowry Avenue). Other nearby receptors are in a residential development over 1,000 feet away to the northeast of the project site.

3.3.2 Regulatory Setting

Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the U.S. Environmental Protection Agency (USEPA) to establish national ambient air quality standards (NAAQS), with requires retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that carbon dioxide is an air pollutant covered by the CAA; however, no NAAQS have been established for carbon dioxide.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those “sensitive receptors” most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise.

Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The federal and state ambient air quality standards are listed below in Table 3.3-2, and the attainment status for the criteria pollutants are listed in Table 3.3-3.

Table 3.3-2. California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Ozone	1 hour	0.09 ppm (180 μg/m^3)	—	Same as primary standard
	8 hour	0.070 ppm (137 μg/m^3)	0.070 ppm (137 μg/m^3)	
Respirable particulate matter	24 hour	50 μg/m^3	150 μg/m^3	Same as primary standard
	Annual arithmetic mean	20 μg/m^3	—	
Fine particulate matter	24 hour	—	35 μg/m^3	Same as primary standard
	Annual arithmetic mean	12 μg/m^3	12 μg/m^3	
Carbon monoxide	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
	8 hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	8 hour (Lake Tahoe)	6 ppm (7 mg/m^3)	—	—
Nitrogen dioxide	1 hour	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	—
	Annual arithmetic mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	Same as primary standard
Sulfur dioxide	1 hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	—
	3 hour	—	—	0.5 ppm (1,300 μg/m^3)
	24 hour	0.04 ppm (105 μg/m^3)	0.14 ppm (for certain areas)	—
	Annual arithmetic mean	—	0.030 ppm (for certain areas)	—
Lead	30-day average	1.5 μg/m^3	—	—
	Calendar quarter	—	1.5 μg/m^3	Same as Primary Standard
	Rolling 3-month average	—	0.15 μg/m^3	
Visibility-reducing particles	8 hour	See Footnote[1]	No National Standards	
Sulfates	24 hour	25 μg/m^3		
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m^3)		
Vinyl chloride	24 hour	0.01 ppm (26 μg/m^3)		

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary

Notes:
[1] In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.
μg/m[3] =micrograms per liter
mg/m[3] = milligrams per cubic meter
Source: CARB 2016

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designations. As summarized in Table 3.3-3, the SFBAAB is designated as nonattainment for state ozone, $PM_{2.5}$, and PM_{10} standards, as well as national ozone and $PM_{2.5}$ standards.

Table 3.3-3. San Francisco Bay Area Air Basin Designations for State and National Ambient Air Quality

Criteria Pollutants	State Designation	National Designation
Ozone	Non-attainment	Non-attainment
Carbon monoxide	Attainment	Attainment
PM_{10}	Non-attainment	Unclassified
$PM_{2.5}$	Non-attainment	Non-attainment
Carbon monoxide	Attainment	Unclassified/attainment
Nitrogen dioxide	Attainment	Unclassified/attainment
Sulfur dioxide	Attainment	Attainment
Sulfates	Attainment	—
Lead	Attainment	Unclassified/attainment
Hydrogen sulfide	Unclassified	—
Visibility reducing particles	Unclassified	—

Notes:
$PM_{2.5}$ = particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10} = particulate matter between 2.5 and 10 microns in aerodynamic diameter
Source: BAAQMD 2017b

National Ambient Air Quality Standards

The CAA required USEPA to establish NAAQS. As shown in Table 3.3-2, USEPA has established primary and secondary NAAQS for the following criteria air pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect the public health, and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan, referred to as a State Implementation Plan (SIP). The federal CAA amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation would achieve air quality goals. If USEPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated timeframe, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Hazardous Air Pollutants

USEPA and CARB regulate hazardous air pollutants (HAPs) and TACs through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for TACs to limit emissions, respectively. These, in conjunction with additional rules set forth by BAAQMD, described further below, establish the regulatory framework for TACs.

Under federal law, 187 substances are currently listed as HAPs. Major sources of specific HAPs are subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) program. The USEPA is establishing regulatory schemes for specific source categories and requires implementation of the Maximum Achievable Control Technologies (MACT) for major sources of HAPs in each source category. State law has established the framework for California’s TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem is California. The state has formally identified 244 substances as TACs and is adopting appropriate control measures for each. Once adopted at the state level, each air district will be required to adopt a measure that is equally or more stringent.

State

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues. CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA. California law authorizes CARB to set ambient (outdoor) air pollution standards (California Health and Safety Code [HSC] Section 39606) in consideration of public health, safety, and welfare (California Ambient Air Quality Standards [CAAQS]) (Table 3.3-2).

California Clean Air Act of 1988

The CCAA allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency (Cal EPA), is responsible for the coordination and administration of both federal and state air pollution programs within California and for implementing the CCAA. California law authorizes CARB to set ambient (outdoor) air pollution standards (California HSC Section 39606) in consideration of public health, safety, and welfare (Table 3.3-2).

California Ambient Air Quality Standards

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

CCAA requires that all local air districts in the state endeavor to achieve and maintain CAAQS by the earliest date practicable. CCAA specifies that local air districts should focus attention on reducing the emissions from transportation and area-wide emission sources and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing local air district compliance with federal and state laws, approving local air quality plans, submitting SIPs to Cal EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

California State Implementation Plan

The federal CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as a SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments released in 1992 dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The Cal EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the Cal EPA for approval and publication in the Federal Register. The 2017 *Clean Air Plan*, *Spare the Air, Cool the Climate* is the SIP for SFBAAB. The 2017 Clean Air Plan is a regional blueprint for achieving air quality standards and healthful air in the SFBAAB. The 2017 Clean Air Plan focuses on two closely-related goals: protecting public health and protecting the climate. Consistent with the GHG reduction targets adopted by the state of California, the plan lays the groundwork for a long-term effort to reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The 2017 plan also addressed a multi-pollutant strategy to simultaneously reduce emissions and ambient concentrations of ozone, fine particulate matter, toxic air contaminants, as well as GHG's. The control strategy focuses on the following priorities: reduce emissions of criteria air pollutants and TACs from all key sectors; reduce emissions of "super-GHGs" such as methane, black carbon, and fluorinated gases; decrease demand for fossil fuels (gasoline, diesel and natural gas); and decarbonize the energy system.

California Air Toxics "Hot Spots"

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs, including diesel particulate matter, and has adopted USEPA's list of HAPs as TACs.

Once a TAC is identified, CARB adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the source must incorporate best available control technology for toxics to minimize emissions.

CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Recent milestones included the low-sulfur diesel fuel requirement and stricter emissions standards for heavy-duty diesel trucks (effective in 2007 and subsequent model years) and off-road diesel equipment (2011). Over time, replacing older vehicles would result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1,3-butadiene, DPM) in California have been reduced substantially over the last decade; such emissions will be reduced further through a progression of regulatory measures (e.g., low-emission vehicles, clean fuels, and Phase II reformulated-gasoline regulations) and control technologies.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions and a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

In March 2015, the California Office of Environmental Health Hazard Assessment (OEHHA) adopted "The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments" in accordance with the Health and Safety Code, Section 44300. The Final Guidance Manual incorporates the scientific basis from earlier developed Technical Support Documents to assess risk from exposure to facility emissions. The 2015 OEHHA Final Guidance has key changes including greater age sensitivity in particular for children, decreased exposure durations, and higher breathing rate profiles. Because cancer risk could be up to three times greater using this new guidance, it may result in greater mitigation requirements, more agency backlog, and increased difficulty in getting air permits.

Regional

Bay Area Air Quality Management District

BAAQMD is the public agency that regulates stationary sources of air pollution in the nine counties that comprise the San Francisco Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma. BAAQMD attains and maintains air quality conditions in Napa County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of BAAQMD includes the preparation of plans and programs for the attainment of NAAQS and CAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. BAAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA and CCAA.

As mentioned above, BAAQMD adopts rules and regulations. All projects are subject to BAAQMD's rules and regulations in effect at the time of construction. Specific rules applicable to project construction may include, but are not limited to:

- Regulation 2, Rule 1, General Permit Requirements: Includes criteria for issuance or denial of permits, exemptions, appeals against decisions of the Air Pollution Control Officer and BAAQMD actions on applications.
- Regulation 2, Rule 2, New Source Review: Applies to new or modified sources and contains requirements for Best Available Control Technology and emission offsets. Rule 2 implements federal New Source Review and Prevention of Significant Deterioration requirements.
- Regulation 6, Rule 1, General Requirements: Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions, and opacity.
- Regulation 7, Odorous Substances: Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person (or facility) must meet all limitations of this regulation but meeting such limitations shall not exempt such person from any other requirements of BAAQMD, state, or national law. The limitations of this regulation shall not be applicable until BAAQMD receives odor complaints from 10 or more complainants within a 90-day period alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence. When the limits of this regulation become effective as a result of citizen complaints described above the limits shall remain effective until such time as no citizen complaints have been received by BAAQMD for 1 year. The limits of this regulation shall become applicable again if BAAQMD receives odor complaints from five or more complainants within a 90-day period. BAAQMD staff shall investigate and track all odor complaints they receive and shall attempt to visit the site, identify the source of the objectionable odor, and assist the owner or facility in finding a way to reduce the odor.
- Regulation 8, Rule 3, Architectural Coatings: Limits the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within BAAQMD.

Bay Area Air Quality Management District Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce CARB control measures. Under BAAQMD Regulation 2, Rule 1, General Permit Requirements, and Regulation 2, Rule 2, New Source Review, all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations including new-source-review standards and air-toxics control measures. BAAQMD limits emissions and public exposure to TACs through programs including the Community Air Risk Evaluation Program, which estimates and reports both local and regional impacts of TACs in the Bay Area. BAAQMD administers certain portions of the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), which serves to collect data, identify specific facilities that produce localized impacts, assess health risks, notify nearby residents of risks, and reduce those significant risks to acceptable levels through 'Hot Spots' Risk Reduction Audits and Plans for specific facilities.

Bay Area Air Quality Management CEQA Air Quality Guidelines

The BAAQMD released the latest version of the CEQA Air Quality Guidelines in 2017. The Guidelines provide BAAQMD recommended procedures for evaluating air quality impacts within the SFBAAB during the CEQA process. The Guidelines also establish construction and operational related criteria air pollutant thresholds for ROG, NOx, PM10, and PM2.5. These thresholds establish the level at which a project's individual emissions of air pollutants or precursors would result in a cumulatively considerable contribution to existing air quality.

Local

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project (City of Newark 2013a):

Goal CS-6: Green Building. Reduce the impacts of buildings and development on greenhouse gas levels and the environment in general.

- **Policy CS-6.2: Encouraging Greener Construction.** Encourage greener construction methods and greater use of recycled-content materials in new residential, commercial, and industrial construction projects.

Goal CS-7: Energy Conservation. Maximize opportunities for energy efficiency, conservation, and independence.

- **Policy CS-7.1: Reducing Energy Use.** Support measures to reduce energy consumption and increase energy efficiency in residential, commercial, industrial, and public buildings.

- **Policy CS-7.2: Renewable Energy Sources.** Support the expanded use of renewable energy sources such as wind and solar by Newark residents and businesses, the City of Newark, and other government officials.

- **Policy CS-7.3: Designing for Energy Efficiency.** Support building design, site planning, and subdivision design methods that reduce heating and cooling costs and achieve greater energy efficiency.

Goal LU-2: Land Use Compatibility. Ensure compatibility between adjacent land uses.

- **Policy LU-2.4: Buffering from Transportation Facilities.** Ensure that the design of new residential development near rail lines, truck routes, freeways, or major thoroughfares includes setbacks, landscape screening, and other provisions to minimize exposure to negative impacts such as noise and air pollution.

Goal HW-1: Air Quality. Air quality that meets state and federal standards and provide improved respiratory health for Newark residents.

- **Policy HW-1.3: Reducing Exposure to Air Pollution in New Development.** Use site planning and architectural design to reduce potential exposure of sensitive uses to major air pollution sources, including freeways and industrial activities.

3.3.3 Environmental Impacts

This section analyzes the project's potential to result in significant air quality impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

Construction

Construction of the Project has the potential to create air quality impacts through the use of heavy-duty construction equipment, construction workers' vehicle trips, truck hauling trips, and vendor truck trips. Off-road construction equipment and vehicle trips generate NOx and particulate matter. Diesel powered construction equipment and hauling trucks would emit DPM, a type of TAC. In addition, fugitive dust emissions would result from site disturbance, including grading and asphalt recycling, and fugitive ROG emissions would result from application of architectural coatings and paving. Short-term construction-related emissions of criteria air pollutants and precursors were calculated using the California Emissions Estimator Model (CalEEMod) Version 2020.4.0 computer program (California Air Pollution Control Officers Association 2017). CalEEMod was used to calculate emissions from construction of the parking lot, buildings, and paved areas. Modeling was based on project-specific information (e.g., building type and size, amount of demolition, area to be paved) where available, and default values in CalEEMod that are based on the project's location, land use type, and type of construction.

The construction activities and assumed duration, based on CalEEMod defaults with adjustments for anticipated debris and soil hauling, are shown in Table 3.3-4, Anticipated Construction Schedule.

Table 3.3-4. Anticipated Construction Schedule

Construction Activity	Start Date	End Date	Number of Working Days
Pick-n-Pull Inventory Removal	9/26/2023	1/25/2024	88
Demolition	1/26/2024	3/28/2024	45
Mobilization	3/29/2024	4/4/2024	5
Remedial Soil Cleanup	4/10/2024	5/22/2024	31
Soil Import	5/23/2024	10/16/2024	105
Grading	5/23/2024	10/18/2024	107
Underground Utilities	10/19/2024	9/25/2025	244
Jack and Bore Preparation	3/1/2025	3/10/2025	6
Jack and Bore	3/11/2025	4/21/2025	30
Jack and Bore Cleanup	4/22/2025	4/29/2025	6
Off-Site Street Improvements	5/1/2025	5/14/2025	10
Paving	9/26/2025	10/6/2025	7

Construction Activity	Start Date	End Date	Number of Working Days
Building Construction	10/7/2025	5/6/2026	152
Architectural Coating	11/6/2025	5/6/2026	130

Source: CalEEMod.

Off-road equipment such as excavators, graders, backhoes, loaders, pile-driving rigs, crushing equipment, pavers, water trucks, and forklifts would be used for demolition, geotechnical work, excavation, and grading, but also for building construction and hardscape and landscape materials installation. Miscellaneous construction equipment would include generators and air compressors, and possibly crushing and processing equipment and cement/mortar mixers. A variety of other smaller mechanical equipment would also be used at the Project site during the construction period, such as saw cutters, cutting/chopping saws, tile saws, stud impact guns, welding machines, and concrete boom pumps. Construction equipment estimates are based on CalEEMod defaults, adjusted for the anticipated construction schedule and site conditions. The modeled construction equipment for each activity is shown in Table 3.3-5, Construction Equipment Assumptions.

Table 3.3-5. Construction Equipment Assumptions

Equipment	Horsepower	Number	Hours per Day
Pick-n-Pull Inventory Removal			
Cranes	231	1	8
Concrete/Industrial Saws	81	1	8
Excavators	158	3	8
Rubber Tired Dozers	247	2	8
Demolition			
Concrete/Industrial Saws	81	1	8
Excavators	158	3	8
Rubber Tired Dozers	247	2	8
Mobilization			
Cranes	231	1	2
Tractors/Loaders/Backhoes	97	1	8
Remedial Soil Cleanup			
Excavators	158	1	8
Water Trucks	402	1	8
Rubber Tired Dozers	247	1	8
Rubber Tired Loaders	247	1	8
Grading			
Excavators	158	2	8
Graders	187	1	8
Water Trucks	402	1	8

Equipment	Horsepower	Number	Hours per Day
Rubber Tired Dozers	247	1	8
Scrapers	367	2	8
Tractors/Loaders/Backhoes	97	2	8
Underground Utilities			
Cranes	231	1	2
Excavators	158	2	8
Water Trucks	402	1	8
Rubber Tired Loaders	247	1	8
Tractors/Loaders/Backhoes	97	2	8
Jack and Bore Preparation			
Cranes	231	1	2
Excavators	158	1	8
Ski Steer Loaders	65	1	8
Tractors/Loaders/Backhoes	97	1	8
Jack and Bore			
Bore/Drill Rigs	221	1	8
Cranes	231	1	2
Excavators	158	1	8
Pumps	84	1	8
Jack and Bore Cleanup			
Cranes	231	1	2
Ski Steer Loaders	65	1	8
Tractors/Loaders/Backhoes	97	1	8
Off-Site Street Improvements			
Pavers	130	2	8
Paving Equipment	132	2	8
Rollers	80	2	8
Surfacing Equipment (Pavement Scarifier)	263	1	8
Paving			
Pavers	130	2	8
Paving Equipment	132	2	8
Rollers	80	2	8
Building Construction			
Cranes	231	1	2
Forklifts	89	3	8
Generator Sets	84	1	2
Tractors/Loaders/Backhoes	97	3	7
Architectural Coating			

Equipment	Horsepower	Number	Hours per Day
Air Compressors	78	1	6

Source: CalEEMod.

Subsurface project construction activities would also include construction of building foundations, and installation of subsurface utilities.

The areas to be excavated and/or graded were based on the project Tentative Map (CBG 2021). Approximately 39,000 CY of vegetation, contaminated soil, and old asphalt would be exported from the site during site preparation. Approximately 252,000 CY of soil and aggregate would be imported during grading to raise the level of the building pads and construct roadbeds. All grading and construction activity associated with site cleanup was included in the analysis of Project construction emissions. Project construction would also generate emissions from off-site truck trips for deliveries of concrete and other building materials, transportation of construction equipment to and from the site, hauling soils and debris from the site, and street sweepers.

All CalEEMod output files are provided in Appendix B.

Operations

Long-term operational emissions of criteria air pollutants and precursors were also calculated using CalEEMod. Operational emissions are generated from consumer products, landscape maintenance activities, and mobile-source emissions.

The project land uses were modeled as:

- 203 single-family residences with a default floor space of 1,800 square feet each
- approximately 7.13 acres of paved streets and sidewalks,
- approximately 5.89 of off-site street/sidewalk improvements,
- approximately 35,350 square feet of off-site utility improvements,
- approximately 4.89 acres of landscaping, storm water control features, and community open space.

Because the project would replace the existing automotive recycling and parts business on the project site (the Pick-n-Pull), the project’s operational emissions would be offset by emissions from existing operations, which would be replaced. Emissions from existing operations were estimated in a separate model using CalEEMod. Existing land uses were modeled as 1,500 square feet of general office building; 3,000 square feet of general light industrial building; and 13,000 square feet of unrefrigerated warehouse-no rail.

Operational sources of criteria pollutant and precursor emissions in CalEEMod include area, energy and mobile:

- **Area –** area sources include emissions from landscaping equipment, the use of consumer products, the reapplication of architectural coatings for maintenance, and gas fireplaces. Emissions associated with area sources were estimated using the CalEEMod default values for the project and the existing land use. Area sources in CalEEMod also include emissions from wood burning stoves and fireplaces. However, in accordance with the BAAQMD Regulation 6, Rule 3 – *Wood-Burning Devices*, permanently installed wood-burning devices are not permitted in new development and the project would not include wood-burning stoves or wood-burning fireplaces (BAAQMD 2015).

- **Energy –** The project would use electricity for lighting, heating and cooling. Electricity would be supplied by PG&E. Criteria pollutant and precursor emissions related to the generation of electrical power are emitted at the site of the generation facilities and are not included in the CalEEMod operation emissions. Criteria pollutant and precursor emissions related to the burning of natural gas in furnaces, water heaters and appliances are included in the CalEEMod operation emissions. The CalEEMod default natural gas usage rates for Alameda County were used for project and existing use modeling.

- **Mobile –** Operational emissions from mobile sources are associated with project-related vehicle trip generation and trip length. Based on the trip generation rate from the project Transportation Impact Analysis (TIA), the project's single-family homes would generate 2,000 average daily trips ([ADT], and the existing land use generates 920 ADT (Fehr & Peers 2021a).

A project VMT analysis was completed as part of the TIA which concluded that the project would result in 27.9 average daily miles per resident in 2020 and 25.6 average daily miles per resident in 2040 (Fehr & Peers 2021a). Using linear interpolations between the VMT data points in the TIA, in 2027 the daily VMT would be 27.0 miles per resident. The project is anticipated to have a residential population of 682, resulting in a total project annual VMT of 6.72 million miles for the first full year of operation. The residential trip distances and purposes were adjusted in the model to result in an annual VMT of approximately 6.7 million miles.

All CalEEMod output files are provided in Appendix B.

Odors

Odors from a project are evaluated qualitatively. The analysis considers the screening level distance from typical odor producing land facilities (e.g., landfill, composting, etc.) when siting new receptors and the compliant history of the proposed land use.

Thresholds of Significance

In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary. The analysis to assess project-level air quality impacts should be as comprehensive and rigorous as possible (BAAQMD 2017a). Table 3.3-6 summarizes BAAQMD thresholds used for this analysis.

Table 3.3-6: BAAQMD Air Quality CEQA Thresholds of Significance

Pollutant	Construction-Related	Operational-Related	
Criteria Air Pollutants and Precursors (regional)	**Average Daily Emissions (lbs/day)**	**Average Daily Emissions (lbs/day)**	**Maximum Annual Emissions (TPY)**
ROG	54	54	10
NOx	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	Best management practices	None	

Notes:
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10} = particulate matter between 2.5 and 10 microns in aerodynamic diameter
ROG = reactive organic gases
TPY = tons per year

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's air quality impacts are significant. Would the proposed project:

- Conflict with or obstruct implementation of the applicable air quality plan?
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- Expose sensitive receptors to substantial pollutant concentrations?
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Project Impact Analysis and Mitigation Measures

Air Quality Plan

Impact AIR-1 **The proposed project could conflict with or obstruct implementation of the applicable air quality plan.**

Impact Analysis

The BAAQMD's 2017 Clean Air Plan is the regional air quality plan (AQP) for the Air Basin (BAAQMD 2017b). It identifies strategies to bring regional emissions into compliance with federal and State air quality standards. It also provides a control strategy to reduce ozone, PM, air toxics, and GHGs. The BAAQMD's Guidance provides two criteria for determining if a plan-level project is consistent with the current AQP control measures. However, the BAAQMD does not provide a threshold of significance for project-level consistency analysis. Therefore, the following criteria will be used for determining a project's consistency with the AQP.

- Criterion 1: Does the project support the primary goals of the AQP?
- Criterion 2: Does the project include applicable control measures from the AQP?
- Criterion 3: Does the project disrupt or hinder implementation of any AQP control measures?

Criterion 1

The primary goals of the 2017 Clean Air Plan, the current AQP, are to:

- Protect public health through the attainment air quality standards
- Protect the climate

As discussed in impact discussions AIR-2, AIR-3, and AIR-4 the proposed project would not significantly contribute to cumulative nonattainment pollutant violations, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people after implementation of Mitigation Measure AIR-1. Therefore, the project is consistent with criterion 1 with incorporation of Mitigation Measure AIR-1, which would require all construction contractors to implement the basic construction mitigation measures recommended by the BAAQMD to reduce fugitive dust emissions.

Regarding climate protection, the proposed project's GHG emissions were determined to be less than significant, and the proposed project was consistent with applicable greenhouse gas reduction plans adopted to protect the climate (See Section 3.8, Greenhouse Gas Emissions). Accordingly, the proposed project would be consistent with criterion 1 for climate protection.

Criterion 2

The 2017 Clean Air Plan contains 85 control measures aimed at reducing air and climate pollutants in the Bay Area. For purposes of consistency with climate planning efforts at the state level, the control strategy in the Clean Air Plan is based upon the same economic sector framework used by the CARB for its 2014 update to the AB 32 Scoping Plan. The sectors are as follows:

- Stationary Sources
- Transportation
- Energy
- Buildings
- Agriculture
- Natural and Working Lands
- Waste Management

- Water
- Super-Greenhouse Gas Pollutants

The proposed project's potential to conflict with each of these measures is discussed below. The Clean Air Plan recognizes that, to a great extent, community design[1] dictates individual travel modes and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and GHGs from motor vehicles is to channel future Bay Area growth into communities where goods and services are located nearby and people have a range of viable transportation options. Therefore, the 2017 Clean Air Plan includes 85 control measures aimed at reducing air pollutants and GHGs in the SFBAAB.

Stationary Source Control Measures. The Stationary Source Measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Since the proposed project is residential in nature would not include any stationary sources of emissions, the Stationary Source Measures of the Clean Air Plan are not applicable to the proposed project.

Transportation Control Measures. The BAAQMD identifies Transportation Measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, TACs, and greenhouse gases (GHGs) by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. The proposed project would develop new multifamily residences that would locate residents near existing and planned residential uses, commercial, office, and retail space uses, and public parks. The proposed project includes pedestrian access connections within and adjacent to the project site. The proposed project would be constructed in accordance with City standards and would be consistent with the BAAQMD's effort to encourage planning for bicycle and pedestrian facilities.

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and not individual projects), the Energy Control Measures of the Clean Air Plan are not applicable to the proposed project. However, the project applicant would be required to conform to the energy efficiency requirements of the California Building Standards Code, also known as Title 24. Specifically, the project must implement the requirements of the most recent Building Energy Efficiency Standards, which is the current version of Title 24.

Building Control Measures. The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters but has limited authority to regulate buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and

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[1] For people who live in low-density, car-oriented residential developments, the motor vehicle is often the only viable transportation option. In such situations, even the best strategies to promote alternative modes of travel can only have a very modest effect. Alternatively, compact communities with a mixture of land uses make it much easier to walk, cycle, or take transit for at least some daily trips.

policies. The proposed project would be required to comply with the latest California Green Building Standards Code (CALGreen) standards. Therefore, the Building Control Measures of the Clean Air Plan are not applicable to the proposed project.

Agriculture Control Measures. The Agriculture Control Measures are designed to primarily reduce emissions of methane. Since the proposed project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the proposed project.

Natural and Working Lands Control Measures. The Natural and Working Lands Control Measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to ordinances that promote urban-tree plantings. Since the project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the proposed project.

Waste Management Control Measures. The Waste Management Measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The proposed project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the proposed project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The Water Control Measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the Water Control Measures are not applicable to the proposed project.

Super-GHG Control Measures. The Super-GHG Control Measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the proposed project.

As discussed above, most of the measures contained in the Clean Air Plan would not be applicable to the proposed project and will be implemented by BAAQMD using its permit authority or are aimed at cities or counties to adopt within general plans. The proposed project would not impede implementation of any measures contained in the Clean Air Plan and would be consistent with applicable measures outlined in the Clean Air Plan. For example, under Mitigation Measure AIR-2 the proposed project would comply with TR22 of the Clean Air Plan that encourages the early development of Tier 4 engines in construction. Moreover, the proposed project will be consistent with the goals and policies laid out within the City's General Plan to reduce air pollution. The proposed project would be constructed to be 100 percent electric and would be built to the latest California Green Buildings Standards for residential developments. As such, the proposed project would be consistent with General Plan Goal CS-7. As shown in Impact 2 through Impact 4 below, the proposed project's emissions, risk, and odor impacts were found to be less than significant. As such the proposed project would also comply with General Plan Goal HW-1. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan.

Criterion 3

If the approval of a project would not cause a disruption, delay, or otherwise hinder the implementation of any clean air plan control measure it would be considered consistent with the 2017 Clean Air Plan. Examples of how a project may cause the disruption or delay of control measures include a project that precludes an extension of a transit line or bike path or proposes excessive parking beyond parking requirements. The project will not preclude extension of a transit line or bike path (control measure TR-9), propose excessive parking beyond parking requirements (control measure TR-13), or otherwise create an impediment or disruption to implementation of any AQP control measures.

Conclusion

The proposed project would be consistent with the criteria of the AQP with incorporation of Mitigation Measure AIR-1 and AIR-2. As such, with the incorporation of this mitigation measure this impact would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

MM AIR-1: **Implement Construction Best Management Practices.** The applicant shall require all construction contractors to implement the basic construction mitigation measures recommended by the BAAQMD to reduce fugitive dust emissions. Emission reduction measures will include, at a minimum, the following measures. Additional measures may be identified by the BAAQMD or contractor as appropriate:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day
- All haul trucks transporting soil, sand, or other loose material off-site will be covered
- All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour
- All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used
- Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations; clear signage shall be provided for construction workers at all access points
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications

- All equipment shall be checked by a certified visible emissions evaluator or checked by a certified mechanic and determined to be running in proper condition prior to operation
- Post a publicly visible sign with the telephone number and person to contact at the City regarding dust complaints. This person will respond and take corrective action within 48 hours. The Bay Area Air Quality Management District's phone number will also be visible to ensure compliance with applicable regulations.

MM AIR-2: **Tier 4 Certified Construction Equipment.** The project applicant or designated contractor shall specify, and the City shall verify, that all grading, building, and other construction permits for the project, include the following requirement: All diesel-powered off-road equipment used for project remediation and construction activities shall be U.S. EPA Tier 4 certified, or have CARB approved engine retrofit kits certified to have emissions equivalent to Tier 4 standards.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Criteria Pollutants

Impact AIR-2 **The proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.**

Impact Analysis
In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Project construction and operational impacts are assessed separately below.

Construction Emissions

Construction activities associated with development of the proposed project would include site preparation, grading, building construction, paving and architectural coatings. Emissions from construction-related activities are generally short-term in duration but may still cause adverse air quality impacts.

Table 3.3-7 provides the construction emissions estimate for the proposed project. Please refer to Appendix B for details regarding assumptions used to estimate construction emissions. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as require pursuant to CEQA guidelines. As shown in the table, the unmitigated construction emissions would exceed BAAQMD significance thresholds.

Table 3.3-7: Unmitigated Remediation and Construction Criteria Pollutant and Precursor Emissions

Phase	Pollutant Emissions (pounds per day)							
	ROG	NO_X	CO	SO_X	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Pick-n-Pull Inventory Removal	3.2	39.9	26.2	0.1	1.6	1.4	0.4	1.3
Demolition	2.8	24.5	23.4	0.1	0.6	1.1	0.1	1.0
Mobilization	0.2	2.3	2.8	0.0	0.0	0.1	0.0	0.1
Remedial Soil Cleanup	2.4	39.1	21.0	0.1	9.6	0.9	4.2	0.8
Soil Import	0.6	40.4	9.1	0.2	5.5	0.3	1.5	0.3
Grading	3.8	35.7	31.5	0.1	9.4	1.5	3.7	1.3
Underground Utilities	1.6	14.7	17.1	0.0	0.5	0.5	0.1	0.5
Jack and Bore Preparation	0.5	4.2	7.5	0.0	0.1	0.2	0.0	0.2
Jack and Bore	0.8	6.3	9.6	0.0	0.1	0.3	0.0	0.2
Jack and Bore Cleanup	0.3	2.9	4.2	0.0	0.1	0.1	0.0	0.1
Off-Site Street Improvements	4.5	10.5	16.6	0.0	0.1	0.5	0.0	0.5
Paving	6.2	37.4	21.4	0.1	3.9	0.7	1.1	0.6
Building Construction	0.9	7.9	11.5	0.0	0.4	0.3	0.1	0.3
Architectural Coating	37.5	1.3	3.5	0.0	0.7	0.1	0.2	0.1
Concurrent 2024 Soil Import and Grading	4.4	76.1	40.5	0.3	14.9	1.8	5.2	1.7
Concurrent 2025 Underground Utilities and Jack and Bore	2.2	19.5	26.6	0.1	0.6	0.7	0.1	0.7
Concurrent 2025 Underground Utilities and Street Improve.	6.0	23.6	33.6	0.1	0.6	0.9	0.2	0.9
Concurrent 2025 Building Const. and Arch. Coating	38.3	9.1	14.9	0.0	1.0	0.4	0.3	0.4
Maximum Daily	**38.9**	**76.1**	**40.5**	**0.3**	**14.9**	**1.8**	**5.2**	**1.7**
BAAQMD Daily Thresholds	*54*	*54*	*none*	*none*	*BCMMs*	*84*	*BCMMs*	*54*
Exceed Daily Threshold?	***No***	***Yes***	***No***	***No***	***Yes***	***No***	***Yes***	***No***

Source: CalEEMod.

As shown in Table 3.3-7, impacts for emission of NOx during remediation and construction would exceed the BAAQMD threshold, and the impact would be potentially significant. Implementation of Mitigation Measure AIR-2 would require project construction to utilize Tier 4 certified construction equipment. As shown in Table 3.3-8, implementation of Mitigation Measure AIR-2 would reduce the impact to a less than significant level and would not result in a significant impact. Additionally, implementation of BCMMs as required by Mitigation Measure AIR-1 would reduce impacts of emission of PM_{10} and $PM_{2.5}$ during construction and remediation to a less than significant level and would not result in a significant impact.

Table 3.3-8: Mitigated Remediation and Construction Criteria Pollutant and Precursor Emissions

Phase	Pollutant Emissions (pounds per day)							
	ROG	NO_X	CO	SO_X	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Pick-n-Pull Inventory Removal	0.8	13.4	31.3	0.1	1.6	0.2	0.4	0.2
Demolition	0.7	3.0	29.6	0.1	0.4	0.1	0.1	0.1
Mobilization	0.1	0.3	3.1	0.0	0.0	0.0	0.0	0.0
Remedial Soil Cleanup	0.9	23.6	28.3	0.1	5.9	0.3	2.3	0.2
Soil Import	0.6	40.4	9.1	0.2	5.4	0.3	1.5	0.3
Grading	1.0	4.0	39.4	0.1	4.3	0.1	1.7	0.1
Underground Utilities	0.5	4.5	22.9	0.0	0.5	0.1	0.1	0.1
Jack and Bore Preparation	0.2	1.7	8.7	0.0	0.1	0.0	0.0	0.0
Jack and Bore	0.3	1.2	13.1	0.0	0.1	0.0	0.0	0.0
Jack and Bore Cleanup	0.1	1.4	4.7	0.0	0.1	0.0	0.0	0.0
Off-Site Street Improvements	3.8	1.6	20.7	0.0	0.1	0.0	0.0	0.0
Paving	5.6	30.0	24.1	0.1	3.9	0.3	1.1	0.3
Building Construction	0.3	1.3	12.2	0.0	0.4	0.0	0.1	0.0
Architectural Coating	37.3	0.3	3.5	0.0	0.7	0.0	0.2	0.0
Concurrent 2024 Soil Import and Grading	1.6	44.4	48.5	0.3	9.7	0.5	3.2	0.4
Concurrent 2025 Underground Utilities and Jack and Bore	0.8	5.7	36.0	0.1	0.6	0.1	0.1	0.1
Concurrent 2025 Underground Utilities and Street Improve.	4.4	6.1	43.6	0.1	0.6	0.1	0.2	0.1
Concurrent 2025 Building Const. and Arch. Coating	37.6	1.6	15.7	0.0	1.0	0.0	0.3	0.0
Maximum Daily[1]	37.6	44.4	48.5	0.3	9.7	0.5	3.2	0.4
BAAQMD Daily Thresholds	*54*	*54*	*none*	*none*	*BCMMs*	*84*	*BCMMs*	*54*
Exceed Daily Threshold?	***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod.
[1] Includes MM AIR-1 to implement BCMMs and MM AIR-2 to require Tier 4 engines for all off-road equipment with 50 or more horsepower

Operational Emissions

As previously discussed, the pollutants of concern include ROG, NO_X, PM_{10}, and $PM_{2.5}$. Operational sources of criteria pollutant and precursor emissions in CalEEMod include area, energy, and mobile sources.

Because the project would replace the existing automotive recycling and parts business on the project site (the Pick-n-Pull), the project's operational emissions would be offset by emissions from existing operations, which would be replaced. The existing project emissions are presented in Table 3.3-9 and the project emissions are presented in Table 3.3-10. The net operational emissions fall below BAAQMD project level thresholds and would not result in a significant impact.

Table 3.3-9: Existing Use Criteria Pollutant and Precursor Emissions

Source	Pollutant Emissions							
	ROG	NO_X	CO	SO_X	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Daily Emissions (pounds per day)								
Area	0.4	<0.1	<0.1	<0.1	0	<0.1	0	<0.1
Energy	<.01	<0.1	<0.1	<0.1	0	<0.1	0	<0.1
Mobile	1.8	2.5	18.7	<0.1	4.6	<0.1	1.2	<0.1
Total Existing Use Emissions[1]	2.3	2.5	18.7	<0.1	4.6	<0.1	1.2	<0.1

Source: CalEEMod.
[1] Totals may not sum due to rounding.

Table 3.3-10: Operational Criteria Pollutant and Precursor Emissions

Source	Pollutant Emissions							
	ROG	NO_X	CO	SO_X	Fugitiv e PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Daily Emissions (pounds per day)								
Area	10.2	2.9	17.9	<0.1	0	0.3	0	0.3
Energy	0.2	2.0	0.8	<0.1	0	0.2	0	0.2
Mobile	4.7	6.9	51.9	0.1	14.1	<0.1	3.8	<.01
Total Project Emissions[1,2]	15.2	11.8	70.7	0.1	14.1	0.5	3.8	0.5
Existing Use Emissions	(2.3)	(2.5)	(18.7)	(<0.1)	(4.6)	(<0.1)	(1.2)	(<0.1)
Net Project Emissions[1]	**12.9**	**9.3**	**52.0**	**0.1**	**9.5**	**0.5**	**2.6**	**0.5**
BAAQMD Daily Thresholds	*54*	*54*	*none*	*none*	*none*	*84*	*none*	*54*
Exceed Daily Threshold?	***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***
Annual Emissions (tons per year)								
Area	1.77	0.03	1.52	<0.01	0	<0.01	0	<0.01
Energy	0.04	0.36	0.15	<0.01	0	0.03	0	0.03
Mobile	0.86	1.20	8.90	0.02	2.47	0.01	0.66	0.01
Total Project Emissions[1]	2.66	1.59	10.57	0.02	2.47	0.05	0.66	0.05
Existing Use Emissions	(0.41)	(0.43)	(3.19)	(<0.01)	(0.81)	(<0.01)	(0.22)	(<0.01)
Net Project Emissions[1]	**2.25**	**1.16**	**7.38**	**0.02**	**1.66**	**0.05**	**0.44**	**0.05**
BAAQMD Annual Thresholds	*10*	*10*	*none*	*none*	*none*	*15*	*none*	*10*
Exceed Annual Threshold?	***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod.
[1] Totals may not sum due to rounding.

[2] Maximum daily emissions of ROG and SOX occur during the summer, maximum daily emissions of NOX and CO occur during the winter, emissions of PM10 and PM2.5 are not seasonally dependent.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measure AIR-1 and AIR-2 is required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Sensitive Receptors

Impact AIR-3	The proposed project could expose sensitive receptors to substantial pollutant concentrations.

Impact Analysis
This discussion addresses whether the proposed project would expose sensitive receptors to substantial pollutant concentrations. The localized pollutants that could impact sensitive receptors include: NOA, construction-generated fugitive dust (PM_{10} and $PM_{2.5}$), construction generated DPM, CO hotspots and operational-related TACs. Project construction and operational impacts are assessed separately below.

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, the following are land uses where sensitive receptors are typically located:

- Long-term health care facilities
- Rehabilitation centers
- Convalescent centers
- Hospitals
- Retirement homes
- Residences
- Schools, playgrounds, and childcare centers

The nearest sensitive receptor is the Silliman Center Preschool. The preschool lies approximately 1,100 feet north of the project site and approximately 100 feet east of the off-site improvements along Mowry Avenue. As a residential development project, the proposed project itself would be considered a sensitive receptor once operational. Most emissions during construction are generated during the site preparation and grading phases when heavy equipment is used to prepare the land for construction. As site preparation and grading are anticipated to occur for the entire project site prior to the completion of ground-up construction, emissions from grading and site preparation would not overlap with project operation. Earliest residential occupancy is expected to occur in 2024, following the completion of construction. Assuming the project is built in phases, construction activities following site preparation and grading would primarily include building construction, paving, painting, and landscaping. Relative to site preparation and grading activities, limited amounts of diesel equipment are used during these construction activities, which would not contribute substantially to the health risk during construction.

Construction

Fugitive Dust

During construction (grading), fugitive dust (PM_{10} and $PM_{2.5}$) would be generated from site grading and other earth-moving activities. Most of this fugitive dust will remain localized and will be deposited near the project site.

The BAAQMD does not have a quantitative threshold for fugitive dust. The BAAQMD's Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of best management practices (BMPs). Mitigation Measure AIR-1 requires the implementation of fugitive dust control measures that are consistent with BMPs established by the BAAQMD, which reduce the project's construction-generated fugitive dust impacts to a less than significant level.

Diesel Particulate Matter

The greatest potential for TAC emissions during construction would be from DPM emissions associated with heavy equipment operations. Heath effects from carcinogenic air toxics, such as DPM, are usually described in terms of an individual cancer risk. An individual cancer risk is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer. Relative to the lifetime risk, construction would be short-term and temporary and would not result in a long-term source of DPM emissions. The BAAQMD recommends assessing the cancer risk and health hazards posed to sensitive receptors that lie within a 1,000 foot radius from the project site (BAAQMD 2017a). Review of the surrounding project site demonstrates that the nearest receptors are preschoolers located over 1,000 feet to the north of the project site. The preschool is located approximately 100 feet east of the off-site improvements along Mowry Avenue. The off-site improvements would update existing utility lines. Utility construction would move along the existing lines and would not be at any one location along Mowry Avenue for an extended period of time. Therefore, construction DPM emissions would result in a less than significant impact.

Naturally Occurring Asbestos

The California DOC and the United States Geological Survey (USGS) have published a guide for generally identifying areas that are likely to contain NOA. There are no NOA areas located in in the immediate vicinity of the project site. However, the project would require the demolition of an existing facility where there may be potential for asbestos. Implementation of Mitigation Measure HAZ-1, identified in Section 3.9, Hazards and Hazardous Materials, would require an asbestos survey prior to demolition and soil and ground water quality investigations prior to demolition activities and grading activities and reduce impacts to less than significant.

Operation

Carbon Monoxide Hotspot

Localized high levels of CO (CO hotspots) are associated with traffic congestion and idling or slow-moving vehicles. The BAAQMD recommends a screening analysis to determine if a project has the potential to contribute to a CO hotspot. The screening criteria identify when site-specific CO dispersion modeling is necessary. The project would result in a less than significant impact to air quality for local CO if any of the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway)

Implementation of the proposed project would not conflict with the applicable congestion management program established by the Alameda Transportation Authority. According to the Transportation Impact Analysis Report prepared for the project by Fehr & Peers, the project would generate approximately 136 net new trips during the a.m. peak hour and 147 net new trips during the p.m. peak hour and would not substantially increase traffic volumes on nearby roadways above 44,000 vehicles per hour. Furthermore, the adjacent roadways are not located in an area where vertical and/or horizontal mixing, or the free movement of the air mass, is substantially limited by physical barriers such as bridge overpasses or urban or natural canyon walls. Therefore, the project would not significantly contribute to an existing or projected CO hotspot. Impacts are less than significant.

Toxic Air Contaminants

The proposed project would develop 203 single-family residences and would not generate substantial on-site TAC emissions during operation. Residential land uses are not land uses that are typically associated with TAC emissions and the proposed project does not include any features that would include more than usual TAC emission. As described in the Transportation Impact Analysis Report, the project is expected to generate a net increase of 1,080 average daily trips. The proposed project would primarily generate trips associated with residents and visitors traveling to and from the project site. The daily travel trips to and from the project site would primarily be generated by passenger vehicles. Because nearly all passenger vehicles are gasoline-combusted, the proposed project would not generate significant amount of DPM emissions during operation. Therefore, the proposed project would not result in significant health impacts to nearby sensitive receptors during operation.

Cumulative Health Risk Assessment

The BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project. For a project-level analysis, the BAAQMD provides three tools for use in screening potential sources of TACs. The BAAQMD-provided tools that were used to assess the potential cumulative impacts from TACs are described below (BAAQMD 2022a).

- **Stationary Source Risk and Hazard Screening Tools.** The BAAQMD prepared a geographic information system (GIS) tool with the location of permitted sources. For each emissions source, the BAAQMD provides conservative estimates of cancer risk and $PM_{2.5}$ concentrations. Based on information from the GIS tool, there are three BAAQMD-permitted stationary sources within 1,000 feet of the project site.
- **Health Risks for Local Roadways.** The BAAQMD pre-calculated concentrations and the associated potential cancer risks and $PM_{2.5}$ concentration increases for each county within their jurisdiction for roadways that carry at least 30,000 average daily trips. For certain areas, the BAAQMD also included local roadways that meet BAAQMD's "major roadway" criteria of 10,000 vehicles or 1,000 trucks per day. The latest available screening tool is in the form of a GIS raster file.
- **Freeway Screening Analysis Tool.** The BAAQMD prepared a GIS raster file that contains pre-estimated cancer risk and $PM_{2.5}$ concentration increases for highways within the Bay Area.
- **Rail Screening Tool.** The BAAQMD prepared a GIS raster file that contains estimated cancer risks and $PM_{2.5}$ concentrations from railroad operations at any point within the Air Basin.

The project would locate new sensitive receptors (residents) that could be subject to existing sources of TACs at the project site. However, the California Supreme Court concluded in California Building Industry Association v. BAAQMD that agencies subject to CEQA are not required to analyze the impact of existing environmental conditions on a project's future users or residents, except where the project would exacerbate an existing environmental condition. Although impacts from existing sources of TAC emissions on sensitive receptors on the project site are not subject to CEQA, the BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project when siting new sensitive land uses. Therefore, for informational purposes and in the spirit of CEQA's full disclosure, the potential TAC risks to the project's future residents were analyzed. The BAAQMD's various screening tools, which quantify health risks from existing stationary and permitted sources, were used to estimate the health risks (associated with TAC sources within 1,000 feet of the project site) on future residents within the proposed project.

The cumulative health risk results for future receptors at the project site are summarized at project buildout in Table 3.3-11.

Table 3.3-11: Summary of the Cumulative Health Impacts at the Project Site at Project Buildout

Source	Cancer Risk in One Million	Chronic Inhalation Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Existing Sources[1]			
Valassis, FACID 14486	0.01	0.00	0.00
Apple Inc., FACID 17769_1	8.56	0.00	0.01

Source	Cancer Risk in One Million	Chronic Inhalation Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Apple Inc., FACID 17769_2	8.46	0.00	0.01
Apple Inc., FACID 17769_3	8.86	0.00	0.01
Apple Inc., FACID 17769_4	9.01	0.00	0.01
Apple Inc., FACID 17769_5	8.66	0.00	0.01
Apple Inc., FACID 17769_6	5.57	0.00	0.01
Apple Inc., FACID 17769_9	1.08	0.00	0.00
Apple Inc., FACID 17769_10	0.62	0.00	0.00
Apple Inc., FACID 17769_11	1.60	0.00	0.00
Apple Inc., FACID 17769_12	1.32	0.00	0.00
Apple Inc., FACID 17769_13	1.26	0.00	0.00
Apple Inc., FACID 17769_14	1.20	0.00	0.00
Apple Inc., FACID 17769_15	1.45	0.00	0.00
Apple Inc., FACID 17769_16	2.26	0.00	0.00
Existing Roadways	0.50	ND	0.011
Existing Highway 880	3.52	ND	0.064
Cumulative Health Risks at the Site			
Cumulative Total	63.93	0.017	0.15
BAAQMD's Cumulative Thresholds of Significance	100	10	0.8
Threshold Exceedance in Unmitigated Scenario?	No	No	No

Notes:
[1] Table accounts for adjustments made for distance of the source from the project site. Multipliers for distance from BAAQMD Health Risk Distance Multiplier (BAAQMD 2022b). Roadways and highways do not include distance multiplier.
$PM_{2.5}$ = particulate matter of 2.5 microns or less; $\mu g/m^3$ = micrograms per cubic meter; FACID = Facility Identification Number; MEIR = maximally exposed individual receptor; ND = no data available
Source: BAAQMD 2022b

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

Mitigation Measure AIR-1 and HAZ-1 are required.

Level of Significance After Mitigation

Less Than Significant Impact with Mitigation.

Odors

Impact AIR-4	The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Impact Analysis

As stated in the BAAQMD 2017 Air Quality Guidelines, odors are generally regarded as an annoyance rather than a health hazard and the ability to detect odors varies considerably among the populations and overall is subjective. The BAAQMD does not have a recommended odor threshold for construction activities. However, BAAQMD recommends screening criteria that are based on distance between types of sources known to generate odor and the receptor. The BAAQMD Guidelines identify wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters as odor sources of particular concern, and recommends buffer zones of 1 to 2 miles around them to avoid potential odor conflicts. For projects within the screening distances, the BAAQMD has the following threshold for project operations:

- An odor source with five (5) or more confirmed complaints per year averaged over three years is considered to have a significant impact on receptors within the screening distance shown in the BAAQMD's guidance (see Table 3.3-3).

The BAAQMD's 2017 Air Quality Guidelines provide a table with odor screening distances recommended by BAAQMD for a variety of land uses. Projects that would site an odor source or a receptor farther than the applicable screening distance, shown in Table 3.3-12 below, would not likely result in a significant odor impact.

Table 3.3-12: Screening Levels for Potential Odor Sources

Odor Generator	Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile

Source: BAAQMD 2017a

Project Construction and Project Operation

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. Project operations would not be anticipated to produce odorous emissions. The proposed project consists of a single family home development and would not result in any uses that generate odor sources of concern. Construction activities associated with the proposed project could result in short-term odorous emissions from diesel exhaust associated with construction equipment. However, these emissions would be intermittent and would dissipate rapidly from the source. In addition, this diesel-powered equipment would only be present on-site temporarily during construction activities. Therefore, construction would not create objectionable odors affecting a substantial number of people, and the impact would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

3.4 BIOLOGICAL RESOURCES

This section describes the environmental and regulatory setting for biological resources which includes aquatic resources. It also describes impacts on biological resources that would result from implementation of the proposed project and mitigation measures for significant impacts.

The analysis in this section is based on the Biological Resources Technical Report and Aquatic Resources Delineation prepared by Helix Environmental Planning, Inc. (Helix) (2022) for the proposed project. These documents are provided in Appendix C of the Draft EIR. The Aquatic Resources Delineation is Appendix G of the Biological Technical Report. Results incorporated into these documents are based on biological and aquatic resources surveys conducted within the study area (the “study area” in this section refers to the 29-acre project site and off-site improvement areas that total 35 acres [Figure 3-1]) from 2019 to 2022 for the proposed project. The 35-acre study area is located in southwestern Alameda County in the City of Newark, California, near the southern end of Mowry Avenue. The area is comprised of three parcels identified as APNs 537-0850-001-11, -13, and -002-00, along with off-site improvements on adjacent lands (Mowry Avenue north of the parcels and north of the UPRR tracks, and a linear area paralleling the southern side of the UPRR tracks). The study area is located on the Newark 7.5-minute USGS quadrangle map within Township 5 South, Range 1 W, Sections 7 and 8, in addition to un-sectioned land not included in the Public Lands Survey. The center of the study area is approximately located at latitude 37.511991 north, longitude -122.011772 west, NAD 83, Mount Diablo Meridian (Figures 3-1).

3.4.1 Environmental Setting

Regional Setting

The study area is within the City of Newark in southwestern Alameda County, California, southwest of the intersection of Mowry Avenue and the UPRR tracks, west of Cherry Street (Figure 2-1).

The site is in un-sectioned lands not included in the Public Lands Survey, adjacent to Township 5 South, Range 1 W, Mount Diablo Meridian. The project site is depicted on the USGS 7.5-minute “Newark, California” quadrangle map.

Project Setting

The study area is located in an area with agricultural and industrial uses in the southwestern portion of the City. The 29-acre project site located at the existing Pick-n-Pull consists of three parcels identified as APNs 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00 (Figure 2-2). The three parcels total 29 acres and the 19-acre portion located in the southern portion of the site is disturbed and developed and primarily covered by existing structures and pavement. The triangular northern parcel which is approximately 10 acres is undeveloped.

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Source: HELIX Environmental Planning, Inc. June 2022

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
3-1

Title
Biological Resources Study Area

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Three land cover types (developed, ruderal/disturbed, and stormwater detention basins) are present within the study area and are described in the following subsections. No native vegetation communities occur within the study area (Figure 3-2). Thirty-eight native wildlife species, 32 bird species, five mammal species, and one amphibian species were observed during the 2019-2022 surveys. Most plant species observed (29 out of 35) during 2019-2022 surveys were non-native, and 11 of them had a California Invasive Plant Council (Cal-IPC) invasiveness rating including limited, moderate, and high (Cal-IPC 2023) (for additional detail refer to Appendix C).

Developed

Developed land refers to areas where permanent structures, pavement, hardscape, or other land uses prevent the growth of vegetation, or where vegetation is associated with maintained landscaping. Developed land on the study area includes auto parts and scrap metal salvage yard, portions of Mowry Avenue and road frontage along Mowry Avenue, and a segment of the UPRR tracks. Developed land generally lacks significant habitat value for plants and wildlife. Wildlife within developed areas is comprised of species that can tolerate regular human disturbance.

Ruderal/Disturbed

Ruderal/disturbed habitat refers to land that retains a soil substrate but is subject to recent or on-going disturbance that prevents the formation of natural vegetation communities. Vegetation in ruderal/disturbed areas is dominated by naturalized or invasive non-native species and ruderal native annuals. The species composition is determined by local colonization potential or past introductions. Ruderal/disturbed areas include dirt roads, trails, parking areas, weedy open areas, abandoned fields, and other places where the natural vegetation has been removed.

Ruderal/disturbed habitat on the study area is dominated by introduced species such as wild oats (*Avena fatua*), Italian ryegrass (*Festuca perennis*), yellow star thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). Ruderal/disturbed areas include a disked field next to the auto wrecking and scrap metal salvage yard, and small strips of habitat adjacent to Mowry Avenue. The ruderal/disturbed habitat of the study area provides marginal nesting and foraging habitat for bird species in the region as well as habitat for disturbance-tolerant wildlife. Striped skunk (*Mephitis mephitis*) and black-tailed jackrabbit (*Lepus californicus*) were observed in the ruderal/disturbed habitat along with numerous bird species including red-tailed hawk (*Buteo jamaicensis*) and red-shouldered hawk (*Buteo lineatus*).

Stormwater Detention Basins

There are two constructed stormwater detention basins on the eastern boundary of the study area, located within the existing Pick-n-Pull site (Figure 3-3). These basins are routinely maintained to remove vegetation for the purpose of maintaining capacity. Between maintenance events, the basins support patches of narrow-leaved cattail (*Typha latifolia*) and other rapidly colonizing wetland plants surrounding reaches of open water. The total area of these basins is approximately 0.90 acre.

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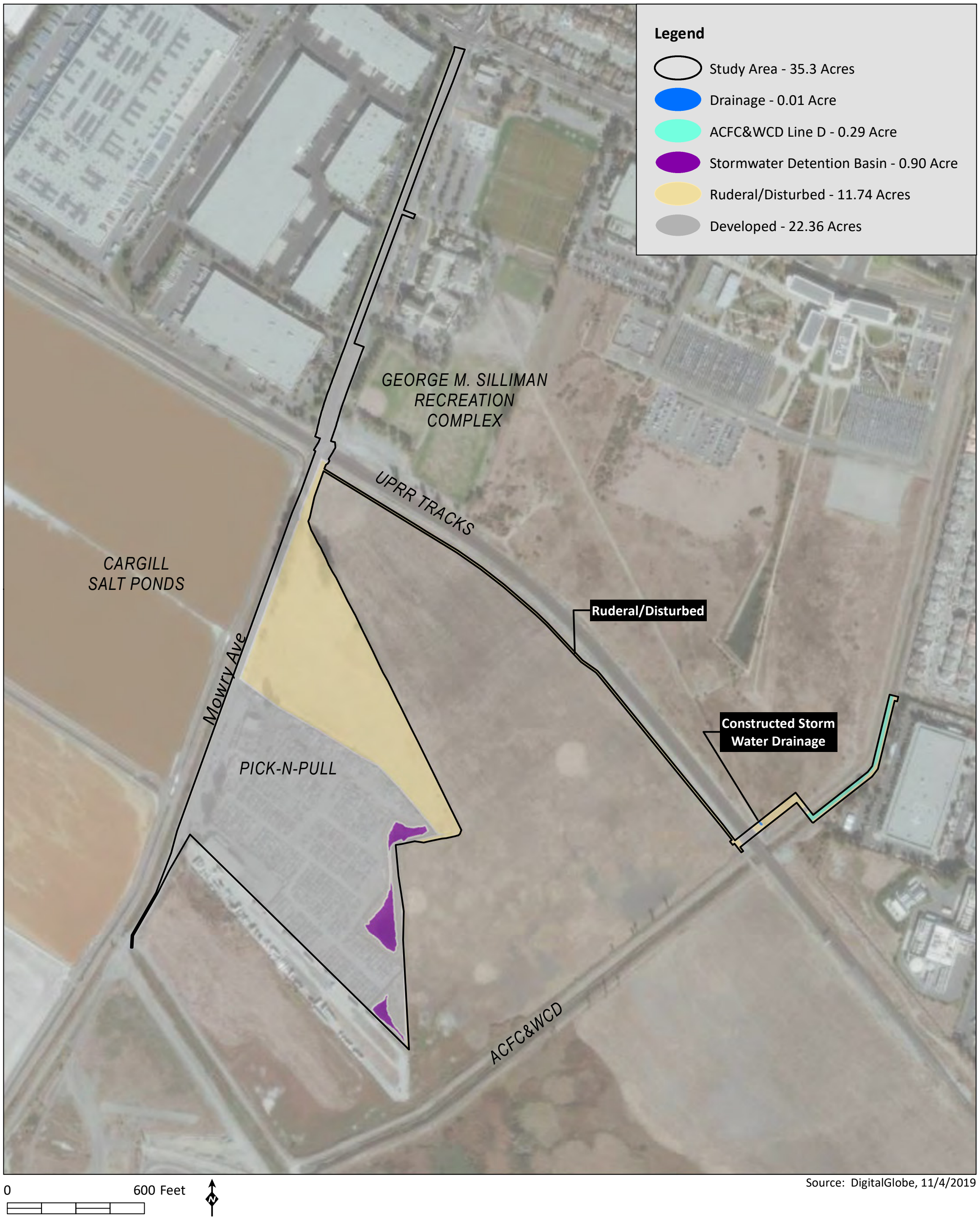

Source: HELIX Environmental Planning, Inc. June 2022

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
3-2

Title
Biological Resources Habitat Map

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AQUATIC FEATURES	ACRES	SQ. FEET	LINEAR FEET
Wetlands and Waters (Jurisdictional)			
Line D – Other Water with In-stream Wetlands	0.290	12,630	680
Jurisdictional Subtotal	0.290	12,630	680
Wetlands and Waters (Non-Jurisdictional)			
Constructed Storm Drain (CSD 1)	0.005	209	21
Storm Water Detention Basin 1 (SWDB 1)	0.160	6,963	-
Storm Water Detention Basin 2 (SWDB 2)	0.737	32,095	-
Non-Jurisdictional Subtotal	0.902	39,267	21
Total Aquatic Resources	**1.192**	**51,897**	**701**

0 350 700
Feet
1 inch = 350 feet
N

Source: HELIX Environmental Planning, Inc. January 2023

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
3-3

Title
Aquatic Resources Delineation Map

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3.4.2 Regulatory Setting

Regulatory authority over biological resources is shared by federal, state, and local authorities under a variety of legislative acts. The following section summarizes the federal, state, and local regulations for special-status species, jurisdiction over waters of the United States and State of California, and sensitive biological resources. This section provides a listing and overview of these federal and state laws; only select regulations are applicable to this project.

Federal

Clean Water Act Sections 404 and 401

Under Section 404 (33 USC. 1344) of the Clean Water Act (CWA), as amended, the U.S. Army Corps of Engineers (USACE) retains primary responsibility for permits to discharge dredged or fill material into waters of the United States. All discharges of dredged or fill material into jurisdictional waters of the United States that result in permanent or temporary losses of waters of the United States are regulated by USACE. A permit from USACE must be obtained before placing fill or grading in wetlands or other waters of the United States, unless the activity is exempt from CWA Section 404 regulation (for example, certain farming and forestry activities).

USACE defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987).

In other words, the USACE defines wetlands by the presence of all three wetland indicators: hydrophytic vegetation, hydric soils, and wetlands hydrology.

Waters of the United States are defined at 33 CFR Part 328. They include traditional navigable waters; impoundments of Waters of the United States; tributaries of traditional navigable waters; certain wetlands; and certain intrastate lakes, ponds, and streams. The applicability of Section 404 permitting over discharges to wetlands is, therefore, a two-step process: (1) determining the areas that are wetlands, and (2) where a wetland is present, assessing the wetland's connection to traditional navigable waters and non-navigable tributaries to determine whether the wetland is jurisdictional under the CWA. A wetland is considered jurisdictional if it meets certain specified criteria.

USACE is required to consult with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) under Section 7 of the federal Endangered Species Act (FESA) if the action subject to CWA permitting could result in "Take" of federally listed species or an adverse effect to designated critical habitat. A “Take” is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1531; 50 CFR 17.3). An activity can be defined as a Take, even if it is unintentional or accidental. Taking can result in civil or criminal penalties. The proposed project is within the jurisdiction of the Sacramento District of USACE.

Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification from the state in which the discharge originates or would originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate. The discharge must comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The responsibility for the protection of water quality in California rests with the SWRCB and its nine RWQCBs. The proposed project is within the jurisdiction of the San Francisco Bay RWQCB.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC Sections 661-667e, March 10, 1994, as amended 1946, 1958, 1978, and 1995) requires that whenever waters or channel of a stream or other body of water are proposed or authorized to be modified by a public or private agency under a federal license or permit, the federal agency must first consult with USFWS and/or the NMFS, and with the head of the agency exercising administration over the wildlife resources of the state where construction would occur (in this case, the California Department of Fish and Wildlife [CDFW]). The Fish and Wildlife Coordination Act is intended to conserve birds, fish, mammals and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.

If direct, permanent impacts occur to waters of the United States from a proposed project, then a permit from USACE under CWA Section 404 is required for the construction of the proposed project. USACE is required to consult with USFWS and/or NMFS as appropriate regarding potential impacts to federally listed species under the FESA. Such action may prompt consultation with CDFW, which would review the proposed project pursuant to California Endangered Species Act (CESA) and issue a consistency letter with USFWS and/or NMFS, if required.

Federal Endangered Species Act

The United States Congress passed the FESA in 1973 to protect species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act to help protect the ecosystems upon which endangered and threatened species depend and within which they live. The USFWS and the NMFS are the designated federal agencies responsible for administering the FESA.

The FESA prohibits the Take of endangered or threatened wildlife species. Activities that could result in Take of a federally listed species require an incidental Take authorization resulting from a FESA Section 7 consultation or an FESA Section 10 consultation. Plants are legally protected under the FESA only if Take occurs on federal land or from federal actions, such as issuing a wetland fill permit.

A federally endangered species is one that is considered in danger of becoming extinct throughout all, or a significant portion, of its range. A federally threatened species is one that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species proposed for listing as threatened or endangered. Proposed species are those for which a proposed rule to list as endangered or threatened has been published in the Federal Register. In addition to endangered, threatened, and proposed species, the USFWS maintains a list of candidate species. Candidate species are those for which the USFWS has on file sufficient information to support issuance of a proposed listing rule.

Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed endangered or threatened species may be present in the project area and determine whether the proposed project would have a potentially significant impact on such a species. In addition, the agency is required to determine whether the proposed project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat designated or proposed to be designated for such species (16 USC 1536[3], [4]). Project-related impacts to species on the FESA endangered or threatened list would be considered significant and would require mitigation.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. Section 16 USC 703–712 of the Act states “unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill” a migratory bird. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. Currently, there are 836 migratory birds protected nationwide by the Migratory Bird Treaty Act, of which 58 are legal to hunt. The MBTA also prohibits disturbance and harassment of nesting migratory birds at any time during their breeding season. The USFWS is responsible for enforcing the MBTA (16 USC 703). The migratory bird nesting season is generally considered to be between February 1 and September 15 and earlier for raptors.

State

Porter-Cologne Water Quality Act

The state and RWQCB also maintain independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Act. Waters of the State are defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB protects all waters in its regulatory scope but has special responsibility for isolated wetlands and headwaters. These water bodies might not be regulated by other programs, such as Section 404 of the CWA. Waters of the State are regulated by the RWQCBs under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact waters of the State, are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit but does involve activities that may result in a discharge of harmful substances to waters of the State, the RWQCBs have the option to regulate such activities under their state authority in the form of Waste Discharge Requirements (WDRs) or certification of WDRs.

California Endangered Species Act

The state enacted the CESA in 1984. The CESA is similar to the FESA but pertains to state-listed endangered and threatened species. The CDFW is responsible for maintaining a list of threatened and endangered species designated under state law (California Fish and Game Code [CFGC] 2070). Section 2080 of the CFGC prohibits Take of any species that the commission determines to be an endangered or threatened species. Take is defined in Section 86 of the CFGC as "to hunt, purse, catch, capture, or kill, or attempt to hunt, purse, catch, capture, or kill."

The state and federal lists of threatened and endangered species are generally similar; however, a species present on one list may be absent from the other. The CESA regulations are also somewhat different from the ESA in that the state regulations include threatened, endangered, and candidate plants on non-federal lands within the definition of Take. The CESA allows for incidental Take resulting from otherwise lawful development projects.

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the proposed project area and determine whether the proposed project would have a potentially significant impact on such species. Project-related impacts to species on the CESA endangered or threatened list (or, in addition, designated by the CDFW as a "Species of Special Concern (SSC)," which is a level below threatened or endangered status) would be considered significant and would require mitigation.

California Environmental Quality Act

CEQA Guidelines Sections 15125(c) and 15380(d) provide that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. Thus, CEQA provides the ability to protect a species from potential project impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

The California Native Plant Society (CNPS) maintains a list of plant species native to California whose populations that are significantly reduced from historical levels, occur in limited distribution, or are otherwise rare or threatened with extinction. This information is in the online Rare Plant Inventory (CNPS 2021). Taxa with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, and 3 in the CNPS inventory consist of plants that meet the definitions of the CESA of the CFGC, are eligible for state listing, and meet the definition of Rare or Endangered under CEQA Guidelines Sections 15125 (c) and 15380(d). Some taxa with a CRPR 4 may meet the definitions of the CESA of the CFGC. Populations with a CRPR of 4 may qualify for consideration under CEQA if they are peripheral or disjunct populations, represent the type locality of the species, or exhibit unusual morphology and/or occur on unusual substrates.

Additionally, CDFW maintains lists of special animals and plants. These lists include a species conservation ranking status from multiple sources, including FESA, CESA, federal departments with unique jurisdictions, CNPS, and other non-governmental organizations. Based on these sources, CDFW assigns a heritage rank to each species according to their degree of imperilment (as measured by rarity, trends, and threats). These ranks follow NatureServe's Heritage Methodology, in which all species are listed with a G (global) and S (state) rank. Species with state ranks of SI-S3 are also considered highly imperiled.

CEQA Guidelines Appendix G checklist section IV (b) calls for the consideration of riparian habitats and sensitive natural communities. Sensitive vegetation communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. However, these communities may or may not necessarily contain special-status species. Sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by the CDFW (i.e., the California Natural Diversity Database [CNDDB] and VegCAMP programs) or the USFWS. Impacts to sensitive natural communities and habitats must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G).

Although sensitive natural communities do not (at present) have legal protection, CEQA calls for an assessment of whether any such resources would be affected and requires a finding of significance if there would be substantial losses. High quality occurrences of natural communities with heritage ranks of 3 or lower are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents (such as general plans) often identify these resources as well. Avoidance, minimizations, or mitigation measures should be implemented if project-affected stands of rare vegetation types or natural communities are considered high-quality occurrences of the given community.

As a trustee agency under CEQA, CDFW reviews potential project impacts to biological resources, including wetlands. In accordance with the CEQA thresholds of significance for biological resources, areas that meet the state criteria of wetlands and could be impacted by a project must be analyzed. Pursuant to CFGC Section 2785, CDFW defines wet areas as "lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools."

California Fish and Wildlife Code Section 1600

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species are subject to jurisdiction by CDFW under Sections 1600-1616 of the CFGC with regard to any activity that would do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake generally require a Streambed Alteration Agreement (SAA).

The term "stream," which includes creeks and rivers, is defined in the CCR as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life." This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation (14 CCR 1.72).

In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as "on, or pertaining to, the banks of a stream;" therefore, riparian vegetation is defined as, "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself." Removal of riparian vegetation also requires an SAA from CDFW.

California Fish and Wildlife Code Sections 3503 and 3513

According to Section 3503 of the CFGC, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (except house sparrows [*Passer domesticus*] and European starlings [*Sturnus vulgaris*]). Section 3503.5 specifically protects birds in the orders Falconiformes and Strigiformes (birds-of-prey). Section 3513 essentially overlaps with the MBTA, prohibiting the Take or possession of any migratory non-game bird. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered Take by the CDFW.

Fully Protected Species and Species of Special Concern

The classification of "fully protected" was CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibian and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The CFGC sections (fish at Sec. 5515, amphibian and reptiles at Sec. 5050, birds at Sec. 3511, and mammals at Sec. 4700) dealing with "fully protected" species states that these species "... may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species," although Take may be authorized for necessary scientific research. This language makes the "fully protected" designation the strongest and most restrictive regarding the Take of these species. In 2003, the code sections dealing with fully protected species were amended to allow CDFW to authorize Take resulting from recovery activities for state-listed species.

SSC are broadly defined as animals not listed under the CESA, but that are nonetheless of concern to CDFW because they are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under CESA and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although the SSC designation provides no special legal status, they are given special consideration under CEQA during project review.

California Native Plant Protection Act of 1977

The California Native Plant Protection Act (NPPA) of 1977 (CFGC Sections 1900-1913) empowers the Fish and Game Commission to list native plant species, subspecies, or varieties as endangered or rare following a public hearing. To the extent that the location of such plants is known, CDFW must notify property owners that a listed plant is known to occur on their property. Where a property owner has been so notified by CDFW, the owner must notify CDFW at least 10 days in advance of any change in land use (other than changing from one agricultural use to another), so that CDFW may salvage listed plants that would otherwise be destroyed. Currently, 64 species of native plants have been listed as rare under the NPPA.

Natural Community Conservation Planning Act

The primary objective of the Natural Community Conservation Planning (NCCP) Act of 1991 is to conserve natural communities at the ecosystem scale while accommodating compatible land use. The NCCP Act is an effort by the state and numerous private and public partners that is broader in its orientation and objectives than the CESA and FESA (refer to discussions above). The NCCP Act seeks to anticipate and prevent the controversies and gridlock caused by species listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

Local

City of Newark General Plan

The City's General Plan includes the following goals and policies relevant to the proposed project:

Goal LU-7: Southwest Newark Residential and Recreational Project. Develop the Southwest Newark Residential and Recreational Project as one of the Silicon Valley's premier new neighborhoods, with executive housing and high-quality recreation.

- **Policy LU-7.2: Wetland Enhancement.** Create or enhance wetland habitat areas within non-developed portions of the Southwest Newark project area to offset loss of wetlands and aquatic habitat and provide additional habitat opportunities for rare plant and wildlife species.
- **Policy LU-7.3: Biological Resources Protection.** Maintain, protect, and enhance the natural biological resources of the Southwest Newark Residential and Recreational Project Areas, particularly sensitive habitats and associated rare plants and animals, while integrating development and human activity. Disturbance of wetland and aquatic habitat should be avoided to the maximum extent feasible.
- **Policy LU-7.4: Controlling Invasive Plants.** Avoid the introduction and spread of non-native invasive weeds as a result of development activities in this area. Require management plans to control the population of invasive species prior to grading, fill, and development activities.
- **Policy LU-7.8: Mitigating Construction Impacts.** Avoid and mitigate construction impacts on wetlands, aquatic habitat, wildlife, and water quality as development takes place in the Southwest Newark Residential and Recreational Project. Measures to minimize such impacts should be included in project approvals, consistent with state and federal agency oversight and regulations.

Goal CS-1: Environmental Protection. Protect Newark's natural environment, landscape, and physical features.

- **Policy CS-1.1: Environmental Impacts of Development.** Ensure that development minimizes its impacts on Newark's environment and natural resources through sound planning, design, and management.
- **Policy CS-1.2: Conservation of Sensitive Areas.** Support the conservation of environmentally sensitive areas and unique natural resources in the city.

Goal CS-2: Wetland Conservation. Conserve Newark's wetlands and bay lands.

- **Policy CS-2.1:** Wildlife and Habitat Protection. Preserve and protect Newark's plant and animal species and habitats, including wetlands, salt marshes, creeks, and lakes. Ensure that land use decisions avoid and mitigate potential impacts on wildlife habitat to the extent feasible.
- **Policy CS-2.2:** Special-Status Species. Ensure that adverse impacts on special-status species, including those deemed rare, threatened, endangered, or candidate species for protection, are avoided and mitigated to the greatest extent feasible as development takes place.

- **Policy CS-2.4: Wetlands Delineation.** Encourage the owners of large potentially developable properties to enter into early discussions with appropriate federal agencies to conduct wetlands delineation studies. Such studies should be used to identify areas to be conserved as permanent open space, as well as appropriate mitigation measures to offset any wetland impacts.

- **Policy CS-2.5:** Development Near Wetlands. Manage land use and development of upland sites in a manner that minimizes off-site impacts to nearby wetlands.

Goal CS-4: Urban Forest. Conserve and manage the City's tree resources and urban forest.

- **Policy CS-4.1: Tree Preservation.** Maintain and improve City programs for protecting and preserving trees.

- **Policy CS-4.2: Trees and Public Improvements.** Manage the City's trees in a way that preserves the life of public improvements such as curbs, gutters, and sidewalks. Ensure that trees that are removed due to their age, health, or potential to damage property, are replaced in kind with new trees that are appropriate for their locations.

- **Policy CS-4.4: Street Trees as Community Amenity.** Encourage the use of street trees and landscaping to distinguish major thoroughfares and neighborhoods, beautify the city, encourage walking, and create a stronger sense of identity.

3.4.3 Environmental Impacts

This section analyzes the project's potential to result in significant biological impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology

Biological surveys conducted in 2019-2022 included a general biological survey, special-status plant surveys (botanical surveys), a burrowing owl (*Athene cunicularia*) habitat assessment and protocol surveys, an assessment of black rail (*Laterallus jamaicensis*) and other special-status bird species with the potential to occur in adjacent marsh habitats, an arborist inventory, and an aquatic resources delineation (Table 3.4-1). Surveys within the approximately 35-acre study area began on January 4, 2019. Most of the surveys were conducted in 2019. Two surveys occurred in 2021 and the most recent survey occurred on March 8, 2022. Table 3.4-1 presents the surveys conducted and the date conducted. The results of this assessment are documented in the Biological Resources Technical Report (Appendix C) and include a table of species observed within the study area.

Table 3.4-1 Biological Surveys Conducted for The Proposed Project

Date	Survey
January 4, 2019	general biological survey, jurisdictional delineation, burrowing owl habitat assessment
April 16, 2019	Arborist inventory, botanical survey,

	burrowing owl survey
May 2, 2019	botanical survey
May 8, 2019	botanical survey
May 22, 2019	botanical survey
May 23, 2019	burrowing owl survey
June 18, 2019	burrowing owl survey
June 18, 2019	burrowing owl survey
July 3, 2019	jurisdictional delineation
November 16, 2021	general biological survey, burrowing owl survey, jurisdictional delineation of off-site improvement areas
December 8, 2021	Arborist inventory of off-site improvements
March 8, 2022	general biological, botanical surveys

Prior to conducting field surveys, the following resources were reviewed to determine the potential for the project to impact sensitive biological resources:

- California Department of Fish and Wildlife (CDFW). *California Natural Diversity Database* (CNDDB); For: *San Leandro, Hayward, Dublin, Redwood Point, Newark, Niles, Palo Alto, Mountain View, and Milpitas* USGS 7.5-minute series quadrangles, Sacramento, CA (CDFW 2021)
- California Native Plant Society (CNPS). *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.39) For: *San Leandro, Hayward, Dublin, Redwood Point, Newark, Niles, Palo Alto, Mountain View, and Milpitas* USGS 7.5-minute series quadrangles, Sacramento, CA (CNPS 2021)
- U.S. Fish and Wildlife Service (USFWS). 2. *Information for Planning and Consultation* (IPaC) *for the Proposed Project* (USFWS 2021a)
- USFWS National Wetlands Inventory (USFWS 2021b)

Information for this section also references the following two sources that document previous biological and wetland studies conducted within the study area:

- *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013)
- *The Baylands and Climate Change: What We Can Do. Baylands Ecosystem Habitat Goals Science Update 2015 prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project* (San Francisco Bay Area Wetlands Ecosystem Goals Project 2015)

A list of special-status species with the potential to occur in the study area was compiled by performing a CNDDB query for the USGS quadrangle containing the study area (Newark) and the eight surrounding quadrangles (*San Leandro, Hayward, Dublin, Redwood Point, Niles, Palo Alto, Mountain View, and Milpitas*) and reviewing species data provided by the USFWS.

The study area lacks any form of a natural habitat corridor (e.g., riparian areas along streams, rivers, or other natural features) that would allow for wide ranging plants and animals from other habitats ingress and egress to the study area.

Special-Status Species

The following sections describe the potential for special-status species to occur within the study area.

Special-Status Plants

Special-status plant species are defined in accordance with the CEQA Guidelines, Section 15380 and the *Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities* (CDFW 2018) and include species that are:

- Federally or state-listed, or proposed for listing, as rare, threatened, or endangered (CDFW 2021),
- Special Plant as defined by the CNDDB (CDFW 2021), or
- Listed by the CNPS in the online version of its Inventory of Rare and Endangered Plants of California with a California Rare Plant Ranking (CDFW 2021).

The CNDDB query returned a list of 45 special-status plant species (CDFW 2021). The USFWS data did not include any additional special-status plant species. A table of the 45 species is included as an Appendix in the Biological Resources Report and includes a potential to occur column (Appendix C). The Biological Resources Technical Report considered the distances of mapped sensitive plant occurrences from the study area and the conditions on-site to determine that the study area does not contain suitable habitat for any of the special-status plant species that resulted from the CNDDB query because the study area does not contain any native vegetation communities.

Special-Status Wildlife

Special-status wildlife species are defined in accordance with the CEQA Guidelines, Section 15380 and include species that are:

- Listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (USFWS 2021a)
- Listed or candidates for listing as threatened or endangered under the California Endangered Species Act (CDFW 2021)
- Designated as SSC by the CDFW (CDFW 2021)
- Designated as Fully Protected by the CDFW (CDFW 2021), or
- Otherwise meet the definition of rare, threatened, or endangered, as described in the CEQA Guidelines, Section 15380.

The CNDDB search performed as part of the Biological Resources Technical Report Section 3-71 returned a list of 63 special-status wildlife species (Appendix C). The USFWS data called out an additional four federally listed species. Based on the field surveys, the following five special-status wildlife species were determined to have the moderate or high potential to occur within the study area (Appendix C): northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and burrowing owl (*Athene cunicularia*) (Table 3.4-2). Suitable salt marsh habitat for salt marsh harvest mouse (*Reithrodontomys raviventri*s) does not occur within the study area but is located within 300 feet of the study area. The acreage believed to be necessary to sustain a healthy salt marsh harvest mouse population is 150 acres or more (USFWS 2013, 2010). A 14-inch-tall exclusion fence is located along the southern border of the study area adjacent to potential salt marsh harvest mouse habitat to prevent the species from entering the study area.

Table 3.4-2 Regionally Occurring Special-Status Species with Potential to Occur

Scientific Name **Common Name**	**State Status[1]**	**Habitat Suitability**
Antrozous pallidus pallid bat	SSC	Structures and trees in the study area provide roosting habitat for bats.
Athene cunicularia burrowing owl	SSC	There is suitable habitat with mammal burrows in the ruderal/disturbed portion of the study area.
Circus hudsonius northern harrier	SSC	There is suitable nesting and foraging habitat in the study area and surrounding area.
Corynorhinus townsendii Townsend's big-eared bat	SSC	Structures and trees in the study area provide roosting habitat for bats.
Elanus leucurus white-tailed kite	FP	There is suitable nesting and foraging habitat in the study area and surrounding area.
Reithrodontomys raviventris salt marsh harvest mouse[2]	FE/SE	There is no suitable habitat in the study area. However, nearby tidal salt marsh habitat may provide habitat.

Notes: [1] FP=State fully protected; SSC – state species of special concern; FE – FESA endangered; SE – CESA endangered

[2] Salt Marsh Harvest Mouse has no potential to occur on the site but is evaluated due to the presence of salt marsh habitat in the vicinity.

Pallid Bat (Antrozous pallidus)

The pallid bat is a CDFW SSC that occurs throughout California except for the high Sierra Nevada and the northern Coast Ranges. Habitats include grasslands, shrublands, woodlands, and forests from sea level to 6,000 feet. This species is most common in open, dry habitats with rocky areas for roosting; roosts also include cliffs, abandoned buildings, bird boxes, hollow trees and under bridges (Bolster ed. 1998). This species is primarily a crevice dweller, but recent studies have shown that they are also dependent upon tree roosts (Bolster ed. 1998). Particularly, in northern California pallid bat is more dependent upon oak woodland and oak savannah in lower elevations and may be found in coniferous forest, including redwoods at mid to higher elevations (Bolster ed. 1998). This is species is also intolerant of roost disturbance and it has a high loyalty to roosting sites. If this species experiences frequent disturbance at a roost site, they will abandon the roost (Bolster ed. 1998).

No pallid bat or other bat species were observed on site during surveys conducted within the study area from 1999 to 2021. The nearest CNDDB reported occurrence of pallid bat is located approximately seven miles east of the study area in in the coastal mountains (CDFW 2021). The record is dated 2001 and the site is confidential (CDFW 2021). The site is located at approximately 400 feet elevation in riparian, coastal oak woodland, and non-native annual grassland (CDFW 2021).

Ruderal habitat dominated by non-native annual grasses and forbs in the study area provides potential foraging habitat for pallid bat and tall gum/eucalyptus (*Eucalyptus* sp.) trees in the study area with woodpecker cavities provide possible roosting habitat. Pallid bat could also utilize crevices in structures at the Pick-n-Pull auto salvage wrecking yard; although, any roost site would be subject to constant disturbance as a result of daily activities associated with wrecking and salvaging vehicles. Due to the presence of marginally suitable habitat within the study area and adjacent to the site, pallid bat has the potential to occupy the site prior to construction.

Townsend's Big-Eared Bat (Corynorhinus townsendii)

The Townsend's big-eared bat, a CDFW SSC, is widely distributed throughout California except alpine and subalpine habitats. This species eats moths, beetle, and other insects which it catches on the wing or by gleaning from vegetation and is typically found near water. This species uses caves, mines, tunnels, buildings, and human made structures for roosting. Maternity roosts are typically in warm sites. Hibernation sites are typically cold, but not freezing. This species is very sensitive to disturbance and may abandon its roost after one visit (Zeiner et al. 1990).

No Townsend's big-eared bat or other bat species were observed on site during the 1999 to 2022 biological surveys. The nearest reported occurrence of the species is 14.2 miles west of the study area in Portola Valley (CDFW 2021).

Ruderal habitat dominated by annual grasses and forbs in the study area provides potential foraging habitat for Townsend's big-eared bat and tall eucalyptus trees in the study area with woodpecker cavities provide possible roosting habitat. Townsend's big-eared bat could also utilize crevices in structures at the Pick-n-Pull auto salvage wrecking yard, although any roost site would be subject to constant disturbance as a result of daily activities associated with wrecking and salvaging vehicles. Due to the presence of marginally suitable habitat within the study area and adjacent to the site, Townsend's big-eared bat has the potential to occupy the site prior to construction.

Burrowing Owl (Athene cunicularia)

Burrowing owl, a CDFW SSC, is often found in open, dry grasslands, agricultural and range lands, and desert habitats. It can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. Burrowing owl occurs at elevations ranging from 200 feet below mean sea level to over 9,000 feet AMSL. In California, the highest elevation where burrowing owls are known to occur is 5,300 feet AMSL in Lassen County. In addition to natural habitats, burrowing owl can be found in urban habitats such as at the margins of airports and golf courses and in vacant urban lots. Burrowing owl nests in underground burrows and commonly perch on nearby fence posts or mounds. The owl also uses ground squirrel (*Otospermophilus beecheyi*) burrows, badger (*Taxidea taxus*) dens, or artificial burrows such as abandoned pipes or culverts (CDFG 2012).

Although, the more northern burrowing owl populations migrate seasonally, burrowing owl is a year-round resident in much of California. The owl often forms loose colonies with nest burrows 46 to 2,952 feet apart (ICF 2012). The nesting season for burrowing owl can begin as early as February 1 and continues through August 31. Burrowing owl forages in adjacent grasslands and other suitable habitats primarily for insects and small mammals and less often for reptiles, amphibians, and other small birds. Burrowing owl has been documented foraging up to 1.7 miles from its nest in Saskatchewan, Canada; however, this owl also showed an aversion to foraging in agricultural or other mixed-use areas (Haug and Oliphant 1990). In the southern Central Valley of California and Imperial Valley over 80 percent of foraging activity occurred within 2,000 feet of the burrow (Gervais et al. 2003). A study in Texas documented that foraging distances in an urban environment ranged from approximately 30 to 130 feet from the nest burrow (Chipman et al. 2008). The Texas study also noted that burrowing owl in urban settings tended to be more vigilant at the burrow and spend less time foraging (Chipman et al. 2008).

All biological surveys included searching for burrowing owl. In addition, protocol burrowing owl surveys were conducted in 2019 on April 16, May 2, May 23, and June 18. A non-breeding burrowing owl survey was conducted on November 16, 2021, and an additional biological reconnaissance survey was conducted on March 8, 2022. Burrowing owl, burrows, or sign were not observed within the study area during any of the surveys.

The nearest CNDDB recorded occurrence of burrowing owl is 875 feet north of the study area on the Campus of Ohlone College near Cherry Street, dated 2005 (Occurrence No. 270) (CDFW 2021). Two active burrows were observed at this location in 1998. Four adult pairs and nine juveniles were passively relocated in February 2005 (CDFW 2021). There are numerous CNDDB occurrences of burrowing owl in the western portions of the cities of Newark and Fremont (CDFW 2021); HELIX biologists have also observed burrowing owls on several occasions within two to three miles of the site. There is a small resident population of burrowing owl in the city and transient owls are frequently observed on undeveloped parcels in the region (Helix 2022).

The ruderal/disturbed areas of the study area, which occur within a largely urban area adjacent to an auto salvage yard, provide marginal nesting and foraging habitat for burrowing owl. However, this species has not been observed within the study area during numerous surveys. Based on the negative results of the surveys, burrowing owl is not expected to occur in the study area except as transient, nonbreeding individuals.

The only vegetation community on site that could provide habitat for burrowing owl is the ruderal/ disturbed community in the northern 1/3 of the Pick-n-Pull property, which is dominated by wild oats, Italian ryegrass, yellow star thistle, and black mustard. Burrowing owl habitat typically consists of short, sparse vegetation with scattered and isolated shrubs in locally flat terrain in well-drained soil with mammal burrows or other refuge sites (CDFG 2012). Records of burrowing owl or observations of burrowing owl sign within the previous three years is considered evidence of occupied habitat (CDFG 2012). Because there are no records of burrowing owl in the study area and no burrowing owl sign was observed during numerous biological surveys including protocol surveys, the potentially suitable habitat in the study area is presumed to be unoccupied. Additionally, the site is regularly disked, and existing California ground squirrel burrows are disked and turned over. Burrowing owls were not observed over several site visits timed to coincide with the activity period of burrowing owls during the breeding season. The site is not favorable for burrowing owls compared to nearby sites and is unlikely to provide habitat for burrowing owl except as transient individuals moving through the site.

Northern Harrier (Circus hudsonius)

Northern harrier, a CDFW SSC, is widespread throughout North America from southern Canada to northern Mexico and is a year-round resident in California. Some harriers will migrate into California while others will migrate to Central America and South America (Zeiner et al. 1990). Northern harrier breeds in a variety of open habitats including marshes, wet meadows, weedy shorelines, grasslands, weed fields, pastures, sagebrush flats, desert sinks, and croplands (Zeiner et al. 1990). Northern harrier typically nests on the ground in patches of dense, tall vegetation in undisturbed areas. Harrier breeding occurs from March to August. Northern harrier feeds on a wide variety of vertebrate prey, including rodents, songbirds, waterfowl, and lizards (Zeiner et al. 1990).

Northern harrier was not observed on site during the 2019-2022 biological surveys. The nearest CNDDB occurrence of northern harrier documents two nests located approximately three miles southwest of the study area in salt marsh habitat (CDFW 2021). The record is dated 1971 and documents two pairs of breeding northern harriers, each nest with six eggs (CDFW 2021). HELIX biologists have observed foraging northern harrier on numerous occasions in the project region, but no nests have been documented (Helix 2022).

Ruderal habitat dominated by annual grasses and forbs in the study area provides potential nesting and foraging habitat for northern harrier. Freshwater marsh and salt marsh habitat on surrounding parcels provide suitable nesting habitat. In addition, small mammal prey is abundant and could support this species. Due to the presence of suitable habitat on and adjacent to the site, northern harrier has the potential to occupy the site prior to construction.

White-tailed Kite (Elanus leucurus)

White-tailed kite, a CDFW fully protected species, is a year-round resident in coastal and valley lowlands, where it inhabits herbaceous and open stages of most habitat types. Individuals forage in grasslands, farmlands, and wetlands, preying mostly on small diurnal mammals. Nests are built near the top of dense tree stands, usually near open foraging areas (Zeiner et al. 1990).

White-tailed kite was observed foraging in the vicinity of the study area during several of the biological surveys. No white-tailed kite nests were observed in or adjacent to the study area; although, suitable nest trees are present in the study area. The 1971 CNNDD record documented a nest in a willow (*Salix lasiolepis*) or sycamore (*Platanus racemosa*) tree; however, the area has since been developed (CDFW 2021).

Suitable nesting and foraging habitat for white-tailed kite is present in the study area. Several large eucalyptus trees that provide suitable nesting habitat are present along Mowry Avenue in the northern portion of the site adjacent to the ruderal/disturbed habitat. Open areas in the ruderal/disturbed habitat in and adjacent to the study area provide suitable foraging habitat for white-tailed kite. Due to the presence of suitable habitat on and adjacent to the site, white-tailed kite has the potential to occupy the site prior to construction.

Salt Marsh Harvest Mouse (Reithrodontomys raviventris)

The salt marsh harvest mouse is a federally listed and state listed endangered species and is endemic to tidal and brackish marsh habitat of the San Francisco Bay region. Salt marsh harvest mice are primarily found in the salt marshes along northern San Pablo Bay, surrounding Suisun Bay, and along southern San Francisco Bay (USFWS 1984). The salt marsh harvest mouse is critically dependent on dense cover and its preferred habitat is considered to be pickleweed dominated salt marsh wetlands.

No suitable habitat for salt marsh harvest mouse is present on the study area and no surveys have been conducted on the project site for this species. The nearest CNDDB reported occurrence of salt marsh harvest mouse documents tow individuals caught during a trapping survey approximately 1,500 feet south of the study area across the ACFC&WCD Line D. The record dates to 1985 and individuals were trapped on the edge of a salt marsh that abut a disked field (CFDW 2021). This record occurs within an expanse of salt marsh habitat.

The study area does not contain suitable habitat for salt marsh harvest mouse. The ruderal/developed habitat in the main portion of the study area is located over 2,000 feet north of suitable marsh habitat that could support this species and is separated from this habitat by the ACFC&WCD Line D which is a barrier to dispersal for salt marsh harvest mouse. The southern tip of the site that contains the auto wrecking yard and stormwater detention basins is located adjacent to salt marsh habitat that is suitable for use by salt marsh harvest mouse. However, the auto wrecking yard and stormwater detention basins themselves are developed and in active use and as such do not provide suitable habitat for salt marsh harvest mouse.

Protected Trees

The proposed project would remove or otherwise affect up to 45 existing trees protected by the City's tree preservation ordinance (Municipal Code Chapter 8.16, Preservation of Trees on Private Property). Most of the trees, 33 of 45, were non-native blue gum (*Eucalyptus globulus*). The 45 protected trees identified in the study area consisted of one native species, Fremont cottonwood (*Populus fremontii*). There were 44 non-native trees, with 11 rated in good condition. There were 26 of the 45 non-native trees with a diameter at breast height (DBH) greater than 18 inches. Additional information is provided in the Arborist Report which is as an Appendix in the Biological Resources Report (Appendix C).

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's impacts to biological resources are significant. Would the proposed project:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish or USFWS?

- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Project Impact Analysis and Mitigation Measures

Candidate, Sensitive, or Special-Status Species

Impact BIO-1	**The proposed project could have a substantial adverse effect, either directly or through habitat modifications on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.**

Impact Analysis
Following the completion of botanical surveys, the potential for these species to occur within the study area was assessed based on the habitats present within and adjacent to the study area, the proximity of known species occurrences, and knowledge of the species' range. It was determined that no special-status plant species are expected to occur within the study area due to lack of suitable habitat.

The following special-status wildlife species have moderate or high potential to occur within the study area: burrowing owl, northern harrier, white-tailed kite, pallid bat, and Townsend's big-eared bat. The other special-status species that were included in the database searches are not likely to occur or presumed absent within the study area due to the lack of suitable habitat. Migratory and resident nesting birds protected by MBTA and CDFW also have potential to occur in the study area. Direct impacts to sensitive bird species including nesting native resident and migratory birds, should they occur, include grading and ground-disturbing activities, increased noise levels from heavy equipment, and increased human presence. Construction during the breeding season could result in the displacement of breeding birds and the abandonment of active nests. If project construction occurs during the avian nesting season (generally considered to be between February 15 and September 15, with some raptors species nesting as early as January), impacts to protected migratory and resident nesting birds could occur. Nesting birds are expected to primarily occur adjacent to the study area but may forage or nest within the study area. Indirect impacts include human disturbance, fugitive dust, the spread of noxious non-native weed species, including the disruption of future breeding and foraging.

The proposed project could result in significant impacts to burrowing owl, northern harrier, white-tailed kite, nesting birds, and nesting colonies of pallid bats and Townsend's big eared bats. The implementation of the proposed project also has the potential to introduce or result in the spread of invasive species from the study area into adjacent sensitive habitats and impact special-status species.

Because special-status wildlife species may occur within the study area, there is potential for a substantial adverse effect on species as regulated by CDFW and/or the USFWS.

If construction and operation of the proposed project resulted in an impact to special-status species, these impacts would be considered significant. In accordance with General Plan Policy LU-7.8, all construction impacts to wildlife, wetlands, and aquatic habitats must be avoided and mitigated. In order to mitigate these potentially significant impacts, Mitigation Measures BIO-1 through BIO-5 would be implemented. These include site-wide BMPs (e.g., restriction on open trenches and guidelines for refueling near drainage features) (MM BIO-1), environmental awareness training to educate proposed project personnel regarding on-site plants and wildlife (MM BIO-2), pre-construction nesting bird surveys and avoidance measures for active nests (MM BIO-3), and pre-construction burrowing owl surveys and relocation of wildlife found within proposed project impact areas during pre-construction surveys (MM BIO-4 and BIO-5). These measures would ensure that potential impacts to special-status plant and wildlife species are reduced to a less than significant level during the construction phase.

Additionally, as the proposed project could also result in significant impacts to nesting colonies of pallid bats and Townsend's big eared bats, both identified as CDFW SSC, Mitigation Measure BIO-6 shall be implemented to minimize impacts to sensitive bat species. In addition to Mitigation Measures BIO-1 through BIO-6 identified to reduce impacts to wildlife species to a less than significant level, the proposed project would be required to implement Mitigation Measures BIO-7 and BIO-8. Mitigation Measure BIO-7 requires the preparation and implementation of an Invasive Species Management Plan to reduce the presence and spread of non-native, invasive species for the area to be developed. Mitigation Measure BIO-7 would comply with General Plan Policy LU-7.4 which requires management plans to control the population of invasive species. Mitigation Measure BIO-8 requires the preparation and implementation of a post-construction predator management plan and program to educate the project residents regarding measures to minimize the potential for subsidizing predator species and to minimize the potential effects of pets on sensitive species.

As the study area does not provide suitable habitat for salt marsh harvest mouse, no potential for direct impacts to this species is identified. However, the salt marsh harvest mouse does have potential to occur off-site in the area and therefore, may result in indirect impacts. As the project site is located within 300 feet of potentially suitable salt marsh harvest mouse habitat, a mouse-proof fence has been installed to prevent these species from entering the work area as a voluntary, precautionary, pre-construction protective measure to avoid potentially affecting salt marsh harvest mouse prior to any development activity. The current Pick-n-Pull owner has installed the mouse-proof fencing along the southern borders of the study area that are near suitable salt marsh habitat so that these species cannot enter and be harmed on a site that is zoned for development. As a result of site management post-implementation of the proposed project, potential indirect impacts to salt marsh habitat off-site are expected to be lower with the proposed project than with existing conditions because salt marsh harvest mouse have been excluded from the site through installation of a mouse-proof fence to prevent any potential for this endangered species to enter the site and be harmed, water quality from stormwater runoff into the adjacent habitats would be improved, and general avoidance measures to reduce predator and invasive species from entering nearby sensitive habitats will be incorporated into the proposed development. In addition, the development of the proposed project would not result in a significant change in the stormwater input to the adjacent salt marsh habitat and would not result in a significant alteration of hydrology in adjacent salt marsh habitats.

Because special-status wildlife species may occur within the study area, there is potential for a substantial adverse effect on species as regulated by CDFW and/or the USFWS. Implementation of Mitigation Measures BIO-1 through BIO-8 would ensure that impacts to special-status wildlife species would be less than significant.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM BIO-1: **Standard Construction Best Management Practices.** The applicant shall require implementation of standard construction BMPs outlined, but not limited to, throughout construction.

- The project limit shall be delineated and/or fenced prior to the start of construction.
- Appropriate erosion control measures shall be used (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from leaving the proposed project site. The integrity and effectiveness of the BMPs shall be inspected daily by the resident engineer. Corrective actions and repairs shall be carried out immediately.
- Construction by-products and pollutants such as petroleum products, chemicals, or other deleterious materials shall not be allowed into off-site wetlands or marsh habitats.
    - A plan for the emergency clean-up of any spills of fuel or other materials shall be available when construction equipment is in use.
- Construction vehicles and equipment shall be maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease.
- Leaking vehicles and equipment shall be removed from the site.
- Building materials storage areas containing hazardous or potentially toxic materials such as herbicides and petroleum products shall have an impermeable membrane between the ground and the hazardous material and shall be bermed to prevent the discharge of pollutants to ground water and runoff water.
- Equipment shall be re-fueled and serviced at designated construction staging areas, a minimum of 100 feet from any aquatic resource.
- All construction material and fill shall be stored and contained in a designated area that is located away from aquatic habitats to prevent transport of materials into adjacent water bodies.
    - The preferred distance is 100 feet from any wetlands or marsh habitats.

  - A silt fence shall be installed to collect any discharge, and adequate materials shall be available for spill clean-up and during storm events.

- No litter, debris, or side cast shall be dumped or permitted to enter wetlands or marsh habitats.
- During project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

MM BIO-2: **Environmental Awareness.** Prior to initial ground disturbance, all project personnel shall attend an environmental awareness and compliance training. The training program shall present applicable environmental regulations and permit conditions. The training program shall include applicable measures established for the proposed project to minimize impacts to avoid sensitive resources, habitats, and species. Subsequent training events shall be scheduled to support the training of new personnel. Dated sign-in sheets for attendees at these meetings shall be maintained and submitted to the City prior to the issuance of grading permit.

MM BIO-3: **Pre-Construction Nesting Bird Survey.** If project activities such as vegetation removal activities commence during the avian breeding season (February 1 through August 31), a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to initiation of project activities and again within 48 hours prior to initiation of project activities. The survey area should include suitable raptor nesting habitat within 500 feet of the project boundary (inaccessible areas outside of the project parcels can be surveyed from the parcel or from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project activities have been continuous since prior to February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season must be re-surveyed prior to resumption of project activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure shall be implemented:

- A suitable buffer (e.g., 300 to 500 feet for northern harrier and white-tailed kite; 200 to 300 feet for common raptors; 50 to 100 feet for non-raptors) shall be established by a qualified biologist around active nests and no construction activities within the buffer shall be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest, or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted.

MM BIO-4: **Burrowing Owl Pre-Construction Surveys.** Pre-construction surveys for burrowing owls shall be completed no more than 15 days prior to the start of construction in areas planned for fill placement and construction areas in general conformance with the California Burrowing Owl Consortium's and the CDFW Staff Report (2012) protocols.

Because owls are known to occur in the vicinity of the project site, these surveys shall be completed no more than 15 days prior (rather than 30 days prior, as per the Consortium's protocol) to the start of importing fill and construction to minimize the probability of immigration of owls between the time surveys are completed and the initiation of grading. If the initial disturbance is followed by periods of inactivity exceeding 15 days, or if the development is phased spatially and/or temporally such that an area in which construction activities are to commence has not been disturbed by construction activities within the prior 15-day period, a new burrowing owl pre-construction survey shall be completed prior to the start of disturbance. If burrowing owls are detected on or within 250 feet of the site, the mitigation measures below shall be implemented.

- If burrowing owl is located during the non-breeding season (generally 1 September to 31 January), a 150-foot buffer zone shall be maintained around the occupied burrow(s) if practicable. If such a buffer is not practicable, then a buffer adequate to avoid injury or mortality of owls shall be maintained, or the birds shall be evicted as described below. During the breeding season (generally 1 February to 31 August), a 250-foot buffer, within which no new activity shall be permissible, shall be maintained between project activities and occupied burrows. Owls on site after 1 February shall be assumed to be nesting unless direct observations indicate otherwise. This protected buffer area shall remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently, or the nest is no longer active. Owls that are not nesting can be evicted using the methods below during the period from 1 February to 31 August.

- If construction would directly impact occupied burrows, eviction of owls may occur outside the nesting season (or during the nesting season if the owls are determined to be not nesting) to prevent injury or mortality of individual owls. No burrowing owls shall be evicted from burrows during the nesting season (1 February through 31 August) unless evidence indicates that nesting is not actively occurring (e.g., because the owls have not yet begun nesting early in the season, or because young have already fledged late in the season). Relocation of owls during the nonbreeding season shall be completed by a qualified biologist using one-way doors, which shall be installed in all burrows within the impact area and left in place for at least two nights. These one-way doors shall then be removed, and the burrows backfilled immediately prior to the initiation of grading.

- If resident burrowing owl(s) are found in the proposed project site during pre-construction surveys and eviction is necessary to facilitate construction, Mitigation Measure BIO-6 shall be implemented. These measures do not apply to short-term use of the site by a burrowing owl for foraging, as a stop-over during migration, or temporary use of the site by wintering birds or dispersing juveniles.

MM BIO-5: **Burrowing Owl Mitigation.** To reduce impacts of the project on the local (South Bay) burrowing owl population, habitat shall be preserved and managed for burrowing owls off-site if eviction of resident owls is required. California burrowing owl mitigation guidelines recommend that 6.5 acres of foraging habitat be preserved and managed per occupied burrowing owl burrow (whether by a pair or singly) in mitigation sites. Therefore, mitigation shall be required for each pair or single resident burrowing owl that is evicted, up to a maximum of 13 acres. Mitigation may take the form of off-site habitat preservation and management (in which case all the monitoring and habitat requirements in the following paragraphs would apply) or the purchase of credits in an off-site mitigation bank. Because the nearest burrowing owl mitigation banks are currently located outside of the South Bay, this mitigation may occur outside the region.

If off-site habitat is to be preserved, a mitigation and monitoring plan shall be prepared by a qualified biologist and submitted to the City and the CDFW for review and approval. This plan shall detail the following:

- Areas to be preserved for owls
- Methods for managing habitat for owls and their prey
- Plans to enhance burrow availability within the mitigation site (potentially including the provision of artificial burrows, although long-term management for ground squirrels would be important as well)
- A monitoring program and adaptive management program.

At least 50 percent of the mitigation area must consist of upland habitat suitable for use by burrowing mammals, and no wetlands supporting tall vegetation shall be included within the mitigation site. The mitigation area must be contiguous with habitat that is permanently preserved as open space to avoid having the site surrounded by development in the future. The mitigation area shall be protected in perpetuity through a conservation easement, deed restriction, conveyance to a qualified land trust or the Don Edwards National Wildlife Refuge, or through equivalent means.

Assuming burrowing owl habitat mitigation would occur off-site, some on-site enhancements shall also be made to reduce impacts of the project on the local (South Bay) burrowing owl population. Such enhancements shall include the provision of two artificial burrow complexes on the sides of the adjacent levees (if allowed by levee managers) and management of at least portions of levee side slopes around these burrow complexes to provide suitable conditions for burrowing owls and ground squirrels (e.g., periodic mowing to maintain short vegetation). Given the extent of natural habitat with short vegetation, and the continued presence of seasonal wetlands near the proposed project site, providing and maintaining burrows for use by owls is expected to maintain some burrowing owl presence near the proposed project site even if most or all the owl habitat mitigation occurs off-site.

Signage shall be placed in appropriate locations to prohibit individuals from entering areas where the artificial burrow complexes would be located. Signage shall be placed along the levee slopes to instruct recreational users of these levees against leaving the levee tops to protect sensitive species such as the burrowing owl.

MM BIO-6: **Special-Status Bat Species.** A survey for roosting bats shall be completed prior to the removal of any building or tree with potential for day-roosting by bats, or prior to the initiation of any construction activities within 250 feet of such potential roost sites. The survey shall be completed by a qualified biologist. If suitable roost sites are found but a visual survey is not adequate to determine presence or absence of bats (which would be particularly likely in the case of potential roost trees), acoustical equipment could be used to determine occupancy. This survey shall be completed prior to the beginning of the breeding season (i.e., prior to 1 March) in the year in which construction or demolition in each area is scheduled to occur so that adequate measures can be implemented, if necessary, to evict the bats during the non-breeding season. The survey results shall be provided to the Community Development Director for review and approval prior to the start any construction related activities.

- Because the initial surveys would be completed prior to the breeding season, several months may pass between that survey and the initiation of construction or demolition in each area. Therefore, a second pre-demolition/pre-construction survey for roosting bats, following the methods described above, shall be completed within 15 days prior to the commencement of these activities in each area to determine whether bats have occupied a roost in or near the development impact areas. This survey shall be facilitated considerably by information (e.g., on potential roost trees) gathered during the previous survey. If bats are found to be roosting, additional mitigation as follows must be implemented.

- If a maternity roost of any special-status bat species is found, the bat biologist shall determine the extent of a construction-free buffer around the active roost that would be maintained. This buffer would be maintained from 1 March until the young are flying, typically after 31 August. If a roost of any kind is found in an area (e.g., a building or tree) that would not be disturbed by construction, or that can be avoided, the roost structure shall not be impacted.

- If a day roost is found in a building, or in a tree that is to be completely removed or replaced, individual bats shall be safely evicted under the direction of a qualified biologist. Eviction of bats shall occur at dusk, so that bats would have less potential for predation compared to daytime roost abandonment. Eviction shall occur between 1 September and 31 March, outside the maternity season, but shall not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey is not available, or bats are in torpor. If a day roost is found within a building, eviction shall occur by opening the roosting area to allow air flow through the cavity. Demolition may then follow no sooner than the following day (i.e., there must be no less than one night between initial disturbance for air flow and the demolition). This action shall allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. If feasible, one-way doors shall also be used to evict bats from tree roosts. If use of a one-way door is not feasible, or the exact location of the roost entrance in a tree is not known, the trees with roosts that need to be removed shall first be disturbed by removal of some of the trees' limbs not containing the bats. Such disturbance shall occur at dusk to allow bats to escape during the dark hours. These trees would then be removed the following day. These activities shall be performed under the supervision of the qualified biologist.

- If a day roost for pallid bats or another rare bat would be impacted, an alternative bat roost structure shall be provided. The design and placement of this structure would be determined by a qualified biologist based on the location of the original roost and which species is located. This bat structure shall be erected at least one month (and preferably a year or more) prior to removal of the original roost structure. This structure shall be checked during the breeding season for up the three years following completion of the development, or until it is found to be occupied by bats, to provide information for future development projects regarding the effectiveness of such structures in minimizing impacts to bats.

MM BIO-7: **Reduce the Spread of Invasive Species.** Prior to issuance of any building or grading permits, the project shall develop and implement an Invasive Species Management Plan to reduce the presence and spread of non-native, invasive plant species for the area to be developed. The Plan shall be developed prior to importing any fill material required to elevate building sites and prior to grading any areas on the Specific Plan site. The overarching goal of this mitigation is to halt the further expansion of existing invasive species and introduction of new invasive species into sensitive habitats on site. The Invasive Species Management Plan shall include, but not be limited to, the following, summarized below:

- Prior to construction, map populations of invasive species within all areas proposed to be graded; quantify the extent and location of invasive populations in sensitive habitats.
- Areas identified to have weed infestations shall be treated prior to ground disturbance according to weed control methods detailed below and Best Management Practices within all upland areas to be graded, after review and approval of methodologies by the City of Newark.
- Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods approved for application. The timing of the weed control treatment shall be determined for each plant species with the goal of controlling populations before they start producing seeds and/or encroach into adjacent areas from rhizomatous shoots. Consultation with a City of Newark approved wildlife biologist or plant ecologist shall be required prior to weed control treatments in sensitive habitats with the intent of avoiding any adverse impacts to special-status species in the area.
- Surveying and monitoring for weed infestations shall occur annually while grading operations are occurring. Treatment of all identified weed populations shall occur at a minimum of once annually.

- During project construction, all seeds and straw materials used on site shall be weed free rice straw, and all gravel and fill material shall be certified weed free.
- During project construction, vehicles and all equipment shall be washed before and after entering the project area.

MM BIO-8: **Post-Construction Predator Management Plan and Program.** This program shall focus on education of occupants of the new residential areas regarding measures to minimize the potential for subsidizing predator species and to minimize the potential effects of pets on sensitive species and enforcement of the program's measures, and restrictions on certain activities that could increase predation of sensitive species. A plan shall be developed. The details of the program would be developed during construction but shall include, at a minimum, the following:

- Minimize disturbance from the development by educating the public about the importance of preserving the ecological integrity of the adjacent natural areas instructing recreational users to stay on the levee tops out of sensitive habitats and keep dogs on leashes.
- To prevent the spread of invasive non-native plants into the nearby sensitive habitats, plants contained on the California Exotic Plant Pest Council List of Invasive Plants shall be barred from use within the landscaping of the Mowry Village development area. A list of plants suitable for landscape use shall be provided to property buyers.
- Feeding pets outdoors shall be prohibited so that pet food does not attract or subsidize the diets of nuisance species.
- Pets shall be prohibited from ranging freely (off-leash dogs shall be prohibited in off-site wetland areas and no free-roaming outdoor cats shall be permitted), to prevent their entry into sensitive species habitat.
- All food waste shall be contained so that it does not attract or subsidize the diets of predators.

Any neighborhood association established for new residential areas will be responsible for disseminating this information, and the neighborhood association and City will be responsible for enforcing the program.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Riparian Habitat or Natural Communities

Impact BIO-2	**The proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.**

Impact Analysis

As identified in the Biological Resources Technical Report prepared for the proposed project, the study area does not contain any riparian habitat or other sensitive natural communities (Helix 2022). Results of the aquatic resources delineation and analysis showed that the study area contains two artificial stormwater basins, but these features do not contain any riparian habitat (Helix 2022). Therefore, the proposed project would have no impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Protected Wetlands

Impact BIO-3	**The proposed project would not have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

Impact Analysis

The aquatic resources jurisdictional delineation surveys conducted in November 2021, March 2022, and September 2022 identified four potentially jurisdictional aquatic features; however, did not identify the presence of waters/wetlands subject to USACE, RWQCB or CDFW jurisdiction within the study area. The project site includes two constructed stormwater basins with wetland features identified as Storm Water Detention Basin 1 and Storm Water Detention Basin 2, in the southeastern portion of the project site (Figure 3-3). Additionally, the Aquatic Resources Delineation Report identifies two off-site potentially jurisdictional resources identified as Constructed Storm Drain and ACFC&WCD Line D, located approximately 1,500 feet east of the project site (Figure 3-3). Since the on-site basins were artificially constructed, they are not regulated by USACE, RWQCB, and CDFW.

The USACE provided a jurisdiction determination of the extent of navigable waters of the United States and waters of the United States in a letter dated January 25, 2023. The jurisdictional determination provided by the USACE identified that the Constructed Storm Drain, Storm Water Detention Basin 1, and Storm Water Detention Basin 2 are not jurisdictional resources. However, the jurisdictional determination identified the ACFC&WCD Line D channel as a jurisdictional aquatic resource, specifically Other Waters with In-stream Wetlands. On-site construction activities of the proposed project would have no impact on this jurisdictional resource as it is located off-site. However, extension of the potable and non-potable water mains from the southwest corner of the Sanctuary West Development located to the east of the project site would occur within the vicinity of ACFC&WCD Line D. Impacts to ACFC&WCD Line D from off-site construction would be avoided through the use of jack-and-bore method to construct the extension. The extension of the potable and non-potable water mains would be jack-and-bored, approximately 250 linear feet, under the ACFC&WCD Line D channel and the UPRR ROW which would ensure that impacts to ACFC&WCD Line D are avoided. On-site and off-site construction activities would avoid all nearby jurisdictional aquatic features and would not result in substantial adverse effects on state or federally protected wetlands. Therefore, the potential impacts to wetlands are considered less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Migratory Wildlife Corridors

Impact BIO-4	**The proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.**

Impact Analysis
Fish and wildlife corridors are segments of undisturbed land cover that connect larger, contiguous habitats. These corridors provide movement linkages for fish and wildlife. Corridors function as avenues along which wide-ranging animals can travel, genetic interchange can occur, and wildlife populations can move in response to environmental changes and natural disasters. Some fish and wildlife corridors include the Pacific flyway, linear riparian areas, streams, rivers, or other drainage features, and urban canyons dominated by native vegetation. Fish and wildlife corridors are recognized by federal agencies such as the USFWS and the State as important areas worthy of conservation. The study area does not act as a corridor for species dispersal or provide migration habitat connectivity to adjacent habitat and is not part of any defined essential connectivity areas as identified in the California Essential Habitat Connectivity Project (Spencer et al. 2010); therefore, the project would have no impact.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
No Impact.

Local Policies or Ordinances

Impact BIO-5	**The proposed project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

Impact Analysis
The proposed project would remove or otherwise affect up to 45 existing trees protected by the City's tree preservation ordinance (Municipal Code Chapter 8.16, Preservation of Trees on Private Property). Most of the trees, 33 of 45, were non-native blue gum. The 45 protected trees identified in the study area consisted of one native, Fremont cottonwood, 44 non-native, 11 rated in good condition, and 26 with a DBH over 18 inches (refer to the Arborist Report in Appendix C). The project proposes to remove 13 existing trees within the project site; however, the project is proposing to replace the existing removed trees with 213 trees to be planted and provide landscaping throughout the site.

Under Chapter 8.16 of the Newark Municipal Code, it is unlawful to cut down, destroy, remove, or move any tree within the city limits on any parcel of land except a developed residential parcel 10,000 square feet or less in size unless a permit to do so has been obtained from the public works director. A tree is any live woody plant with at least one well defined perennial stem at least six inches in diameter measured four feet above ground level.

Because City protected trees may be impacted during project implementation, there is potential for a substantial adverse effect on the trees as regulated by the City. Impacts to City protected trees would be less than significant after the implementation of Mitigation Measure BIO-9.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

MM BIO-9: **Tree Preservation Plan.** Prior to the issuance of any construction-phase permit, a construction-phase Tree Preservation Plan shall be prepared by a certified arborist to the satisfaction of the City's Community Development Director for all areas with trees. The construction-phase Tree Preservation Plan shall include the following tree protection measures which are based on guidelines established by the International Society of Arboriculture:

- Establish Tree Protection Zones
- Protect tree root systems
- Install wood bark mulch
- Trees removed by the project shall be replaced at a 3:1 ratio unless the City's Community Development Director determines that a higher ratio is required.
- Trees greater than 18 inches in diameter at breast height (DBH) shall not be removed unless a Tree Removal Permit, or equivalent, has first been approved for the removal of such trees.

- The species and exact number of trees to be planted on the site during the construction phase shall be determined in consultation with the City and to the satisfaction of the Community Development Director.
- In the event the developed portion of the development site does not have sufficient area to accommodate the required tree mitigation, one or more of the following measures shall be implemented at the development permit stage:
- An alternative site(s) shall be identified for additional tree planting. Alternative sites may include local parks or schools, or installation of trees on adjacent properties for screening purposes, to the satisfaction of the City's Community Development Director. The size of a 15-gallon replacement tree can be increased to 24-inch box and counted as two replacement trees.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Habitat Conservation Plan

Impact BIO-6	**The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.**

Impact Analysis
The City is not within the jurisdiction of any adopted Habitat Conservation Plan (HCP) (City of Newark 2013b). The project would not conflict with any adopted HCPs or other approved local, regional, or state habitat conservation plan. Therefore, there would be no impacts.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
No Impact.

3.5 CULTURAL RESOURCES

This section describes impacts on cultural resources that would result from implementation of the proposed project. Included is a summary of applicable policies and regulations related to cultural resources and review of existing conditions. It also describes impacts on cultural resources that would result from implementation of the proposed project, based on the Cultural Resources Assessment prepared by Helix Environmental Planning in December 2021 (Appendix D).

3.5.1 Environmental Setting

Cultural Setting

The following cultural resources discussion is modified from the Cultural Resources Assessment (Appendix D) unless otherwise referenced.

Prehistoric and Ethnographic Background

The San Francisco Bay Area supported a dense population of hunter-gatherers over thousands of years, leaving a rich and varied archaeological record. The Bay Area was a place of incredible language diversity, with seven languages spoken at the time of Spanish settlement in 1776. The diverse ecosystem of the Bay and surrounding lands supported an average of three to five persons per square mile but reached eleven persons per square mile in the North Bay. At the time of Spanish contact, the Native Americans living in the Bay Area were organized into local tribelets that defended fixed territories under independent leaders. Typically, individual Bay Area tribelets included 200 to 400 people distributed among three to five semi-permanent villages, within territories measuring approximately 10 to 12 miles in diameter.

At the time of European contact, the general Newark area was occupied by various tribelets that were part of the Ohlone (previously Costanoan) tribe of California Native Americans. These groups lived in approximately 50 separate and politically autonomous tribelet areas, each with one or more permanent villages, between the North San Francisco Bay and the lower Salinas River (Helix 2021). Refer to Section 3.18, Tribal Cultural Resources, for additional information regarding the ethnographic setting.

Historic Background

City of Newark

European settlement of the area began with the founding of Mission San Jose in 1797. The City remained in control of Mission San Jose until approximately 1836 when the Mission was secularized and came under control of the Mexican government. In 1844, a large land area known as the Rancho Poterero de Los Cerritos grant, made by the Mexican governor gave what is now the entire City of Newark, as well as Coyote Hills and portions of Union City and Fremont to Augustine Alviso and Thomas Pacheco. When California became part of the U.S. in 1848, American settlers began moving to the Rancho potrero de los Cerritos area in great numbers. Among the first to settle in the Newark area was Origin Mowry, who in 1850 established Mowry's Landing which provided the main source of commerce to the area.

In 1878, the present day Union Pacific Railroad came into service in the City and the historic Old Town Newark train station was established. Railroad associated businesses were established in the vicinity and other industries within the area at the time included commercial salt ponds in the southwestern portion of the City. By 1880, the City had a population of 200 people. In 1909, construction of the first Bay bridge was completed which connected freight trains from Newark to Redwood City and ultimately all the way to San Francisco. By 1900, significant portions of marshland to the western edge of Newark were converted to salt evaporation ponds. From the 1950s until the 1990s, the City had been host to a variety of industrial uses, ranging from brick making, to chemical blending, to semi-truck assembly (City of Newark 2013b).

Archaeological Resources in the Project Area

Records Search and Literature Review

A records search addressing the project site and 0.5 mile radius beyond the Area of Potential Effects (APE) boundary (together referred to as the study area) was conducted on April 17, 2018 at the Northwest Information Center (NWIC) by Helix Environmental Planning. The APE for the proposed project is defined as the geographic area where project activities may directly or indirectly cause changes in the character or use of historic properties of prehistoric or historic age, if any such properties exist. The APE for the proposed project measures 35.3 acres and corresponds to the project's maximum area of ground disturbance. The APE for the proposed project includes the project site located at the existing Pick-n-Pull site, the off-site expansion and modifications to Mowry Avenue, and the off-site infrastructure improvements (Figure 3-4).

Sources of information included previous surveys and cultural resources files; the National Register of Historic Places (NRHP); and California Register of Historic Resources (CRHR); the Office of Historic Preservation (OHP) Archaeological Determinations of Eligibility; the OHP Directory of Properties in the Historic Property Data File; and historical topographic maps and aerial photographs.

The records search identified 18 previous cultural resources studies that have been conducted within the study area. Of the 18 previous cultural resources studies within the study area, only two directly examined the current APE. Results from the records search indicate that no resources have been previously recorded within the APE; however, seven resources have been recorded within the 0.5 mile search radius. The seven resources include a prehistoric site with burials and habitation debris recorded in 1959; two prehistoric shell mounds recorded in the 1930s; a prehistoric site with burials, habitation debris and hearths/pit recorded in 1999; a historical era reburial of prehistoric remains recorded in 2000; an area of prehistoric habitation debris recorded in 2011; and a historic era trash scatter recorded in 2014. These resources are summarized in Table 3.5-1 below.

Source: HELIX Environmental Planning, Inc. December 2021

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
3-4

Title
Cultural Resources Area of Potential Effects

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Table 3.5-1: Previously Documented Resources within the Study Area

Primary	Trinomial	Description	Year	Recorder	Affiliation
P-01-000079	CA-ALA-59	Prehistoric shell mounds with burials and habitation debris	1959	J.T. Davis	None
P-01-000112	CA-ALA-336	Possible prehistoric shell mound	ca. 1909	Nels Nelson	University of California, Berkeley
P-01-000113	CA-ALA-337	Possible prehistoric shell mound	ca. 1935	Nels Nelson	University if California, Berkeley
P-01-002267	CA-ALA-620	Prehistoric burial site with habitation debris	1999	Alan Levanthal, Rosemary Cambra	Ohlone Families Consulting Services
P-01-010491	None	Prehistoric reburial site	2002	Jason Claiborne	Archeo-Tec
P-01-011353	CA-ALA-641	Prehistoric habitation debris	2011	Randy Wiberg	Holman and Associated
P-01-011611	None	Historic era refuse	2014	Eric Strother, Kruger Frank	Garcia and Associated

Notes:
The previously documented resources identified in this table are all located outside the APE but within the 0.5 mile buffer area

A search of the Historic Properties Database File for Alameda County was negative for historic properties within the study area and within 0.5 mile of the study area boundary.

Field Survey

On June 13, 2019, Helix Environmental Planning conducted an intensive pedestrian survey to characterize any prehistoric or historic era archaeological resources located within the APE. On November 16, 2021, Helix Environmental Planning conducted a second intensive pedestrian survey of the APE to examine areas recently added to the APE and to re-examine portions of the APE which were covered in dense grasses during the initial survey. Both surveys consisted of a pedestrian walk-over of the undeveloped portions of the APE in parallel transects spaces at 10 meter intervals. During the surveys, the ground surface was examined for the presence of historic era artifacts (e.g., metal, glass, ceramics), prehistoric artifacts (e.g., flaked stone tools, tool-making debris), and other features that might represent human activity that took place more than 50 years ago.

The 2019 and 2021 surveys did not cover the Pick-n-Pull property itself as this portion of the APE has been fully graded and capped with a layer of imported fill soil. Additionally, the two detention basins located on the eastern boundary of the Pick-n-Pull which mark the southeastern boundary of the project area were surveyed. Finally, the remainder of the APE which includes areas marked for underground excavations to the northwest, northeast, southeast, and southwest of the Pick-n-Pull property and located proposed to be modified on Mowry Avenue (adjacent west of the Pick-n-Pull) were also surveyed. No prehistoric or historic resources were found during the 2019 or 2021 filed surveys.

Historical Resources in the Project Area

The project site is not located within an identified historic district and there are no historical resources located on-site. A search of the Historic Properties Database File for Alameda County conduced for the Cultural Resources Assessment was negative for historic properties within the study area and within 0.5 mile of the study area boundary.

3.5.2 Regulatory Setting

Federal

National Historic Preservation Act

The National Historic Preservation Act, as amended, established the NRHP, which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 Code of Federal Regulations (CFR) 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history or broad patterns of events.
- It is associated with significant people in the past.
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction.
- It has yielded or may yield information important in history or prehistory.

Certain types of properties usually are excluded from consideration for listing on the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

State

California Environmental Quality Act

Pursuant to CEQA, a historical resource is a resource listed in, or eligible for listing in, the CRHR. In addition, resources included in local register of historic resources, or identified as significant in a local survey conducted in accordance with state guidelines, are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in, or determined eligible for listing in, the CRHR or is not included in a local register or survey shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in PRC Section 5024.1(c).

CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historic resource, or (2) the archaeological resource satisfies the definition of a "unique archaeological resource." A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria (PRC Section 21083.2(g)):

1. The archaeological resource contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
2. The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. The archaeological resource is directly associated with a scientifically-recognized important prehistoric or historic event or person.

California Register of Historic Resources

The CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). Certain properties, including those listed in or formally determined eligible for listed in the NRHP and California Historical Landmarks (CHLs) numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR.

Under PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following NRHP criteria (PRC Section 5024.1(c)):

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possessed high artistic values.
4. It has yielded, or may be likely to yield, information important in history or prehistory.

Resource nominated to the CRHR must retain enough of their historic character of appearance to be recognized as historic resources and to convey the reasons for their significance. It is possible that a resource whose integrity does not satisfy NRHP criteria may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data. Resources that have achieved significance within the past 50 years also may be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the HSC, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030). Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered.

Section 7050.5 of the HSC states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment. PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological and Historical Sites, defines any unauthorized disturbance or removal of remains on public land as a misdemeanor.

Local

City of Newark General Plan

The following lists goals and policies from the City of Newark General Plan pertaining to cultural resources that are applicable to the proposed project.

Goal LU-5: Historic Preservation. Identify, preserve, and maintain historic structures and sites to enhance Newark's sense of place and create living reminders of the city's heritage.

- **Policy LU-5.5: Native American Resources.** Coordinate with local tribal representatives and the Native American Heritage Commission to ensure the protection of Newark's Native American resources and to follow appropriate mitigation, preservation, and recovery procedures in the event that important resources are identified during development.

3.5.3 Environmental Impacts

This section analyzes the project's potential to result in significant cultural resources impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following impact analysis is based on the Cultural Resources Assessment prepared for the proposed project by Helix Environmental Planning in December 2021.

The Cultural Resources Assessment included a records search at the NWIC, literature review, and archaeological field survey. The records search and cultural resources survey were completed in accordance with the CEQA guidelines by the following actions: 1) identifying all cultural resources within the project site; 2) offering a significance evaluation of the identified cultural resources; 3) assessing resource vulnerability to effects that could arise from project activities; and 4) offering suggestions designed to protect resource integrity, as warranted.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's cultural resources impacts are significant. Would the proposed project:

- Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?
- Disturb any human remains, including those interred outside of formal cemeteries?

Project Impact Analysis and Mitigation Measures

Historical Resources

Impact CUL-1	**The proposed project would not cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5.**

Impact Analysis
No historic resources (eligible or likely eligible under state, federal, or local historic preservation criteria) were identified within or adjacent to the project site that would be impacted by the proposed project. We do not have an exact year of construction for the existing structures on-site; however, aerial photographs from 1963 shows that all structures that were present on-site prior to 1963 appears to have been demolished, and the land unused. Able Auto Wreckers operated an automobile wrecking yard on the project site from the late 1960s until they were acquired by the current owner, Pick-n-Pull, in 1996 and has continued to operate the automobile wrecking yard since that time (Helix 2021). According to CEQA, all buildings constructed over 50 years ago and possess architectural or historical significance may be considered potential historic resources. Historical aerial imagery available online does not show any structures present on the project site in the 1968 aerial imagery; however, the next available aerial imagery from 1979 shows the project site developed with structures that currently exist on-site (Netronline 2023). Therefore, some existing structures on the project site may be over 50 years old. However, existing structures on-site are typical metal structures found at industrial sites and do not possess any architectural or historical signification. The existing structures on-site would not eligible for listing as a historic resource under CEQA. Thus, the proposed project is not anticipated to have an impact on any known or potential historical resources. Therefore, there would be no impacts to historical resources.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Archaeological Resources

Impact CUL-2	The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

Impact Analysis

As described above under Section 3.5.1, the Cultural Resources Assessment did not identify any known archaeological resources on-site and therefore, the proposed project is not anticipated to have an impact on any known archaeological resources. However, the Cultural Resources Assessment identified six prehistoric resources and one historic era resource that have been documented in the study area or within 0.5 mile of the APE. The prehistoric resources include mounds, habitation debris, and human remains, all of which indicate repeated and/or long-term prehistoric occupation of the area. Mounds, which were ubiquitous in the region during prehistoric times, were historically bulldozed to create agricultural land, although they often contained human burials below grade that may remain undisturbed by shallow agricultural activity. Therefore, although the 2019 and 2021 intensive pedestrian survey were negative, the potential for the project area to contain prehistoric resources is considered to be high. The proposed project would include ground disturbing activities that could unearth previously undiscovered resources and therefore, the proposed project would require implementation of mitigation to reduce potential impacts to a less than significant level. The proposed project would be required to implement Mitigation Measure CUL-1, which requires the preparation and implementation of an archaeological monitoring program, to reduce potential impacts to a less than significant level. With implementation of Mitigation Measure CUL-1, potential impacts to undiscovered archaeological resources would be less than significant.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM CUL-1: **Archaeological Monitoring Program.** Prior to the start of construction activities, the Applicant shall prepare a monitoring program that would be implemented during demolition and construction activities. The monitoring program shall include the following:

- **Retention of a Qualified Archaeologist.** A Qualified Archaeologist shall be retained to implement a monitoring and recovery program during all ground-disturbing activity associated with the proposed project, including grubbing, grading, and excavation activities. The qualified archaeologist shall meet the Secretary of Interior's Professional Standards for prehistoric and historic archaeology.

- **Agreement of Disposition of Recovered Artifacts.** A written agreement shall be secured with a recognized museum repository regarding the final disposition and permanent storage and maintenance of any unique archaeological resources or historical resources recovered as a result of the archaeological monitoring, as well as corresponding geographic site data that might be recovered as a result of the specified monitoring program.

- **Preconstruction Briefing.** Construction personnel shall be briefed by the qualified archaeologist on procedures to be followed in the event that unique archaeological resources, historical resources, tribal cultural resources, or human remains are encountered during construction. The qualified archaeologist shall be required to provide a telephone number where they can be reached by the construction contractor, as necessary.

- **Construction Monitoring.** An archaeological monitor, working under the supervision of the qualified archaeologist shall observe all ground disturbing activities associated with the proposed project, including grubbing, grading, and excavation activities on- and off-site. The monitor shall be authorized to halt construction in the immediate area where buried cultural resources are encountered. In the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project Applicant shall notify the City and consult with a qualified archaeologist, as applicable, to assess the significance of the find. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the find are implemented.

- **Monitoring Report.** A complete set of daily monitoring logs shall be kept on-site throughout the earth moving activities and be available for inspection. The daily monitoring log shall be keyed to a location map to indicate the area monitored, date, assigned personnel, and results of monitoring, including the recovery of archaeological material, sketches of recovered materials, and associated geographic site data. Within 90 days of the completion of archaeological monitoring, a monitoring report shall be submitted to the City and filed with NWIC.

- **Tribal Cultural Resources.** If buried resources discovered during construction are identified to be tribal cultural resources, a Native American tribal representative from a tribe that is traditionally and culturally affiliated to the geographic area where the project is located will be consulted to determine the significance of the discovered resource and determine the appropriate avoidance or preservation measures or action to take in accordance with PRC Section 21084.3.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Human Remains

Impact CUL-3	The proposed project could disturb any human remains, including those interred outside of dedicated cemeteries.

Impact Analysis

There are no known human remains within the project site. However, as identified above under Impact CUL-2, the Cultural Resources Assessment identified six prehistoric resources that have been documented in the study area or within 0.5 mile of the APE which include mounds, habitation debris, and human remains, all of which indicate repeated and/or long-term prehistoric occupation of the area. Mounds were historically bulldozed to create agricultural land, although they often contained human burials below grade that may remain undisturbed by shallow agricultural activity. Therefore, ground disturbing activities required during construction of the proposed project could have the potential to uncover previously unknown human remains. In the event of an accidental discovery or recognition of human remains during project related construction activities, the proposed project would be required to comply with PRC Section 5097.98. Additionally, the proposed project would be required to implement Mitigation Measure CUL-2 which requires proper handling and treatment of discovered remains. Implementation of Mitigation Measure CUL-2 would reduce potential impacts to human remains to a less than significant level.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM CUL-2: **Human Burials Encountered During Construction.** In the event of an accidental discovery or recognition of human remains during project construction activities, PRC Section 5097.98 shall be followed and the following steps shall be taken:

1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native America, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the “most likely descendant” of the deceased Native America. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or

2. Where the following conditions occur, the landowner or his/her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project area in a location not subject to further subsurface disturbance:

- The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;
- The descendent identified fails to make a recommendation; or
- The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation of the NAHC fails to provide measures acceptable to the landowner.

Level of Significance After Mitigation

Less Than Significant Impact with Mitigation.

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3.6 ENERGY

This section describes the environmental and regulatory setting energy resources. It also describes existing conditions and potential impacts relative to energy resources that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.6.1 Environmental Setting

PG&E Company provides electricity service to the City of Newark (PG&E 2014). Upon buildout of the project site, electricity to the project site would be provided by PG&E. All electricity infrastructure would be located underground and would tie-in to existing infrastructure, see Appendix B.

In February 2018, PG&E announced that it had reached California's 2020 renewable energy goal three years ahead of schedule (Solar Industry 2018) and now delivers nearly 93 percent of its electricity from GHG-free resources. Approximately 50 percent of PG&E’s electricity came from renewable resources including solar, wind, geothermal, biomass and small hydroelectric sources in 2021. Additionally, approximately 39 percent of PG&E’s total electric power mix is from nuclear sources, 4 percent from large hydroelectric, and 7 percent natural gas (PG&E 2022).

3.6.2 Regulatory Setting

Federal

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas terminals and interstate natural gas pipelines, and licenses hydropower projects. Licensing of hydroelectric facilities under FERC’s authority includes input from state and federal energy and power generation, environmental protection, fish and wildlife, and water quality agencies.

Federal Energy Conservation Policy Act

The Energy and Policy Conservation Act was enacted by Congress in 1975. This Act established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration (NHTSA) is responsible for establishing additional vehicle standards.

State

California Public Utilities Commission Requirements

The California Public Utilities Commission (CPUC) is a state agency created by a constitutional amendment to regulate privately-owned utilities providing telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation services and in-state moving companies. CPUC is responsible for assuring that California utility customers have safe, reliable utility services at reasonable rates while protecting utility customers from fraud. CPUC regulates the planning and approval for the physical construction of electric generation, transmission, or distribution facilities and local distribution pipelines of natural gas.

California Integrated Energy Policy

SB 1389 requires the CEC to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (PRC Section 25301[a]). The CEC adopts an Integrated Energy Policy Report every two years and an update every other year. At the time of the NOP publication, the CEC had published its 2018 report and the 2020 report was circulated for public comments in January 2020. The report noted California's policy initiatives to reduce GHG and transform California's electricity system. The report also noted the additional efforts required to decarbonize California's overall energy system and invest in managing our aging energy infrastructure while planning for the future.

Title 20 and Title 24, California Code of Regulations

New buildings constructed in California must comply with the standards in Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards, of the CCR. Title 20 contains a range of standards, such as power plant procedures and siting, energy efficiency standards for appliances, and ensuring reliable energy sources are provided and diversified through energy-efficiency and renewable energy resources. Title 24 (AB 970) contains energy-efficiency standards for residential and nonresidential buildings based on a state mandate to reduce California's energy demand. Specifically, Title 24 addresses a number of energy-efficiency measures that impact energy used for lighting, water heating, heating, and air conditioning, including the energy impact of the building envelope such as windows, doors, skylights, wall/floor/ceiling assemblies, attics, and roofs. In addition, the new 2019 standards require rooftop solar on all new residential development under three stories. The 2022 Energy Code adopted on August 11, 2021, by the California Energy Commission made changes and updates to Title 24 standards. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code. The new 2022 standards require all new homes and buildings constructed in 2023 or later to have all electric supply panels and circuitry to support all-electric appliances and heating to reduce natural gas appliance use in new developments.

Part 11 of Title 24 is the CALGreen code, which sets minimum and mandatory sustainability requirements to reduce environmental impact through better planning, design, and construction practices. CALGreen works along with the mandatory construction codes of Title 24 and is enforced at the local level. Any project-related construction would be required to comply with the Title 24 codes currently in place, including the CALGreen code. The existing 2019 standards became effective in January 2020.

Assembly Bill 1493 – Clean Car Standards (Pavley)

This bill was passed in 2002 and requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions, through mandating gradual reductions in global warming pollutants from cars and light trucks sold in California from 2009 through 2016. The average gram-per-mile reduction of GHG emissions from new California cars and light trucks is required to be about 30 percent in 2016 compared to model year 2004 vehicles.

CARB adopted the Advanced Clean Cars (ACC) program in 2012 in coordination with EPA and NHTSA. The ACC program combined the control of criteria pollutants and GHG emissions into a single coordinated set of requirements for model years 2015 through 2025. CARB adopted a new approach to passenger vehicles—cars and light trucks—by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. The new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. The new standard drops GHG emissions to 166 grams per mile, a reduction of 34 percent compared to 2016 levels, through 2025.

Senate Bill 350 and Senate Bill 100

Under SB 350, the state of California committed to reaching 50 percent renewable energy by December 31, 2030. SB 100 revises these goals to achieve 50 percent renewable resources by December 31, 2026 and achieve a 60 percent target by December 31, 2030 in order to plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy and zero carbon resources by December 31, 2045.

Executive Order B-48-18

The executive order (EO) was designed to boost the use of zero-emission vehicles (ZEVs), electric vehicle charging infrastructure, and hydrogen refueling infrastructure in California. The order will implement the Governor's target of 5 million ZEVs on the road by 2030 and 250,000 vehicle charging stations and 200 hydrogen refueling stations by 2025.

Warren-Alquist Energy Resources Conservation and Development Act

Initially passed in 1974 and amended since, the Warren-Alquist Energy Resources Conservation and Development Act (Warren-Alquist Act) created the CEC, California's primary energy and planning agency. The seven responsibilities of CEC are: forecasting future energy needs, promoting energy efficiency and conservation through setting standards, supporting energy related research, developing renewable energy resources, advancing alternative and renewable transportation fuels and technologies, certifying thermal power plants 50 megawatts or larger, and planning for and directing state responses to energy emergencies. CEC regulates energy resources by encouraging and coordinating research into energy supply and demand problems to reduce the rate of growth of energy consumption. Additionally, the Warren-Alquist Act acknowledges the need for renewable energy resources and encourages CEC to explore renewable energy options that would be in line with environmental and public safety goals. (Warren-Alquist Act PRC section 25000 et seq., Public Resources Code Section 21100(b)(3), and CEQA Guidelines Section 15126.2(b))

Local

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project (City of Newark 2013a):

Goal CS-5: Greenhouse Gas Reduction. Reduce GHG emissions in Newark and make reduction of the City's carbon output a high priority.

- **Policy CS-5.3: Alternative Fuel Vehicles.** Encourage the use of alternative fuel and electric vehicles and development of the necessary infrastructure for such vehicles to be viable in Newark.

Goal CS-7: Energy Conservation. Maximize opportunities for energy efficiency, conservation, and independence.

- **Policy CS-7.1: Reducing Energy Use.** Support measures to reduce energy consumption and increase energy efficiency in residential, commercial, industrial, and public buildings.
- **Policy CS-7.2: Renewable Energy Sources.** Support the expanded use of renewable energy sources such as wind and solar by Newark residents and businesses, the City of Newark, and other government agencies.
- **Policy CS-7.3: Designing for Energy Efficiency.** Support building design, site planning, and subdivision design methods that reduce heating and cooling costs and achieve greater energy efficiency.

City of Newark Climate Action Plan

In 2010, the City of Newark adopted their CAP Initial Framework to present measures to reduce local GHG emissions; meet state, regional, and local reduction targets; and streamline future environmental review. The CAP includes residential community action items including Item 4.3 that require developers to employ energy conservation strategies in developments. Consistency with the City's CAP is discussion in Section 3.8, Greenhouse Gas.

City of Newark Municipal Code

- Chapter 15.22: California Energy Code. Chapter 15.22 of the City's Municipal Code adopts the 2022 California Energy Code pursuant to the provisions of the California Government Code Section 50020 et seq.
- Chapter 15.23: California Green Buildings Standards Code. Chapter 15.23 adopts the 2022 California Green Building Standards Code pursuant to the provisions of California Code Section 50020 et seq.

3.6.3 Environmental Impacts

This section analyzes the project's potential to result in significant energy impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The energy requirements for the proposed project were determined using the construction and operational estimates generated from the Air Quality Analysis (refer to Appendix B). Short-term construction and long-term energy consumption are discussed below. Energy consumption calculations were prepared by Helix Environmental Planning Inc and are provided in Appendix B. The analysis then uses this information to determine whether the proposed project's energy use would be considered wasteful, inefficient, or unnecessary, taking into account available energy supplies and existing use patterns, the proposed project's energy efficiency features, and compliance with applicable standards and policies aimed to reduce energy consumption.

Thresholds of Significance

In accordance with the Appendix G of the CEQA Guidelines, the following questions were analyzed and evaluated to determine whether the proposed project's impacts to energy are significant. Would the proposed project:

- Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Project Impact Analysis and Mitigation Measures

Wasteful, Inefficient, or Unnecessary Use of Energy

Impact EN-1	**The proposed project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.**

Impact Analysis
Energy consumption from both short-term construction and long-term operations are discussed separately below.

Construction Energy Demand

Construction of the proposed project would require the use of fuels (primarily gasoline and diesel) for the operation of construction equipment and vehicles to perform a variety of activities, including excavation, hauling, paving, and vehicle travel. Energy in the form of electricity may also be consumed by some pieces of construction equipment, such as welding machines, power tools, lighting, etc. The proposed project would require 46,274 gallons of diesel fuel for construction off-road equipment. On-road vehicles would require 6,250 gallons of diesel and 9,739 gallons of gasoline during construction. In total, construction would require 52,524 gallons of diesel and 9,739 gallons of gasoline (Appendix B). Construction equipment used on-site would generally include, but would not be limited to, tractors, cranes, and excavators. The list of anticipated construction equipment can be found in Table 3.3-5 in Section 3.3, Air Quality. Construction equipment used on-site would be standard for new land development in the area. While the proposed project would include demolition and removal of existing structures and infrastructure, there are no other unique site features of project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Construction equipment utilized for development of the proposed project would be U.S. EPA Tier 4 certified or have CARB approved engine retrofit kits certified to have emissions equivalent to Tier 4 standards and would meet the latest standards set forth by BAAQMD for construction equipment. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region, and as such, impacts would be less than significant.

Long-Term Energy Demand

Building Energy Demand

Buildings and infrastructure constructed pursuant to the proposed project would comply with the versions of CCR Titles 20 and 24, including CALGreen, that are applicable at the time that building permits are issued. The proposed project would be designed to be 100 percent electric and would not utilize natural gas. The proposed project is estimated to demand 974,468 kWh of electricity per year (Appendix B). This would represent an increase in demand for electricity

The proposed project is a new residential subdivision with home sizes and lots comparable to others in the area and the individual units would be built in accordance with the latest energy code to maximize efficiency. Therefore, it would be expected that building energy consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar buildings in the region. Current state regulatory requirements for new building construction contained in the 2022 CALGreen and Title 24 standards would increase energy efficiency and reduce energy demand in comparison to existing commercial structures on the site, and therefore would reduce actual environmental effects associated with energy use from the proposed project. Additionally, the CALGreen and Title 24 standards have increased efficiency standards through each update.

Therefore, while the proposed project would result in increased electricity demand, the electricity would be consumed more efficiently and would be typical of townhome development. Compliance with future building code standards would result in increased energy efficiency.

Based on the above information, the proposed project would not result in the inefficient or wasteful consumption of electricity, and impacts would be less than significant.

Transportation Energy Demands

Annual vehicle fuel consumption for the proposed project is estimated to be 29,414.5 gallons of diesel and 215,961.9 gallons of gasoline. The proposed project would constitute new development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. The proposed project would be well positioned to accommodate existing population. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region, and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Conflict with Renewable Energy/Energy Efficiency Plan

Impact EN-2	**The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

Impact Analysis

The City's General Plan includes a goal to maximize opportunities for energy efficiency, conservation, and independence. The City's Climate Action Plan (CAP) also includes strategies to reduce energy use and increase building efficiency. The proposed project would not conflict with the energy objectives of the General Plan nor the strategies in its CAP. The proposed project's consistency with the City's CAP is analyzed under Section 3.8, Greenhouse Gas Emissions. The proposed project would constitute development near an existing community. The site is located within a mile of other residential uses and located near commercial sites. As the site is located within the City, it would not be opening a new geographical area for development such that it would draw mostly new trips, or substantially lengthen existing trips. The proposed project would comply with the versions of CCR Titles 20 and 24, including CALGreen, that are applicable at the time that building permits are issued and with all applicable City measures.

For the above reasons, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

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3.7 GEOLOGY AND SOILS

This section describes the environmental and regulatory setting for geology and soils. It also describes existing conditions and potential impacts related to geology and soils that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.7.1 Environmental Setting

Regional Setting

The City is located within the USGS Newark and Niles Quadrangle 7.5-minute topographic area. The City is typified by low topographic relief, with gentle slopes to the southwest in the direction of South San Francisco Bay. In general, the soils beneath Newark are dominated by very deep, poorly-drained, fine-grained soils such as clays and silty clay loams, with lesser areas of deep well-drained silty loam in the northeast corner of the City and very deep, very poorly drained clays in the tidelands that flank the southwest edge of the City's plan area (City of Newark 2013b). Many soil types found beneath the City are characterized by low permeability, are highly erodible, and have high shrink-swell potential. Surficial geology in the City is almost exclusively comprised of Quaternary alluvium and estuarine sediment.

Though no active faults pass through the City, the Bay Area is a seismically active region and the threat of earthquakes is pervasive (City of Newark 2013a). The City is located 2 miles west of the Hayward fault, 9 miles east of the San Andreas fault, and 13 miles west of the Calaveras fault. Even though no active faults pass directly through the City, an earthquake of moderate to high magnitude within the Bay Area could cause significant damage in the City. Strong ground shaking that occurs during earthquakes can induce other geologic hazards such as liquefaction, landslides, subsidence, lateral spreading, or collapse. The potential for these geologic hazards ranges from low to very high and depends on soil conditions, groundwater levels, and slope stability.

The 1972 Alquist-Priolo Earthquake Fault Zoning Act requires the California Geological Survey to establish regulatory Earthquake Fault Zones around the surface ruptures of active faults to reduce the hazard of surface fault rupture to structures built for human occupancy. There are no Alquist-Priolo Earthquake Fault Zones in the City (City of Newark 2013b).

Project Site Setting and Soils

The project site's topography and surrounding areas are relatively flat. The project site is currently developed as a Pick-n-Pull Auto Dismantler site and is composed of three parcels totaling approximately 29 acres. According to the Design Level Geotechnical Investigation Report (design level geotechnical report) prepared by Berlogar Stevens and Associates on June 21, 2021 for the project site, the northern parcel of the site has a surface elevation of about 10 feet around the perimeter of the site with surface elevation rising to 15 feet in the center of the northern parcel (Appendix E). The southern portion of the site is slightly sloping with an approximate elevation of 10 feet on the west and 4.5 feet on the east. Soil sampling conducted for the project site for the design level geotechnical report identified that the northern portion of the site was found to have between 2.5 and 4 feet of uncontrolled fill. The uncontrolled fill was composed of sandy clay, clayey sand and some concrete rubble. The uncontrolled fill was underlain by medium stiff silty clays and fat clays. The southern portion of the site was blanketed by approximately 1 foot of sandy gravel which was underlain by medium stiff silty clays and fat clays. The soil sampling procedures encountered clays and silty clays to depths between 30 and 35 feet. The clays were underlain by sand and silt sands to a depth of about 50 feet. According to Figure 4.5-3 in the General Plan EIR, the project site is in an area with liquefaction risk but is not in an area at risk of earthquake induced landslides (City of Newark 2013b).

The Applicant reached out to BCDC staff on June 29, 2023, to request confirmation on whether the three parcels within the project site was located within BCDC jurisdiction. A response was received from BCDC staff on July 17, 2023, where BCDC staff confirmed that project site parcels identified as APN 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00 are not located within BCDC jurisdiction (Yuri Jewett, personal communication, July 17, 2023). Therefore, the project site parcels are not located within BCDC jurisdiction. As a courtesy, City staff would follow up with BCDC during the public review period.

Seismic Hazards

The project site is located in the seismically active San Francisco Bay region. The San Andreas fault forms a portion of the boundary between two independent tectonic plates on the surface of the earth. Seismic hazards in the City include earthquake ground shaking and liquefaction, and geologic hazards that are not specifically related to earthquakes include unstable soils.

Faults

In the San Francisco Bay Area, movement across this plate boundary is concentrated on San Andreas fault (SAF) system. However, it is also disturbed to a lesser extent across a number of parallel and subparallel faults which include the Seal Cove-San Gregorio, Hayward, Rodgers Creek, Calaveras, Concord-Green Valley and Greenville faults. Together these faults are referred to as the SAF system.

Additionally, there are several other active or potentially active faults capable of producing ground shaking at the project site. Local faults that have a potential to cause ground shaking at the site include the Quimby, Evergreen, Silver Creek, Monte Vista-Shannon, Sargent, and Zayante-Vergeles faults. These faults could be triggered by activity within the Hayward Fault Zone or along the San Andreas Fault Zone.

The design level geotechnical report prepared for the proposed project identified that there are no known fault traces that cross the project site and the potential for fault rupture at the site is low (Berlogar Stevens and Associates 2021).

Ground Shaking and Ground Failure

Primary seismic hazard concerns include potential ground shaking and ground rupture along the surface trace of faults. Secondary seismic hazards are caused by the interaction of ground shaking with soft or unstable soils, resulting in liquefaction, settlement, and landslides. Ground shaking can vary over an area as a result of factors such as topography, bedrock type and the location and orientation of a fault rupture due to seismic activity. Ground settlement (i.e., subsidence) is the lowering of the ground surface during seismic activity and is caused by consolidation or the failure of the ground foundation, densification of soil material, or liquefaction (discussed below). Ground failure can cause serious direct damage or collapse of infrastructure caused by seismic activity and is considered the second “primary” earthquake hazard. The severity of ground failure depends on the strength and depth of the earthquake, but there are several other contributing factors such as the regional geology, local topography and the site-specific ground characteristics within the project area.

The primary seismic hazard within the project area is associated with strong ground shaking from the nearby faults. Of the faults listed above, there are three major faults with the greatest potential for causing severe shaking at the site. The three faults are the Hayward, San Andreas, and Calaveras faults. The San Andreas fault, located approximately 14 miles southwest of the project site, dominates the structure and seismicity of the San Francisco Bay Area. The Hayward fault is located approximately 3 miles northeast of the project site and the Calaveras fault is located approximately 8 miles northeast of the project site.

According to the design level geotechnical report prepared for the proposed project, the probability of a magnitude of 6.7 or higher earthquake occurring between the years 2014 and 2044 along the Hayward fault is 14.3 percent, the Calaveras fault is 7.4 percent, and the San Andreas fault is 6.4 percent.

Lateral Spreading

Lateral spreading is a potential hazard associated with liquefaction. Liquefaction occurs when a subsurface soil layer liquefies and the upper non-liquefiable crust slides down gradient as large blocks over the liquefied soil toward a free-face (such as a descending slope, an incised river channel or open body of water), creating extensional ground cracking or fissures. Based on the results of the liquefaction analysis and the local topography, the design level geotechnical report identified that the potential for lateral spreading to occur at the project site is low (Berlogar Stevens and Associates 2021).

Liquefaction

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors determining liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits, along with recent Holocene age deposits, are more susceptible to liquefaction, while older deposits of clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking.

Based on the analysis conducted for the design level geotechnical report, the liquefaction induced settlement potential at the project site was found to range between 1.6 and 2.8 inches. The analyses showed that the predominant contributor to the settlement potential was a sand layer at depths between 30 and 40 feet. Based on the analyses and geologic setting of the site, the design level geotechnical report estimates a liquefaction induced differential settlement of up to 0.5 inch across 100 feet (Berlogar Stevens and Associates 2021).

Geotechnical Reports Results

As mentioned above under Project Site Setting and Soils, a Design Level Geotechnical Investigation was conducted and prepared for the project site by Berlogar Stevens and Associates on June 15, 2021. Prior to the preparation of the design level geotechnical report, a Due Diligence Geotechnical Assessment was prepared for the project site by Berlogar Stevens and Associates on April 1, 2019 (preliminary geotechnical report). The preliminary and design level geotechnical reports are provided as Appendix E.

The design level geotechnical report identified that the potential for fault rupture at the project site is very low due to the closest known active fault located with State-Designated Zone of Required Investigation is the Hayward fault, which is located approximately 3.2 miles to the northeast of the project site. Though fault rupture is not considered a concern at the project site, the project site should expect to experience at least one moderate to large earthquake during the lifespan of the development due to being located within a seismically active region. Some degree of structural damage due to strong seismic ground shaking should be expected at the site; however, the design level geotechnical report identified that the risk can be reduced through adherence with seismic design codes.

The design level geotechnical report identified that liquefaction induced settlement potential at the project site was found to range between 1.6 and 2.8 inches. The analysis determined that the predominant contributor to the settlement potential at the site is a sand layer at depths between 30 and 40 feet. Based on the results of the analyses and the geologic setting of the project site, the design level geotechnical report estimates that liquefaction induced differential settlement could be up to 0.5 inch across 100 feet. The design level geotechnical report also identified that liquefaction induced ground surface disruption potential and lateral spreading potential to occur at the project site is low and that there is no potential for seismic-induced compaction of unsaturated sands at the site. The design level geotechnical report identified that with the use of post-tensioned concrete slab-on-grade foundations for the planned residential structures, temporary softening of site soils would not have a significant impact on the proposed structures.

The preliminary geotechnical report and the design level geotechnical report both concluded that site conditions that could impact the proposed development included uncontrolled fill, seismic-induced (liquefaction) site settlement potential of 1 to 2.5 inches, moderately compressible soils, expansive soils, and corrosive soils. Both the preliminary and design level geotechnical reports included recommendations on methods to reduce potential impacts from construction of the proposed project. Recommendations included would be implemented into the proposed project design and consideration of remediation of contaminated soils would be taken into account for construction.

3.7.2 Regulatory Setting

Federal

Earthquake Hazards Reduction Act of 1977

The Earthquake Hazards Reduction Act of 1977 (FEMA 1977) established the National Earthquake Hazards Reduction Program (NEHRP) “to reduce the risks of life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program.” The National Earthquake Hazards Reduction Program Act (NEHRPA) significantly amended this program in 1990 by refining the description of the agency responsibilities, program goals, and objectives. The four principal goals of the NEHRP are:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation;

- Improve techniques for reducing earthquake vulnerabilities of facilities and systems;
- Improve earthquake hazards identification and risk assessment methods, and their use; and
- Improve the understanding of earthquakes and their effects.

The NEHRPA designates the Federal Emergency Management Agency as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities.

State

Alquist-Priolo Fault Zoning Act

In 1972, the Alquist-Priolo Earthquake Fault Zoning Act was passed to mitigate the effects of surface faulting on structures designed for human occupancy. This act required the State Geologist to delineate Earthquake Fault Zones along known active faults that have a relatively high potential for ground rupture. Faults that are zoned under the Alquist-Priolo Earthquake Fault Zoning Act must meet the strict definition of being “sufficiently active” and “well-defined” for inclusion as an Earthquake Fault Zone. The Earthquake Fault Zones are revised periodically, and they extend 200 to 500 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. Proposed construction in an Earthquake Fault Zone is permitted only following the completion of a fault location report prepared by a California Registered Geologist.

California Building Standards Code

The California Building Standards Code establishes building requirements for construction and renovation. The most recent version of the California Building Standards Code was published July 1, 2022, with an effective date of January 1, 2023. The California Building Standards Code is based on the International Code Council’s Building and Fire Codes. Included in the California Building Standards Code are the Electrical Code, Mechanical Code, Plumbing Code, Energy Code, and Fire Code. Title 24, Part 2: California Building Code (CBC) of the California Building Standards Code of the CCR contains specific requirements for construction with respect to earthquakes and seismic hazards intended to be protective of public health. Chapter 16 Section 1613, Earthquake Loads, deals with structural design and requires that every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (PRC Section 1690-2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soil.

National Pollutant Discharge Elimination System Permit

In California, the SWRCB administers the USEPA's promulgated regulations (55 CFR 47990) requiring the permitting of stormwater-generated pollution under the NPDES. In turn, the SWRCB's jurisdiction is administered through RWQCBs. Pursuant to these federal regulations, an operator must obtain a General Permit under the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or greater. The General Permit requires the implementation of BMPs to reduce pollutant loads into the waters of the State and measures to reduce sediment and erosion control. In addition, a SWPPP must be prepared. The SWPPP addresses water pollution control during construction. SWPPPs require that all stormwater discharges associated with construction activity, where clearing, grading, and excavating results in soil disturbances, must by law be free of site pollutants.

Local

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project:

Goal EH-1: Reducing Hazard Exposure. Reduce the potential for injury, harm, property damage, and loss of life resulting from environmental hazards.

- **Policy EH-1.1: Development Regulations and Code Requirements.** Establish and enforce development regulations and building code requirements to protect residents and workers from flooding, liquefaction, earthquakes, fires, and other hazards.

Goal EH-2: Geologic Hazards. Reduce risks to life and property associated with geologic hazards.

- **Policy EH-2.1: Earthquake Safety in New Construction.** Require new development to meet structural integrity standards which minimize the potential for damage during earthquakes.

Goal CS-1: Environmental Protection. Protect Newark's natural environment landscape, and physical features.

- **Policy CS-1.4: Soil Erosion.** Identify and eliminate soil erosion problems on public and private lands. The potential for erosion should be considered as a design and engineering factor in new development.

3.7.3 Environmental Impacts

This section analyzes the project's potential to result in significant geology and soils impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of documents pertaining to the project site, including the General Plan, General Plan EIR, USGS earthquake seismic hazard maps and the USGS land subsidence in California Map. The following impact discussions consider the effects of the proposed project related to geology and soils in the City.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's geology and soils impacts are significant. Would the proposed project:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?
- Strong seismic ground shaking?
- Seismic-related ground failure, including liquefaction?
- Landslides?
- Result in substantial soil erosion or the loss of topsoil?
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Project Impact Analysis and Mitigation Measures

Seismic Hazard

Impact GEO-1	**The proposed project could directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:** **i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.** **ii) Strong seismic ground shaking.** **iii) Seismic-related ground failure, including liquefaction.** **iv) Landslides.**

Impact Analysis

i. Fault Rupture

There are no Alquist-Priolo Earthquake Fault Zones located within or near the project site. The nearest known active fault, with a State-Designated Zone of Required Investigation, is the Hayward fault located approximately 3.2 miles northeast of the project site. Due to the lack of Alquist-Priolo fault zones near the project site, the design level geotechnical report prepared for the proposed project by Berlogar Stevens and Associated in 2021 determined that the risk of surface rupture near the project site is low and the potential for damage to structures at the project site due to rupture of a known earthquake fault is low. Thus, the proposed project would not exacerbate existing conditions by bringing people or structures into areas potentially susceptible to substantial effects, including fault rupture, that could result in substantial damage to proposed structures or infrastructure, or expose people to substantial risk of injury. Impacts associated with surface rupture from a known earthquake fault would be less than significant.

ii. Ground Shaking

Though fault rupture is not considered a concern for the project site, the site is located in a region with high seismicity and earthquake related ground shaking is expected to occur during the lifespan of the proposed project. The proposed project would comply with General Plan Policies EH-1.1 and EH-2.1 and would be constructed in conformance with the latest edition of the CBC and structural integrity standards, which includes engineering standards appropriate to withstand anticipated ground accelerations at the project site. Conformance with the earthquake design parameters of the CBC would be subject to City review as part of the development review process. Furthermore, the proposed project would be required to comply with the General Plan Action EH-2.A, which requires geotechnical studies that includes detailed investigations of ground shaking, liquefaction, soil stability, and other geologic hazards to be prepared for proposed development sites, and incorporate the findings and recommendations of the studies into project development requirements. The required geotechnical studies under General Plan Action EH-2.A have been prepared for the proposed project and the proposed project would implement all recommendations included in the preliminary and design level geotechnical reports, as required by Mitigation Measure GEO-1. The recommendations include, but are not limited to, placement of fills, stabilization of on-site soils, implementation of CBC seismic design standards, and placement of adequate foundations and retaining walls which would adequately support the new on-site structures during seismic events. Therefore, impacts related to ground shaking at the project site would be less than significant with implementation of Mitigation Measure GEO-1.

iii. Ground Failure, including Liquefaction

According to the City's General Plan EIR, the entire City is within a seismic hazard liquefaction zone (City of Newark 2013b). Buildout of the proposed project and adjacent off-site areas would place buildings and structures on areas susceptible to liquefaction. Therefore, the proposed project could potentially expose people and structures to substantial adverse effects associated with ground shaking, ground failure, and liquefaction. Ground failure due to liquefaction or expansive soils could compromise the structural stability of the buildings if they are not designed to accommodate liquefaction or lateral spreading.

As described above, the project design would be required to conform to the latest edition of the CBC and General Plan Action EH-2.A, which requires site-specific geotechnical reports to be prepared for all new developments in the City. The proposed project would comply with General Plan Policies EH-1.1 And EH-2.1 and would be designed and constructed to meet development regulations and building code requirements as well as structural integrity standards to minimize the potential for damage during earthquakes. The proposed project would also be required to comply with the Newark Municipal Code Section 15.50 which requires a liquefaction study be conducted and recommended mitigation measures included in the report be implemented into the project design. The design level geotechnical report was completed for the project site in 2021 which determined that there is a seismic-induced liquefaction site settlement potential of 1 to 2.5 inches at the project site and that the soils in the area have a moderate to high expansion potential. The preliminary and design level geotechnical reports recommend the use of post-tension concrete slab-on-grade foundations to mitigate impacts that could result from liquefaction or expansive soils. The recommendations included in the geotechnical reports relating to liquefaction hazard would be incorporated into the project design as part of Mitigation Measure GEO-2. Implementation of mitigation measures would reduce potential impacts. Additionally, the proposed project includes remediation activities of on-site soils prior to the start of construction activities, required by Mitigation Measure HAZ-1 as described in Section 3.9, Hazards and Hazardous Materials. Contaminated soils are present in shallow portions of the project site and therefore, the proposed project is estimated to remove approximately 39,000 CY of vegetation, contaminated soil, demolition debris, and other cleared materials prior to the start of construction activities. Removal of contaminated soils on-site would be completed through excavation of on-site soils from one foot to six feet bgs. Remediation activities may result in removal of some liquefiable soils present at the project site. Most soils excavated on-site would be disposed of off-site; however, some soils excavated may provide to be suitable for on-site reuse. Soils suitable for reuse would be stockpiled and may be reused on-site with appropriate regulatory concurrence. Clean imported fill would be brought in to replace removed soils and to elevate the proposed pad grades. The clean imported fill would be evaluated by a soil engineer prior to use in accordance with recommendations included in the design level geotechnical report. Therefore, impacts related to liquefaction would be less than significant with Mitigation Measure GEO-1, GEO-2, and HAZ-1 incorporated.

iv. Landslides

The project site is relatively flat and according to Figure 4.5-3 in the General Plan EIR, the project site is not located within or near an area at risk of earthquake induced landslides. Therefore, the potential for landslides to occur at or near the project site is low. No impact would occur.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

Mitigation Measure HAZ-1 is required.

MM GEO-1: **Implement Recommendations included in the Geotechnical Studies.** Prior to issuance of grading permits, the Applicant shall be required to incorporate all mitigation measures and design recommendations contained within the preliminary and design level geotechnical reports prepared by Berlogar Stevens and Associates in 2019 and 2021 into relevant project plans and specifications. These specifications pertain to but are not limited to expansive soils, building foundations, foundation drainage, and backfill of excavations. The geotechnical reports prepared for the proposed project includes recommendations such as the use of post-tension concrete slab-on-grade foundation to support structures placed on expansive soils, excavation of uncontrolled fill, utility trench excavation and backfill requirements, placement of retaining walls, and implementation of California Building Code Seismic Design Parameters. The project site plans shall be submitted to the City and reviewed as part of the development review process.

MM GEO-2: **Mitigation of Liquefaction-Induced Impacts on Buildings.** Prior to issuance of grading permits, the Applicant shall be required to incorporate all mitigation measures and design recommendations relating to liquefaction contained within the preliminary and design level geotechnical reports prepared by Berlogar Stevens and Associates in 2019 and 2021 into relevant project plans and specifications. Structural mitigation for liquefaction should, at a minimum, include the use of relatively stiff structural concrete slab-on-grade foundations, such as post-tensioned concrete slabs-on-grade, to ensure. foundations resist the effects of liquefaction-induced differential settlement. Strengthening connections within each structure may also be necessary, subject to review by the City. The project site plans, with all geotechnical design measures incorporated, shall be submitted to the City and reviewed as part of the development review process.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Erosion

Impact GEO-2	**The proposed project could result in substantial soil erosion or the loss of topsoil.**

Impact Analysis
Construction activities associated with the proposed project would require demolition, grading, utility connections, building construction, construction of the new streets, development of 203 single-family residences, and landscaping on the 29 acre project site. The proposed project would comply with General Plan Policy CS-1.4 which requires identification and elimination of soil erosion problems and the potential for erosion to be considered as a design and engineering factor in new development. Construction activities could expose unprotected soils to stormwater runoff, causing erosion and loss of topsoil. Projects that disturb 1 acre or more of soils during construction are required to comply with the NPDES permitting program and implement a Stormwater Pollution Prevention Plan (SWPPP) that identifies BMPs to control the discharge of sediment and other pollutants during construction. As described in Section 3.10, Hydrology and Water Quality, the proposed project would implement a SWPPP and associated BMPs as part of Mitigation Measure HYD-1 to reduce erosion impacts. Therefore, soil erosion impacts associated with construction impacts would be less than significant with implementation of Mitigation Measure HYD-1.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measure HYD-1 is required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Unstable Geologic Unit or Soil

Impact GEO-3	**The proposed project could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.**

Impact Analysis
The proposed project is identified to be located in an area where there is potential for liquefaction and expansive soil hazards. The preliminary and design level geotechnical reports prepared by Berlogar Stevens and Associates identified that the project site would have a seismic induced liquefaction site settlement potential of 1 to 2.5 inches and has a moderate to high expansion potential. However, it also identified that potential for lateral spreading is low. The project site is not at risk of on- or off-site landslides. Furthermore, the project site is not adjacent to a stream bank, levee, or other open face that would be susceptible to lateral spreading.

The proposed project would be required to comply with the latest edition of the CBC and General Plan Action EH-2.A, which requires geotechnical studies such as a liquefaction study or soils engineering report be prepared for all new developments in the City. A preliminary and design level geotechnical report has been prepared for the proposed project and the recommendations identified in the geotechnical reports would be incorporated into the project design as part of Mitigation Measures GEO-1 and GEO-2. The City would review the project design plans during the development review process to confirm these recommendations are incorporated into the proposed project.

The preliminary geotechnical report prepared for the proposed project identified that depth to groundwater at the project site vary from approximately 4 to 8.5 feet bgs and the groundwater map from the California Geologic Survey indicated historically-high groundwater at a depth of approximately 5 feet and therefore, groundwater could be encountered during construction activities. Excavation activities near or below the groundwater table has the potential to expose surrounding roadways, utilities, and UPRR tracks to unstable soils due to vertical movement and settlement. Therefore, excavations would require dewatering and shoring to protect the surrounding environment. Mitigation Measure GEO-3 would require the preparation and implementation of shoring and dewatering plans. Due to the proposed project requiring jack-and-bore operations under the UPRR tracks for utility line connections for existing water and sanitary sewer mains located on the north side of the UPRR tracks, all shoring would be constructed in accordance with UPRR requirements. Additional jack-and-bore would be required to extend the potable and non-potable water mains from the southwest corner of the Sanctuary Development located adjacent to the east of the project site, within the Old Addition Road alignment adjacent and parallel to ACFC&WCD Line D channel, to the UPRR ROW. The potable and non-potable water mains would be jack-and-bored under the Line D channel and the UPRR ROW and all shoring would be constructed in accordance with UPRR requirements. Additionally, the design level geotechnical report included recommendations for utility trench excavation and backfill which would be implemented into the project as required by Mitigation Measure GEO-1.

As required by Mitigation Measure HAZ-1, the proposed project includes remediation activities of on-site soils prior to the start of construction activities to remove shallow contaminated soils present on-site. Excavation activities required for remediation would require excavation from one foot to six feet bgs and remediation activities may result in the removal of unstable soils on-site. The proposed project is estimated to remove approximately 39,000 CY of vegetation, contaminated soil, demolition debris, and other cleared materials prior to the start of construction activities and clean imported fill would be brought in to replace removed soils. The clean imported fill would be evaluated by a soil engineer prior to use in accordance with recommendations included in the design level geotechnical report to ensure imported fill are suitable for use at the project site to mitigate any potential impacts from unstable soils. Most soils excavated on-site would be disposed of off-site; however, some soils excavated may provide to be suitable for on-site reuse. Soils suitable for reuse would be stockpiled and may be reused on-site with appropriate regulatory concurrence.

As such, with implementation of Mitigation Measures GEO-1, GEO-2, GEO-3, and HAZ-1, the proposed project would not be located on a geologic unit or soil that is unstable and impacts would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

Mitigation Measure GEO-1, Mitigation Measure GEO-2, and Mitigation Measure HAZ-1 are required.

MM GEO-3: **Prepare and Implement Dewatering and Shoring Plans.** A dewatering plan shall be submitted to the City for approval prior to the issuance of a grading permit. At a minimum, the dewatering plan shall detail dewatering methods, location of dewatering activities, equipment, groundwater sampling, disposal, and discharge point in accordance with the applicable waste discharge requirements of the San Francisco Bay Regional Water Quality Control Board. In the event that shoring methods are implemented for any excavations, shoring plans shall be prepared and submitted to the City for approval prior to issuance of a grading permit. Shoring activities required for the jack-and-bore operations to connect utility lines under the Union Pacific Railroad tracks shall be prepared in accordance with the Union Pacific Engineering Project Specifications and Guidelines for Temporary Shoring.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Expansive Soil

Impact GEO-4	**The proposed project could be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.**

Impact Analysis
The preliminary and design level geotechnical reports prepared by Berlogar Stevens and Associates identified that the surficial native clay soils in the area have a moderate to high expansion potential and therefore, could pose risks to the proposed project. The proposed project would be required to comply with the latest edition of the CBC and General Plan Action EH-2A, which requires geotechnical studies be prepared for new developments within the City. The design level geotechnical report prepared by Berlogar Stevens and Associates for the project site in 2021 included recommendations related to being located on expansive soils. The design level geotechnical report also provided recommendations related to site preparation and grading which would help reduce the potential impacts of expansive soils. Additionally, the design level geotechnical report identified the use of post-tensioned concrete slab-on-grade foundations to support residential structures on expansive soils (Berlogar Stevens and Associates 2021). The recommendations indicated in the geotechnical studies would be incorporated into the project as part of Mitigation Measure GEO-1. Compliance with Mitigation Measure GEO-1 would ensure that the proposed project is designed to withstand expansive soils and proper site preparation and grading techniques are utilized to ensure project site soils are prepared properly for placement of structures. Additionally, remediation activities required for the proposed project under Mitigation Measure HAZ-1 would require excavation of on-site soils from one foot to six feet bgs and may result in the removal of expansive soils on-site. Excavated areas would be backfilled with clean imported fill or excavated soils determined to be suitable for on-site reuse. The proposed project would be located on expansive soils; however, with implementation of Mitigation Measure GEO-1 and HAZ-1, potential impacts of expansive soils would be reduced and impacts would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measure GEO-1 and Mitigation Measure HAZ-1 are required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Septic Tanks

Impact GEO-5	**The proposed project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.**

Impact Analysis
The proposed project would connect directly to the City's municipal sewer system and would not require the construction of septic tanks or any other alternative wastewater disposal system. Therefore, no impact would occur.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
No Impact.

Paleontological Resource or Geologic Feature

Impact GEO-6	**The proposed project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.**

Impact Analysis
According to the City's General Plan EIR, the potential for fossil remains of significance are unlikely in the City due to the relatively recent age of Holocene Bay mud underlying the City. Additionally, there are no previous fossils found in the vicinity and there are no known paleontological resources in the City according to the University of California Museum of Paleontology Specimen Search database (City of Newark 2013b). Therefore, paleontological potential of the City is considered low. However, the proposed project would include ground disturbance during construction which could have the potential to directly or indirectly destroy an unknown unique paleontological or unique geologic feature. If unknown unique paleontological resources are discovered on-site during construction, all activities would be stopped within a 50 foot radius of the identified resource until a qualified paleontologist evaluates the finding as required by Mitigation Measure GEO-4. Implementation of Mitigation Measure GEO-4 would ensure that proper procedures for inadvertent discovery of paleontological resources are followed if unknown paleontological resources are discovered during ground disturbing activities. Therefore, impacts to paleontological or unique geologic features would be less than significant with implementation of Mitigation Measure GEO-4.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM GEO-4: **Procedures for Paleontological Resources Discovered During Construction.** If any paleontological resources are encountered during ground-disturbing or subsurface construction activities (e.g., trenching, grading), all construction activities within a 50-foot radius of the identified resource shall cease and the City shall immediately be notified. The applicant shall retain a qualified paleontologist (as approved by the City) to evaluate the find and recommend appropriate treatment of the inadvertently discovered paleontological resource. The appropriate treatment of an inadvertently discovered paleontological resource shall be implemented to ensure that impacts to the resource are avoided.

Level of Significance After Mitigation

Less Than Significant Impact with Mitigation.

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3.8 GREENHOUSE GAS EMISSIONS

This section describes the impacts on GHG emissions that would result from implementation of the proposed project. Included is a review of existing conditions, a summary of applicable policies and regulations related to GHG emissions, and analysis of environmental impacts of the proposed project. Where applicable, mitigation measures are included for significant impacts.

3.8.1 Environmental Setting

Greenhouse Gases

GHGs and climate change are cumulative global issues. The CARB and EPA regulate GHG emissions within the State of California and the U.S., respectively. While the CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction.

Many chemical compounds in the earth's atmosphere act as GHGs, as they absorb and emit radiation within the thermal infrared range. When radiation from the sun reaches the Earth's surface, some of it is reflected back into the atmosphere as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy from the sun to the Earth's surface should be approximately equal to the amount of energy radiated back into space, leaving the temperature of the earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide [CO_2], methane [CH_4], and nitrous oxide [N_2O]), while others are exclusively human-made (like gases used for aerosols).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below:

- **Carbon Dioxide**. CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

- **Methane**. CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide**. N_2O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Hydrofluorocarbons (HFC)**. HFCs are one of several high global warming potential (GWP) gases that are not naturally occurring and are generated from industrial processes. HFC (refrigerant) emissions from vehicle air conditioning systems occur due to leakage, losses during recharging, or release from scrapping vehicles at end of their useful life.

- **Perfluorocarbons (PFC)**. PFCs are another high GWP gas that are not naturally occurring and are generated in a variety of industrial processes.

- **Sulfur Hexafluoride (SF_6)**. SF_6 is another high GWP gas that is not naturally occurring and is generated in a variety of industrial processes.

- **Nitrogen Trifluoride (NF_3)**. NF_3 is an inorganic, colorless, odorless, toxic, nonflammable gas used in microelectronics. NF_3 is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin film solar cells.

Sources of Greenhouse Gas Emissions

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions.

In 2020, GHG emissions within California totaled 369.2 million metric tons (MMT) of CO2e. Within California, the transportation sector is the largest contributor, accounting for approximately 38 percent of the total statewide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totally roughly 24 percent. Electricity generation totaled roughly 16 percent. Residential, commercial, and agricultural/forestry made up the approximately 8 percent, 6 percent, and 9 percent, respectively, of the remaining GHG emissions (CARB 2022b).

The site is currently developed with a Pick-n-Pull, a self-service used auto parts store. The existing site generates GHGs from customer and employee vehicle trips to the site.

Potential Environmental Impacts

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snowpack is a principal supply of water for the state, providing roughly 50 percent of state’s annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. An earlier snowmelt would also impact the state’s energy resources. An early exhaustion of the Sierra snowpack may force electricity producers to switch to more costly or non-renewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California’s largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry.

3.8.2 Regulatory Setting

Federal

Executive Order 14008

EO 14008, Tackling the Climate Crisis at Home and Abroad was signed in January 2021 by President Biden. EO 14008 places the climate crisis at the forefront of foreign policy and national security planning.

Executive Order 14057

EO 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability was signed in December 2021 by President Biden. EO 14057 states that it is the federal government's responsibility to lead the nation by example in order to achieve a carbon pollution free-electricity sector by 2035 and net-zero emissions economy-wide by no later than 2050. The EO lays out a series of energy efficiency and vehicle efficiency targets for the federal government to achieve, including a net-zero buildings portfolio by 2045.

EPA Reporting Rule

The U.S. EPA adopted a mandatory GHG reporting rule in September 2009. The rule would require suppliers of fossil fuels or entities that emit industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to the U.S. EPA.

Safer Affordable Fuel Efficient Vehicles Rule

The Safer Affordable Fuel Efficient (SAFE) Vehicle Rule was developed by the NHSTA and the U.S. EPA to update the corporate average fuel economy and GHG emissions standards for passenger cars and light trucks for model year 2021 through 2026.

State

Control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The governor has also issued several Eos related to the state's evolving climate change policy. Of particular importance are the following:

CEQA Guidelines

CEQA Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations) are administrative regulations governing the implementation of CEQA.

CEQA Guidelines Section 15064.4. Section 15064.4 of the CEQA Guidelines sets the criteria for a GHG analysis under CEQA. According to Section 15064.4, a lead agency has discretion to either quantify GHG emissions resulting from a project and/or rely on a qualitative analysis or performance based standards. In determining significance, the lead agency should focus on the reasonably foreseeable incremental contribution of the project's emissions on the effects of climate change. The analysis should consider the following: (1) the project's contribution to GHG emissions as compared to the existing environment; (2) whether the project emissions exceed a thresholds of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for GHG reductions.

CEQA Guidelines Section 15126.4(c). Section 15126.4(c) sets guidelines for mitigation measures related to GHG emissions. Measures to mitigate the significant effects of GHG emissions may include: (1) measures in an existing plan or mitigation program that are required as part of the lead agency's decision; (2) reductions in emissions resulting from a project through project features or design; (3) off-site measures, including offsets; (4) measures that sequester GHGs; and (5) for plans, mitigation may include the identification of specific measures that may be implementation on a project by project basis.

Assembly Bill 32

The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 required that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include CO_2, CH_4, NO_X, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> *Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

CARB approved the 1990 GHG emissions level of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) on December 6, 2007 (CARB 2007). Therefore, to meet the state's target, emissions generated in California in 2020, were required to be equal to or less than 427 $MMTCO_2e$. In order to set a framework for the state to meet this target, CARB was tasked with creating a Scoping Plan (as described below). California announced in July 2018, that the state emitted 427 MMTCO2e in 2016, and achieved AB 32 goals ahead of schedule.

Senate Bill 32

Senate Bill (SB) 32 was signed into law on September 8, 2016. SB 32 gives CARB the statutory responsibility to include the 2030 target previously contained in EO B-30-15 in the 2017 Scoping Plan Update. SB 32 states that "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030."

Assembly Bill 1279

AB 1279 was signed into law in 2022 and establishes the policy of the State to achieve carbon neutrality as soon as possible, but no later than 2045 and maintain net negative GHG emissions thereafter. AB 1279 would also ensure that by 2045 the statewide anthropogenic GHG emissions are reduced by at least 85 percent below 1990 levels. The bill would require CARB to ensure that an updated Scoping Plan identifies and recommends measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable carbon dioxide removal and carbon capture, utilization, and storage technologies to complement AB 1279's emissions reduction requirements.

Climate Change Scoping Plan

In December 2008, CARB approved the AB 32 Scoping Plan outlining the state's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 $MMTCO_2e$ (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high climate-change-potential sectors, and proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. The Scoping Plan was required to be updated every 5 years to evaluate the implementation of AB 32 policies to ensure that California remains on track to achieve its original 2020 GHG reduction goal.

The First Update to the Climate Change Scoping Plan was approved by the CARB on May 22, 2014. In 2016, the State Legislature passed SB 32, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the State Legislature passed companion legislation AB 197, which provided additional direction for developing the Scoping Plan. On December 14, 2017, the CARB approved the Second Update to the Climate Change Scoping Plan, the 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target (CARB 2017). The 2017 Scoping Plan identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target statewide 2030 emissions limit is 260 $MMTCO_2e$, and that further commitments will need to be made to achieve an additional reduction of 50 $MMTCO_2e$ beyond current policies and programs. Key elements of the 2017 Update include a proposed 20 percent reduction in GHG emissions from refineries and an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal.

CARB prepared the 2022 Scoping Plan for Achieving Carbon Neutrality, which builds upon the previous Scoping Plans in order to lay out a sector by sector blueprint for the state to achieve carbon neutrality by 2045, or earlier, while identifying a pathway to keep the state on track to meet SB 32. The 2022 Scoping Plan incorporates, coordinates, and leverages existing effort to reduce GHGs while identifying new clean technologies and energy. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon (CARB 2022a).

Assembly Bill 398

The Governor signed AB 398 on July 25, 2017, to extend the Cap-and-Trade Program to 2030. The legislation includes provisions to ensure that offsets used by sources are limited to 4 percent of their compliance obligation from 2021 to 2025 and 6 percent of their compliance obligation from 2026 through 2030. AB 398 also prevents air districts from adopting or implementing emission reduction rules from stationary sources that are also subject to the Cap-and-Trade Program (CARB 2017).

Senate Bill 375: The Sustainable Communities and Climate Protection Act of 2008

SB 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits more than 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

CARB has prepared the Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets that includes regional targets for each Metropolitan Planning Organization (MPO) for 2020 and 2035 to achieve significant additional GHG reductions from changed land use patterns and improved transportation. The Metropolitan Transportation Commissions and the Association of Bay Area Governments (MTC/ABAG), the MPO for the Bay Area, received a target of reduction transportation GHG emissions by 10 percent for 2020 and by 19 percent for 2035 (CARB 2022c).

Senate Bill 1368: Emission Performance Standards

In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant.

Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the state. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 pounds of CO_2 per megawatt-hour (MWh).

Senate Bill 1078: Renewable Electricity Standards

On September 12, 2002, Governor Gray Davis signed SB 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed EO S-14-08, which established an RPS target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger signed EO S-21-09, which directed CARB to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23. In 2011, the State Legislature adopted this higher standard in SB X1-2. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas.

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The State Legislature approved and the governor then signed SB 350 on October 7, 2015, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations.

Senate Bill 100: California Renewables Portfolio Standard Program

The Governor approved SB 100 on September 10, 2018. The legislation revised the RPS goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The bill would require that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024; 52 percent by December 31, 2027; and 60 percent by December 31, 2030.

Executive Order S-3-05

On June 1, 2005, former California Governor Arnold Schwarzenegger announced EO S-3-05, which announced the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that would stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an EO, the goals are not legally enforceable for local governments or the private sector.

Executive Order B-30-15

On April 29, 2015, Governor Edmund G. Brown Jr. issued EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's EO aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris in late 2015. The EO sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure that

California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The EO also requires the state's climate adaptation plan to be updated every 3 years and for the state to continue its climate change research program, among other provisions. As with EO S-3-05, this EO is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to provide post-2020 targets was signed by the Governor in 2016. SB 32 includes a 2030 mandate matching the requirements of the EO.

Executive Order S-01-07: Low Carbon Fuel Standard

The governor signed EO S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the EO established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to CARB for consideration as an "early action" item under AB 32. CARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The LCFS was subject to legal challenge in 2011. Ultimately, CARB was required to bring a new LCFS regulation for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The Office of Administrative Law approved the regulation on November 16, 2015. The regulation was last amended in 2018.

Executive Order S-13-08

EO S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the EO, the 2009 California Climate Adaptation Strategy was adopted, which is the "… first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-55-18

EO B-55-18 issued by Governor Brown on September 10, 2018, establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and to achieve and maintain net negative emissions thereafter. The EO directs CARB to work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal.

California Energy Code

Compliance with the California Energy Code (Title 24, Part 6, of the CCR, California's Energy Efficiency Standards) and Title 20, Public Utilities and Energy, standards must occur for all new buildings constructed in California. These efficiency standards apply to new construction of both residential and nonresidential (i.e., maintenance buildings and pump station buildings associated with the Program) buildings, and they regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit processes, and local government agencies may adopt and enforce energy standards for new buildings provided that these standards meet or exceed those provided in the Title 24 guidelines.

California Green Building Standards

CALGreen (Title 24, Part 11, of the CCR) is a statewide green building code that applies to the planning, design, operation, construction, use and occupancy of every newly constructed building in California. The code includes both mandatory and voluntary measures for residential and non-residential developments to increase energy efficiency, water efficiency and conservation, material conservation, and environmental quality.

Regional

ABAG Plan Bay Area 2050

ABAG and MTC adopted the Plan Bay Area 2050 in October 2021. Plan Bay Area 2050 is the region's regional transportation plan/sustainable communities strategy (RTP/SCS). Chapter 5 of the RTP/SCS addresses the potential transformation of the region in the coming decades from climate change and includes a series of strategies to create a more resilient environment. These strategies include expanding access to parks and open space, reducing climate emissions from vehicles, and reducing the risks from hazards.

Local

City of Newark General Plan

The City of Newark General Plan includes the following goals and policies related to GHGs that are applicable to the proposed project:

Goal CS-5: Greenhouse Gas Reduction. Reduce greenhouse gas emissions in Newark and make reduction of the City's carbon output a high priority.

- **Policy CS-5.2: Pedestrian and Bicycle Friendly Design.** Ensure that new development is planned and designed to facilitate walking and bicycling as well as driving. This can potentially reduce the number of vehicle trips and related greenhouse gas emissions.

- **Policy CS-5.5: Consideration of Climate in Transportation Planning.** Consider potential greenhouse gas emissions impacts when making changes to the transportation system. Give preference to solutions that reduce auto dependency and minimize emissions.

- **Policy CS-5.8: Planning for Sea Level Rise.** Require proposed development in low-lying areas to comply with applicable City of Newark standards for construction in flood hazard zones.

Goal CS-6: Green Building. Reduce the impacts of buildings and development on greenhouse gas levels and the environment in general.

- **Policy CS-6.2: Encouraging Greener Construction.** Encourage greener construction methods and greater use of recycled-content materials in new residential, commercial, and industrial construction projects.

- **Policy CS-6.5: Minimizing Impervious Surface Coverage.** Minimize impervious surface coverage and related stormwater runoff in new development areas by allowing narrower roads and shared driveways, and by encouraging the use of pervious materials on driveways and parking areas. Other means of reducing urban runoff, such as rain barrels and bioswales, also should be encouraged.

City of Newark Climate Action Plan

The City's Climate Action Plan was adopted by City Council in January 2010 to identify and evaluate feasible and effective policies to reduce GHG emissions in the public and private sectors. The CAP intends to achieve the following goals: (1) create an inventory of emissions from city government operations and community-wide activities; (2) present the inventory as a baseline against which to measure progress towards reducing GHG emissions; (3) develop a set of emission reduction goals for municipal operations; (4) present actions that the citizens and businesses of Newark can implement; and (5) present long-term planning efforts to layout future development (City of Newark 2010).

City of Newark Municipal Code, Chapter 15.44

The City's Municipal Code, Chapter 15.44, Green Building and Construction and Demolition Debris Recycling ordinance aims to minimize or avoid a variety of adverse impacts by regulating the design, construction, and operation of buildings and landscape within the City.

City of Newark Pedestrian and Bicycle Master Plan

The City adopted the Pedestrian and Bicycle Master Plan in February 2017. The Plan provides a blueprint for future pedestrian and bicycle improvement projects and programs in the City to fill the gap in existing networks as well as upgrade and repair existing facilities.

3.8.3 Environmental Impacts

This section analyzes the project's potential to result in significant greenhouse gas impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

GHG emissions that would result from implementation of the project and from the existing use of the project site were calculated using the CalEEMod, Version 2020.4.0. The proposed project would result in both short- and long-term emissions of GHGs. Construction emissions would be generated from the exhaust of construction equipment, the exhaust of construction hauling trips, vendor truck trips, and worker commuter trips. In addition, construction GHG emissions are generated by the use of stationary equipment (e.g., generators and air compressors) and indirectly by the electricity used to power off-road equipment and to supply, treat, and distribute water that is used in the construction process.

The CalEEMod input and assumptions for construction modeling emissions are described in Section 3.3, Air Quality.

Operational sources of GHG emissions in CalEEMod include area, energy, mobile, water use, and solid waste. Operational project input and design features incorporated into CalEEMod for the project and existing use include:

- **Area –** area sources include GHG emissions from landscaping equipment, the use of consumer products, and gas fireplaces. Emissions associated with area sources were estimated using the CalEEMod default values for the project. Area sources in CalEEMod also include emissions from wood burning stoves and fireplaces. However, in accordance with the BAAQMD Regulation 6, Rule 3 – *Wood-Burning Devices*, permanently installed wood-burning devices are not permitted in new development and the project would not include wood-burning stoves or wood-burning fireplaces (BAAQMD 2019). The CalEEMod defaults for area sources were used in the project and existing use modeling.

- **Energy –** The proposed project would use electricity for lighting, heating, and cooling. Some electricity generation entails the combustion of fossil fuels, including natural gas and coal, which results in GHG emissions at the power plant locations. Power plant GHG emissions may occur outside of the region or state. Electricity would be supplied by PG&E. Energy source emissions for the existing use were estimated using CalEEMod defaults. Energy source emissions for the project were estimated assuming implementation of energy-reducing project design features to comply with the 2019 Title 24 standards which include a requirement for on-site generation of electricity through photovoltaic (solar) panels. In accordance with 2019 Title 24, the project's estimated 284,000 square-feet of residential space (assuming 81,200 square feet of unconditioned garage space) in Alameda County climate zone 3 would require solar panels producing a minimum of 405.8 kW. Using a Capacity Factor of 20 percent to account for climate, amount of sunlight available per day, the pitch and orientation of the roof, and the efficiency of the electrical transmission, the project solar panel would produce approximately 711,028 kW-hours per year.

- **Mobile –** Operational GHG emissions from mobile sources are associated with project-related vehicle trip generation and trip length, as described in the AQ section, above.

- **Solid Waste –** Solid waste generated by the project would also contribute to GHG emissions. Treatment and disposal of solid waste produces emissions of methane. Modeling was conducted using CalEEMod default solid waste generation rates and GHG factors for Alameda County. For project modeling, a 75 percent reduction applied to account for residential AB 341 and local waste diversion mandates not accounted for in the model defaults.

- **Water Sources –** Water-related GHG emissions are from the energy used and process emissions for the conveyance and treatment of water. The CEC's 2006 Refining Estimates of Water-Related Energy Use in California defines average energy values for water use. These values are used in CalEEMod to establish default water related emission factors. Modeling was conducted using these defaults. For the project modeling, a 20 percent reduction in potable water use and wastewater generation was applied in accordance with 2019 CALGreen standards.

Thresholds of Significance

The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, the BAAQMD recommends quantification and disclosure of GHG construction emissions. Determining the significance of these construction-generated GHG emission impacts is recommended to be made in relation to meeting AB 32 GHG reduction goals, which requires the state to meet 1990 levels of GHG emissions by 2020. As discussed in the regulatory setting, California announced in July 2018 that the state emitted 427 $MMTCO_2e$ in 2016 and achieved AB 32 goals.

Since GHG emissions are cumulative and construction emission are temporary and short term, it is common practice to amortize the total construction GHG emissions over 30 years to create an annual emissions rate that is combined with the operational GHG emissions for determining significance.

The BAAQMD's 2017 *CEQA Guidelines* provide numeric thresholds for GHG emissions during project operation for projects to demonstrate compliance with AB 32. A proposed land use development project would not have a significant GHG impact, if operation of the project would meet one of the following thresholds (BAAQMD 2017):

- Compliance with a qualified GHG Reduction Strategy;
- Annual emissions less than 1,100 metric tons per year (MT/yr) of CO2e; or
- 4.6 metric tons of CO2e (MTCO2e) per service population per year (MTCO2e/SP/yr).

In April 2022, the BAAQMD adopted updated GHG thresholds that would require a project to either comply with a qualified GHG Reduction Strategy or incorporate project design features and VMT reduction targets to demonstrate project significance. Since the Project's Notice of Preparation was released prior to BAAQMD adoption of the 2022 thresholds, the GHG thresholds disclosed in the BAAQMD's 2017 CEQA Guidelines are still applicable to the project. However, the Project would still be required to demonstrate compliance with SB 32 and the 2030 statewide GHG reductions. SB 32 requires the state to reduce emissions 40 percent below 1990 levels by 2030. According to the Association of Environmental Professionals (AEP) in *Final White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*, an efficiency threshold interpolated between a 2020 and a 2030 metric is appropriate to determine project significance (AEP 2016). As such, project with an operation date of 2020 would have a 0 percent reduction from BAAQMD's GHG thresholds and projects with an operation date of 2030 would assume the 40 percent reduction from BAAQMD's GHG thresholds as required by SB 32. Projects with an operation date between 2020 and 2030 would reduce the BAAQMD threshold based on a straight-line reduction calculation. Therefore, to determine significance and demonstrate consistent with SB 32, BAAQMD's quantitative, per service population thresholds were reduced to 3.06 MT CO2e/year to account for the project's first year of operation in 2028.

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's GHG emissions impacts are significant. Would the proposed project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Project Impact Analysis and Mitigation Measures

Generation of Greenhouse Gases

Impact GHG-1	**The proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

Impact Analysis

Constructions Emission Inventory

Construction emissions would be generated from the exhaust of equipment and the exhaust of construction equipment, truck hauling trips, and material delivery trips and worker commuter trips. Detailed construction assumptions are provided in Section 3.3, Air Quality. The BAAQMD does not presently provide a construction-related GHG generation threshold but recommends that construction-generated GHGs be quantified and disclosed. $MTCO_2e$ emissions during construction of the project are presented in Table 3.8-1.

Table 3.8-1: Construction Greenhouse Gas Emissions

Year	Emissions (MT CO_2e)
2023	328.1
2024	1,837.0
2025	605.2
2026	113.3
TOTAL[1]	**2,883.6**
Amortized Construction Emissions (30 years)	*96.2*

Source: CalEEMod.
[1] Totals may not sum due to rounding.

Operational Emission Inventory

Operational or long-term emissions occur over the life of the project. The operational emissions for the proposed project are shown in Table 3.8-2. Sources for operational emissions include motor vehicles, indirect electricity, water transport, and waste.

Because the proposed project would replace the existing automotive recycling and parts business on the project site (the Pick-n-Pull), the proposed project's operational emissions would be offset by emissions from existing operations, which would be replaced. The existing automotive recycling and parts business was modeled as 1,500 square feet of general office building; 3,000 square feet of general light industrial building; and 13,000 square feet of unrefrigerated warehouse-no rail. The model of existing land uses relies on traffic trip estimates from Fehr & Peers' Transportation Impact Analysis as well as water and waste reductions assumptions that are consistent with state reduction requirements. Other modeling inputs for the existing land uses were based on CalEEMod default assumptions. Detailed modeling details are provided in Section 3.3, Air Quality. The net GHG emissions are presented in Table 3.3-8.

During operation, the proposed project would result in net GHG emissions of approximately 2,041.4 $MTCO_2e$/year. The proposed project is estimated to serve approximately 674 residents. As shown in Table 3-8.2 the project would result in a generation of 3.03 $MTCO_2e$ per service person per year. Estimated operational emissions would not exceed the BAAQMD adjusted significance thresholds; therefore, impacts would be less than significant.

Table 3.8-2: Operational Greenhouse Gas Emissions

Source	Annual Emissions (MT CO_2e)
Area	19.9
Energy	512.4
Mobile	1,997.9
Waste	108.2
Water	23.5
Operational Subtotal[1]	2,661.8
Amortized Construction Emissions (30 years)	96.2
Total Project Emissions	2,758.0
Existing Use Emissions	(716.6)
Net Project Emissions[1]	**2,041.4**
Efficiency (Net Emissions/Service Population; MT CO_2e/service population/year)[2]	**3.03**
BAAQMD 2028 Adjusted Threshold (MT CO_2e/service population/year)	*3.06*
Exceed Threshold?	***No***

Source: CalEEMod.
[1] Totals may not sum due to rounding.
[2] Based on an estimated project population of 674.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

Conflict with an Applicable Plan, Policy, or Regulation

Impact GHG-2	**The proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

Impact Analysis

The following analysis assesses the proposed project's consistency with local and regional adopted plans to reduce GHG emissions. The City adopted their CAP Initial Framework in 2010, which was developed to present measures to reduce local GHG emissions; meet state, regional, and local reduction targets; and streamline future environmental review. Lastly, the State of California has developed Climate Change Scoping Plans, which are required to be updated every five years. The 2017 Scoping Plan outlines the strategy for achieving California's 2030 GHG target of 40 percent emissions reductions below 1990 levels. In December 2022, CARB adopted the 2022 Scoping Plan which builds upon the 2017 Scoping Plan to outline a blueprint for the state to meet SB 32 and AB 1279 reduction goals. The following provides a project-specific consistency analysis with each of these local, regional, and statewide plans:

City of Newark Climate Action Plan

The City's CAP includes a series of residential community action items, action items that are applicable to the proposed project are presented in Table 3.8-4.

Table 3.8-3: Newark Climate Action Plan Consistency Analysis

Newark Climate Action Plan		Project Consistency
Residential Community Action Item 4.2	Encourage use of Alternative Fuel Vehicles.	**Consistent.** The proposed project would be consistent with CALGreen which requires at least 10 percent of parking for new projects to be equipped with EV chargers.
Residential Community Action Item 4.3	Energy Conservation	**Consistent.** The proposed project would be consistent with 2022 CALGreen building standards that include a series of energy conservation measures – such as installing ENERGY STAR appliances.
Residential Community Action Item 4.5	Increase Residential Recycling and Composting	**Consistent.** The proposed project would comply with all waste diversion measures for construction and would be serviced by a waste provider that would be required to meet city and state diversion goals.
Residential Community Action Item 4.6	Water Conservation	**Consistent.** The proposed project would be consistent with 2022 CALGreen which would require water conservation measures including low flow water fixtures. Moreover, all proposed landscaping would consist of low water use plants and would meet the requirement of the Model Water Efficient Landscape Ordinance.

Newark Climate Action Plan		Project Consistency
Residential Community Action Item 4.7	StopWaste.org Green Packages	Not Applicable. This action item is aimed at the city to create a financing option for the city to encourage developers to install energy efficient measures on homes. While the measure is not applicable, the Project would be consistent with 2022 CALGreen measures that would require energy efficient measures.
Residential Community Action Item 4.8	Multi-family Building Owners Assistance Newark	Not Applicable. The action item is aimed at the city to create a financing option to encourage developers to participate in the Green Points Rated or LEED Programs.

Notes:
CALGreen = California Green Building Standards
Source: City of Newark, 2016.

California Climate Change Scoping Plan

CARB issued the Final 2017 Scoping Plan Update in November 2017 and establishes emissions reduction strategies necessary to meet SB 32's 2030 reduction goals. In 2022, CARB approved their 2022 Scoping Plan which expands on the Final 2017 Scoping Plan to assess progress in meeting SB 32 and reach AB 1279. Consistency with the 2017 and 2022 Scoping Plans are included in Tables 3.8-4 and 3.8-5, respectively, below.

Table 3.8-4: SB 32 Scoping Plan Consistency Analysis

Measure Name	Measure Description	Consistency Determination
SB 350 50% Renewable Mandate.	Utilities subject to the legislation will be required to increase their renewable energy mix from 33% in 2020 to 50% in 2030.	**Consistent.** The proposed project will purchase electricity from a utility subject to the SB 350 Renewable Mandate. In addition, the proposed project would be required to adhere to the latest Title 24 and CALGreen building standards.
Low Carbon Fuel Standard	This measure requires fuel providers to meet an 18% reduction in carbon content by 2030.	**Consistent.** Vehicles accessing the proposed project site would use fuel containing lower carbon content as the fuel standard is implemented.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario)	Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Consistent.** Future residents can be expected to purchase increasing numbers of more fuel efficient and zero emission cars and trucks each year.

Measure Name	Measure Description	Consistency Determination
Short-Lived Climate Pollutant (SLCP) Reduction Strategy	The strategy requires the reduction of SLCPs by 40% from 2013 levels by 2030 and the reduction of black carbon by 50% from 2013 levels by 2030.	**Consistent.** SLCPs include HFCs, black carbon, and methane. Black carbon is created from the burning of fuels such as coal, diesel, and biomass. The proposed office and residential buildings would be 100 percent electric and generate very few diesel truck trips and would not contribute to black carbon pollution. HFCs are a group of industrial chemicals primarily used for air conditioning and refrigeration. CARB has already banned a series of HFCs including those used for residential refrigeration. The proposed project would comply with all applicable regulations.
SB 375 Sustainable Communities Strategies	Requires Regional Transportation Plans to include a sustainable communities' strategy for reduction of per capita vehicle miles traveled.	**Not Applicable.** This measure is aimed at Metropolitan Planning Organizations who prepare Regional Transportation Plans to include a sustainable communities' strategy to reduce vehicle miles traveled. The project would not interfere with implementation of this goal.
Post-2020 Cap-and-Trade Program	The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Consistent.** The Post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period.

Source: CARB 2017

Table 3.8-5: Project Consistency with 2022 Scoping Plan Greenhouse Gas Reduction Strategies

Measure	Consistency Determination
Deploy ZEVs and reduce driving demand	**Consistent.** The proposed project would be consistent with CALGreen which requires at least 10 percent of parking for new projects to be equipped with EV chargers.

Measure	Consistency Determination
Coordinate supply of liquid fossil fuels with declining CA fuel demand	**Not Applicable.** This measure is aimed at petroleum refineries and fossil fuel extraction operations. The Project would not interfere with implementation of this measure.
Generate clean electricity	**Consistent.** This measure is aimed at the electric sector to decarbonize. The Project would purchase electricity from utility providers that are expanding GHG free electricity consistent with SB 350 Renewable Mandate.
Decarbonize Buildings	**Consistent.** The Project would comply with the latest California Green Building Standards that require energy and water efficient project design features that would reduce GHG emissions. In addition, the proposed Project would be 100 percent electric.
Decarbonize Industrial Energy Supply	**Not Applicable.** The Project would not include any industrial land uses.
Reduce non-combustion emissions (Methane)	**Not Applicable.** The Project would not include any land uses that generate significant levels of methane such as landfills or dairy farms.
Reduce non-combustion emissions (HFCs)	**Consistent.** HFCs are a group of industrial chemicals primarily used for air conditioning and refrigeration. CARB has already banned a series of HFCs including those used for residential refrigeration. The proposed project would comply with all applicable regulations.
Compensate for remaining emissions	**Not Applicable.** This measures is aimed at the state government to reduce statewide emissions to meet AB 1279 goals.

Source: CARB 2022a

In addition to the Plan level consistency analysis presented in Tables 3.8-3 through 3.8-5, the proposed project would be subject to Title 24 energy efficiency standards. Energy-efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The proposed project would comply with the CALGreen, which includes requirements to increase recycling, reduce waste, reduce water use, increase bicycle use, and other measures that would reduce GHG emissions. Motor vehicle emissions associated with the proposed project would be reduced through compliance with State regulations on fuel efficiency and fuel carbon content. The proposed project would not conflict with the City's CAP or the statewide scoping plan adopted by the State of California to reduce GHG emissions therefore, impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

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3.9 HAZARDS AND HAZARDOUS MATERIALS

This section describes the environmental and regulatory setting for hazards and hazardous materials. It also describes existing conditions and potential impacts related to hazards and hazardous materials that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.9.1 Environmental Setting

Hazardous Materials

Hazardous materials, as defined by CCR, are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed of, or otherwise managed. Hazardous materials are grouped into the following four categories, based on their properties:

- Toxic: Causes human health effects
- Ignitable: Has the ability to burn
- Corrosive: Causes severe burns or damage to materials
- Reactive: Causes explosions or generates toxic gases

Hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. The criteria that define a material as hazardous also define a waste as hazardous. If improperly handled, hazardous materials and hazardous waste can result in public health hazards if released into the soil or groundwater or through airborne releases in vapors, fumes, or dust.

California Government Code Section 65962.5 requires the Cal EPA to compile, maintain, and update specified lists of hazardous material release sites. The required lists of hazardous material release sites are commonly referred to as the “Cortese List,” which are contained on internet websites, including the online EnviroStor database from the Department of Toxic Substances Control (DTSC) and the online GeoTracker database from the SWRCB. These two databases include hazardous material release sites along with other categories of sites or facilities specific to each agency’s jurisdiction. A search of EnviroStor and GeoTracker databases in November 2021 revealed an open case at the project site on the GeoTracker database (DTSC 2021 SWRCB 2021). GeoTracker has the Pick-n-Pull Auto Dismantler listed as a “Cleanup Program Site.” “Cleanup Program Sites” includes all "non-federally owned" sites that are regulated under the SWRCB’s Site Cleanup Program. The site has been used as an automobile wrecking yard since the 1960s and is currently owned and operated by Pick-n-Pull Auto Dismantlers. The cleanup site’s status is “OPEN – SITE ASSESSMENT” as of January 15, 2020 on the GeoTracker database. Cases with this status are those where site characterization, investigation, risk evaluation, and/or site conceptual model development are occurring at the site. A Corrective Action Plan and Remedial Excavation Work Plan was approved by the Alameda County Water District in March 2021. The Corrective Action Plan and Remedial Excavation Work Plan proposed to remediate the impacted soil, soil gas, groundwater, surface water, and sediments through a combination of removing the soil contamination through excavation, groundwater containment through in-situ remediation, and surface water contamination through dewatering, and if conditions warrant, natural attenuation, to residential standards. Additionally, the site directly adjacent to the southwest of the project site (Tolbertson Property) is listed in the GeoTracker database as a Cleanup Program Site. The Tolbertson Property case has a status of "Open – Verification Monitoring". Sites with status of "Open – Verification Monitoring" are sites where remediation phases are essentially complete, a monitoring/sampling program is occurring to confirm successful completion of cleanup at the site, and no active remediation or additional remediation is considered necessary. Due to the case status of the Tolbertson Property, this case is not expected to pose any risks to the proposed project.

Phase I and Phase II Environmental Site Assessment

A Phase I ESA and Phase II ESA were conducted by Haley and Aldrich, Inc for the proposed project site in January 2019 (Appendix F). The report identified that the project site was used as an automobile wrecking yard since the 1960s and is currently owned by Pick-n-Pull Auto Dismantlers who have operated an automobile scrap yard since 1996. The Phase I ESA identified two RECs at the project site. RECs are defined as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment" (Haley and Aldrich 2019). REC #1 pertains to the automobile wrecking operations at the site. During approximately 50 years of automobile wrecking operations, significant quantities of hazardous materials have been handled and stored on the site, with documented spills and visibly stained soil. REC #2 pertains to historical agricultural operation that took place at the site prior to development as an automobile wrecking yard. Sites associated with historical agricultural uses commonly contain residual agricultural chemicals. Additionally, the Phase I ESA identified that *de minimis* staining was observed on paved and gravel surfaces at the project site. *De minimis* conditions are those conditions which "do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies" (Haley and Aldrich 2019). Conditions determined to be *de minimis* are not RECs.

Due to potential environmental issues identified during the Phase I ESA process, a sampling program was conducted to assess soil and groundwater conditions at the project site and REC #1 and REC #2 identified above were investigated. Soil at the subject site was assessed at 23 locations within the auto wrecking yard and at seven locations in the undeveloped northern parcel. Soil samples were analyzed for California Title 22 metals (metals), VOCs, PAHs, organochlorine pesticides (OCPs), and total petroleum hydrocarbons as gasoline (TPHg), diesel (TPHd), and motor oil (TPHmo). Grab groundwater samples were collected from 12 locations and analyzed for VOCs and TPHg/d/mo (Haley and Aldrich 2019). The Phase II ESA results identified generally low levels of metals, VOCs, and PAHs, OCPs, TPHg, and TPHmo in shallow soil at the site. Metals and PAHs were detected in the soil in concentrations constant with background levels, with the exception of lead in two locations and PAHs in one location. No OCPs, VOCs, TPHg, or TPHmo were detected in soil above their respective residential direct exposure levels.

Environmental Screening Levels (ESLs) are used to determine the concentration of contaminants present in different environmental domains, mainly encompassing soil, groundwater resources, water vapors, and ambient air at the specific site, which may impact the exposed human population. ESLs provide conservative screening levels for chemicals found at sites with contaminated soil and groundwater. Tier 1 ESLs are used to determine the threshold of significance for concentrations of contaminants found at the site. If a contaminant is found at concentrations exceeding its respective Tier 1 ESL, it may result in a significant impact to future residents if remediation for the contaminant is not completed. Lead was detected at concentrations exceeding its Tier 1 ESL in three samples collected between 0.5 and 2.5 feet bgs inside of the automobile wrecking yard.TPHd was detected at concentrations exceeding its respective Tier 1 ESLs in shallow soil in 16 locations across the automobile wrecking yard, generally at 0.5 and 1.5 feet bgs. Soil on the subject site can be remediated to residential levels through removal of shallow soil in select portions of the auto wrecking yard.

TPHg was detected above its Tier 1 ESL in one groundwater sample and TPHd was detected above its Tier 1 ESL in seven groundwater samples. Most VOCs were detected in groundwater samples at levels below their respective Tier 1 ESLs, with a few VOCs, notably benzene and ethylbenzene, exceeding their respective Tier 1 ESLs. Benzene and ethylbenzene were detected in groundwater at one location within the auto wrecking yard at concentrations exceeding their Tier 1 ESLs, which are based on potential drinking water concerns. In addition, the detected benzene and ethylbenzene concentrations at that location exceed the ESL to assess potential vapor intrusion concerns from groundwater.

On-site remediation would be required at the project site prior to start of construction activities to ensure all hazardous materials detected in soil and groundwater samples at the project site are below their respective Tier 1 ESLs. Trace levels of hazardous materials detected in soil and groundwater at the site may be present after on-site remediation activities take place. However, trace levels would not pose a substantial risk to future residents.

Schools

There are no existing schools located within 0.25 miles of the project site. The nearest schools are the Ohlone College Newark Center for Health Sciences and Technology, located approximately 0.5 mile northeast of the project site, and Newark Memorial High School, located approximately 0.66 mile northeast of the project site.

Airports

There are no public or private airports located within the City or within two miles of the City limits (City of Newark 2013b). The two nearest airports are located across the bay from Newark. Palo Alto Airport is located in the City of Palo Alto, approximately five miles southwest of Newark, and Moffett Federal Airfield is located in the City of Mountain View, approximately five miles south of Newark. The City is located outside of both airports influence areas (City of Newark 2013b).

Wildfire

According to the California Department of Forestry and Fire Protection (CAL FIRE), the City is not located in a local or state fire hazard severity zone (CALFIRE 2007, 2008).

3.9.2 Regulatory Setting

Federal

United States Environmental Protection Agency

The USEPA was established in 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting, and enforcement activities to ensure environmental protection. The USEPA's mission is to protect human health and to safeguard the natural environment—air, water, and land—upon which life depends. The USEPA works to develop and enforce regulations and implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for using permits and for monitoring and enforcing compliance. Where national standards are not met, the USEPA can issue sanctions and take other steps to assist the states and tribes to reach the desired levels of environmental quality. Laws and regulations established by the USEPA are enforced in Alameda County by the Cal EPA.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) set up the federal regulatory program for hazardous substances and gives the USEPA the authority to regulate the generation, transport, treatment, and disposal of hazardous substances in a "cradle to grave" system. Under RCRA, the USEPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances. This regulatory system includes tracking all generators of hazardous waste.

1984 Hazardous and Solid Waste Amendment Act

RCRA was amended by the 1984 Hazardous and Solid Waste Amendment Act, which prohibited the use of certain techniques for the disposal of certain hazardous wastes. The Emergency Planning and Community Right-to-Know Act of 1986 imposes safety requirements to protect local communities in the event of accidental release of hazardous substances. The requirements provide measures so that the risks from interaction with hazardous materials, such as handling, storage, and disposal, are mitigated or prevented. This law protects human health and the environment if the unintended release of hazardous materials was to occur. The USEPA has delegated fulfillment of many of RCRA's requirements to the DTSC.

State

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program. It is similar to, but more stringent than, the federal RCRA program. The act is implemented by regulations contained in CCR Title 26, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling treatment, storage and disposal facilities; operation of facilities and staff training; and closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous, and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with DTSC.

California Environmental Protection Agency and Department of Toxic Substances Control

The Cal EPA is responsible for creating and enforcing environmental regulations within California. Within Cal EPA is DTSC, which was formed under the Hazardous Waste Control Act. DTSC is responsible for regulating hazardous waste, remediating existing contamination, and identifying ways to reduce production of hazardous wastes. DTSC can delegate enforcement responsibilities to local jurisdictions.

State Water Resources Control Board

The San Francisco RWQCB is authorized by the SWRCB to enforce the provisions of the Porter-Cologne Water Quality Control Act of 1969. This act gives the San Francisco RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the State is threatened and to require remediation actions, if necessary.

Unified Program

The unified hazardous waste and hazardous materials management regulatory program (Unified Program) is a unified hazardous materials management program that was established by California’s Secretary for Environmental Protection following Senate Bill 1082 (1993). The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the following programs:

- Hazardous Materials Release Response Plans and Inventories
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Above Ground Petroleum Storage Act Program
- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs
- California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements

These six environmental programs are implemented at the local government level by Certified Unified Program Agencies (CUPAs). CUPAs provide a central permitting and regulatory agency for permits, reporting, and compliance enforcement. PRC Section 21151.4 sets special requirements for EIRs and negative declarations for projects that involve the construction or alteration of a facility within 0.25 mile of a school that creates the following conditions:

- The project might reasonably be anticipated to emit hazardous air emissions;

- The project would handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified in Section 25532(j) of the HSC; or

- The project may pose a health or safety hazard to persons who would attend or would be employed at the school.

As part of the CEQA process, the lead agency preparing the EIR must consult with the appropriate school district regarding the potential impact of the project on the school, and the school district must be notified about the project in writing at least 30 days before the proposed certification of the EIR (PRC Section 21151.4; 14 CCR Section 15186[b]).

Cortese List Government Code Section 65962

Government Code Section 65962 was enacted in 1985 and was amended in 1992. It is used as a planning tool to comply with CEQA and requires information about locations of hazardous materials release sites. It states that through the combined efforts of DTSC, the Department of Health Services, the SWRCB, and local enforcement agencies, a list of potentially hazardous areas and sites will be compiled and remain up to date (at a minimum, updated annually). The list is consolidated by the Secretary for Environmental Protection and is distributed to each city and county in which sites on the list are located. The list can be found on DTSC's EnviroStor database, which includes information from the SWRCB's GeoTracker database.

California Department of Transportation

Caltrans manages interregional transportation, including the management and construction of the California highway system. In addition, Caltrans is responsible for the permitting and regulation of state roadways and requires that permits be obtained for transportation of oversized loads and transportation of certain materials, such as hazardous materials, and for construction-related traffic disturbance.

California Public Resources Code

PRC Section 21151.4 is another key state law pertaining to hazardous materials, and is presented verbatim below:

a) An environmental impact report shall not be certified or a negative declaration shall not be approved for any project involving the construction or alteration of a facility within one-fourth of a mile of a school that might reasonably be anticipated to emit hazardous air emissions, or that would handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code, that may pose a health or safety hazard to persons who would attend or would be employed at the school, unless both of the following occur:

    1) The lead agency preparing the environmental impact report or negative declaration has consulted with the school district having jurisdiction regarding the potential impact of the Project on the school.

2) The school district has been given written notification of the Project not less than 30 days prior to the proposed certification of the environmental impact report or approval of the negative declaration.

b) As used in this section, the following definitions apply:

1) "Extremely hazardous substance" means an extremely hazardous substance as defined pursuant to paragraph (2) of subdivision (g) of Section 25532 of the Health and Safety Code.

2) "Hazardous air emissions" means emissions into the ambient air of air contaminants that have been identified as a toxic air contaminant by the State Air Resources Board or by the air pollution control officer for the jurisdiction in which the Project is located. As determined by the air pollution control officer, hazardous air emissions also mean emissions into the ambient air of a substance identified in subdivisions (a) to (f), inclusive, of Section 44321 of the Health and Safety Code. [Amended by Stats. 2008, Ch. 148, Sec. 1. Effective January 1, 2009]

Division of Occupational Safety and Health

The California Division of Occupational Safety and Health Administration (CalOSHA) is responsible for enforcing workplace safety regulations and requirements in California, including hazardous materials requirements recorded under CCR Title 8. These regulations include requirements for safety training, availability of safety equipment, accident and illness prevention programs, warnings about hazardous substance exposure (such as asbestos), and preparation of emergency action and fire prevention plans.

CalOSHA also enforces hazard-communication program regulations that contain training and information requirements. Such requirements include procedures for identifying and labeling hazardous substances, communicating information about hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. Under the hazard-communication program, employers must make Safety Data Sheets available to employees and document employee information and training programs.

California Emergency Services Act

The California Emergency Services Act provides the basic authority for conducting emergency operations following a proclamation of emergency by the governor and/or appropriate local authorities. Local government and district emergency plans are considered to be extensions of the California Emergency Plan, established in accordance with the Emergency Services Act.

The California Emergency Management Agency (CAL EMA) is the state agency responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. CAL EMA regulates businesses by requiring specific businesses to prepare an inventory of hazardous materials (CCR Title 19). CAL EMA is also the lead state agency for emergency management and is responsible for coordinating the state-level response to emergencies and disasters.

California Department of Forestry and Fire Protection

CAL FIRE has mapped fire threat potential throughout California. CAL FIRE ranks fire threat based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The rankings include no fire threat, moderate, high, and very high fire threat. Additionally, CAL FIRE produced a *2010 Strategic Fire Plan for California*, which contains goals, objectives, and policies to prepare for and mitigate for the effects of fire on California's natural and built environment.

Local

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project (City of Newark 2013a):

Goal EH-4: Hazardous Materials. Protect Newark residents and workers from the potential adverse effects on hazardous materials.

- **Policy EH-4.1: Hazardous Materials Risk Reduction.** Seek to reduce the risk of hazardous materials accidents, spills and vapor releases, and minimize the effects of such incidents if they occur.
- **Policy EH-4.6: Hazardous Materials Transport.** Seek to reduce the risk of accidents in the transportation of hazardous materials. The City will require compliance with all hazardous waste transport standards established by state and federal agencies.
- **Policy EH-4.7: Railroad Cargo Safety.** Work with the Union Pacific Railroad and the California Public Utilities Commission (CPUC) to ensure safe conditions for the loading, unloading, and transport of hazardous materials along rail lines through Newark. UP should be encouraged to maintain its tracks and facilities in excellent condition, and minimize occasions where trains block railroad grade crossings.

Goal EH-5: Emergency Preparedness. Fast, efficient, and coordinated response to natural and man-made emergencies and disaster.

- **Policy EH-5.3: Adequacy of Emergency Response Access.** Avoid placing new development in areas where emergency response and evacuation cannot be provided within acceptable levels.

Goal HW-5: Reducing Hazard Exposure. A land use pattern that minimizes exposure of residents and workers to hazards associated with commercial and industrial uses.

- **Policy HW-5.3: Remediation.** Require remediation of soil and groundwater contamination to a level that is consistent with proposed land uses. All site cleanup shall be coordinated with state and federal regulatory agencies.

Local Hazard Mitigation Plan

The ABAG prepared a Local Hazard Mitigation Plan, Taming Natural Disasters, to help prepare for and mitigate the effects of potential hazards in the Bay Area. To supplement ABAG's Taming Natural

Disasters, Alameda County prepared an Annex particular to its region. The Annex describes the regional and local hazard mitigation planning process, recounts past occurrences of disasters, assesses various risks (e.g. urban land exposure, infrastructure exposure, critical health care facility exposure, etc.), details mitigation goals, and provides mitigation activities and priorities (City of Newark 2013b).

City of Newark Emergency Operations Plan and Chemical Emergency Preparedness Supporting Plan

The City has adopted two emergency response plans. The "Emergency Operations Plan" is the City's primary plan which provides operational procedures for responding to a variety of emergency conditions, including earthquakes, flooding, tsunamis, hazardous material incidents, and civil defense conditions. The guidelines included in this plan address the needs of the entire community and identify key responsible agencies and personnel. The City's second response plan is the "Chemical Emergency Preparedness Supporting Plan." This plan establishes standard operating procedures for responding to a chemical spill or hazardous materials incidents within the City (City of Newark 2013b).

3.9.3 Environmental Impacts

This section analyzes the project's potential to result in significant hazards and hazardous materials impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of documents pertaining to the project site, including the General Plan, General Plan EIR, and online regulatory compliance databases.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's hazards and hazardous materials impacts are significant. Would the proposed project:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people rising or working in the project area?
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Project Impact Analysis and Mitigation Measures

Routine Transport, Use, or Disposal of Hazardous Materials

Impact HAZ-1	**The proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**

Impact Analysis

The proposed project consists of the development of the 29 acre project site with 203 single-family residences and associated infrastructure improvements. The proposed project would require remediation of the project site prior to the start of construction activities as required by General Plan Policy HW-5.3. On-site remediation would be required at the project site prior to start of construction activities to ensure all hazardous materials detected in soil and groundwater samples at the project site are below their respective Tier 1 ESLs. Construction activities associated with the proposed project could expose construction workers and the environment to existing on-site contamination. The Phase II ESA prepared for the proposed project identified that soil at the project site could be remediated to residential levels through the removal of shallow soils in select portions of the project site. The proposed project would be required to implement Mitigation Measure HAZ-1 which requires remediation of contaminated soil and groundwater. The Corrective Action Plan and Remedial Excavation Work Plan prepared for the proposed project proposed to remediate the impacted soil, soil gas, groundwater, surface water, and sediments through a combination of removing the soil contamination through excavation, groundwater contamination through in-situ remediation, and surface water contamination through dewatering, and if conditions warrant, natural attenuation, to residential standards. ACWD would be the responsible agency for oversight and enforcement of the Corrective Action Plan and Remedial Excavation Work Plan. Confirmation sampling is required to be performed regularly to assess the effectiveness of Corrective Action Plan activities. Confirmation sampling conducted after the completion of Corrective Action Plan activities would ensure that hazardous site conditions are no longer present and ensure that development of the proposed project would not create a significant hazard to the public or the environment. Though trace levels of hazardous materials detected in soil and groundwater may be present after the completion of remediation activities, trace levels would not result in potential impacts to future residents and would not result in hazardous conditions being present at the site. Additionally, as the project site is developed with existing structures that would be demolished prior to the start of construction activities, the proposed project would be required to conduct an asbestos survey of the existing structures to determine if asbestos-containing building materials (ACBMs) are present. If ACBMs are identified within the existing structures, the proposed project would be required to properly dispose of hazardous materials in accordance with state and local guidelines. For the disposal of potential existing hazardous materials located on-site and ACBMs identified within the existing structures, the proposed project would comply with General Plan Policy EH-4.6 which requires compliance with all hazardous waste transport standards established by state and federal agencies. All remediation activities would be completed prior to the start of construction of buildings and would take place prior to site grading. Compliance with all applicable regulations and implementation of Mitigation Measure HAZ-1 would ensure that impacts associated with the routine transport, use, and disposal of hazardous materials during remediation activities for the proposed project would result in a less than significant impact.

The proposed project consists of the development of the 29 acre project site with 203 single-family residences and associated infrastructure improvements. Construction of the proposed project would involve the minor routine transport, use, and disposal of hazardous substances such as diesel fuels, lubricants, solvents, asphalt, paints, building materials, finishing materials, pesticides, and fertilizers. The project contractor would be required to comply with all applicable federal, state, and local laws related to the transport, use, or disposal of hazardous materials, as overseen by the Cal EPA and DTSC. The proposed project would comply with General Plan Policy EH-4.1 which seeks to reduce the risk of hazardous materials accidents, spills and vapor releases, and minimize the effects of such incidents if they occur. With compliance with existing federal, state and local laws, the use of hazardous substances during construction would not result in a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.

Operational impacts associated with the proposed project would be limited to hazardous materials typically generated by residential uses. Hazardous materials used post construction would be those commonly found in other residential uses such as cleaning products, paints, oils, and pesticides for landscaping maintenance activities. These common household hazardous materials would be used in limited quantities and would not create a substantial hazard to the public or the environment. Therefore, impacts related to the routine transport, use, and disposal of hazardous materials during project construction and operation would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

MM HAZ-1: **Remediation of On-Site Contamination.** Prior to the start of construction activities, the Applicant shall remediate existing on-site contamination at the project site to residential standards. Remediation activities shall be completed prior to site grading and construction of buildings. Remediation activities shall include:

- The Applicant shall implement the Corrective Action Plan and Remedial Excavation Work Plan as approved by the ACWD. The Corrective Action Plan and Remedial Excavation Work Plan provides detailed plans to remediate contaminated soil, soil gas, groundwater, surface water, and sediments through a combination of removing the soil contamination through excavation, groundwater containment through in-situ remediation, and surface water contamination through dewatering, and if conditions warrant, natural attenuation, to residential standards.

- The project site shall be remediated below relevant screening levels under oversight by an appropriate regulatory agency, in this case the ACWD. The oversight agency shall be responsible for overseeing and directing all site investigation and cleanup activities in a manner that ensures that the standards and requirements of the State of California are fully addressed.

- As part of the Corrective Action Plan and Remedial Excavation Work Plan, confirmation sampling shall be completed after the conclusion of remediation activities to ensure existing on-site contamination has been remediated to residential standards.

- Prior to any demolition of the existing buildings (Pick-n-Pull) an asbestos survey is required by local authorities and/or National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines. NESHAP guidelines require the removal of potentially friable Asbestos-Containing Building Material (ACBMs) prior to building demolition or renovation that may disturb the ACBM. The results of the survey shall be submitted to the City for review and approval, prior to issuance of demolition permits.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Accidental Release of Hazardous Materials

Impact HAZ-2	**The proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.**

Impact Analysis
Construction activities associated with the proposed project could result in release of existing on-site hazardous materials contamination into the environment and therefore, the proposed project would be required to comply with General Plan Policy HW-5.3 and implement Mitigation Measure HAZ-1 which requires remediation of existing on-site contamination prior to the start of construction activities. Remediation of on-site contamination prior to the start of construction activities would ensure that construction activities associated with the proposed project would not release existing on-site hazardous materials into the environment. In addition to remediation of on-site contamination, the proposed project would be required to conduct asbestos surveys to ensure that the existing structures proposed for demolition does not contain ACBMs and ensure demolition activities do not create a hazard to the public or environment. The asbestos survey is required by Mitigation Measure HAZ-1 and the results of the survey shall be submitted to the City for review and approval, prior to issuance of demolition permits. During all construction activities, including remediation activities, the proposed project would be required to implement a SWPPP, as required by Mitigation Measure HYD-1, to prevent contaminated runoff from leaving the project site. Implementation of Mitigation Measure HYD-1, Mitigation Measure HAZ-1, and compliance with applicable federal, state, and local regulation pertaining to hazardous materials would ensure remediation impacts related to the accidental release of hazardous materials are less than significant.

As discussed in Impact HAZ-1, project construction would involve the use of hazardous materials such as fuels, solvents, and paints which has the potential to be released into the environment if not handled properly. The proposed project would be required to comply with applicable federal, state, and local regulations pertaining to the safe handling and storage of hazardous materials. Additionally, as required by Mitigation Measure HYD-1, the proposed project would be required to implement a SWPPP to prevent contaminated runoff from leaving the project site during construction activities. Compliance with existing regulations pertaining to safe handling and storage of hazardous materials used during construction and implementation of Mitigation Measure HYD-1 would ensure construction impacts related to accidental release of hazardous materials are less than significant.

Operational activities would involve limited use of common hazardous materials, including paints, solvents, fuels, oils, cleaners, and pesticides. The use of these substances is not expected to create a significant hazard to the public or the environment through reasonably foreseeable upset or accident as they would not be used in quantities that would cause significant impacts. The proposed project would be required to comply with applicable federal, state, and local laws pertaining to the safe handling, storage, and transport of hazardous materials. Therefore, impacts related to the release of hazardous materials into the environment would be less than significant with the implementation of Mitigation Measure HYD-1 and Mitigation Measure HAZ-1.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measure HYD-1 and Mitigation Measure HAZ-1 are required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Emission of Hazardous Materials near an Existing School

Impact HAZ-3	**The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

Impact Analysis
The project site is not located within 0.25 mile of an existing or proposed school. The nearest school is the Newark Memorial High School, approximately 0.87 mile northeast of the project site. The proposed project does not involve the development of a use that would emit hazardous materials, substances, or waste during operation. The use of heavy equipment and activities involving hazardous materials would be limited to the construction phase and confined to construction areas and within existing roadways. The use of hazardous materials would also be regulated by health and safety requirements under federal, state, and local laws, including handling, storage, and disposal of the materials, as well as emergency spill response. As such, the proposed project would have a less than significant impact related to the emission or handling of hazardous materials near a school.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Hazardous Materials Sites

Impact HAZ-4	**The proposed project could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.**

Impact Analysis
The project site is currently operated as an auto wrecking yard since the 1960s and was previously used for agricultural purposes. The project site is included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. The GeoTracker database identifies the Pick-n-Pull Auto Dismantler site as a “Cleanup Program Site.” “Cleanup Program Sites” includes all "non-federally owned" sites that are regulated under the SWRCB’s Site Cleanup Program. The cleanup site’s status is “OPEN – SITE ASSESSMENT” as of January 15, 2020 on the GeoTracker database.

The Phase II ESA conducted for the proposed project identified concentrations of lead exceeding its Tier 1 ESLs in three samples and TPHd was detected at concentrations exceeding its Tier 1 ESL in shallow soil in 26 locations across the project site. The Phase II ESA also identified that the sampling conducted detected TPHg, TPHd, Benzene and ethylbenzene above their respective Tier 1 ESL in groundwater samples. The project site would require remediation activities prior to the start of construction activities to ensure there are no hazardous materials present in soil or groundwater at the site exceeding hazardous levels. The Phase II ESA identified that soils at the project site could be remediated to residential levels through the removal of shallow soils in select portions of the auto wrecking yard. The proposed project would comply with General Plan Policy HW-5.3 and would remediate soil and groundwater contamination to a level consistent with the proposed land use. The proposed project would be required to implement Mitigation Measure HAZ-1 which requires remediation of existing on-site contamination. As required by Mitigation Measure HAZ-1, the Applicant shall implement the Corrective Action Plan and Remedial Excavation Work Plan prepared for the site. The Corrective Action Plan and Remedial Excavation Work Plan proposes to remediate the impacted soil, soil gas, groundwater, surface water, and sediments through a combination of removing the soil contamination through excavation, groundwater contamination through in-situ remediation, and surface water contamination through dewatering, and if conditions warrant, natural attenuation, to residential standards. Confirmation sampling is required to be performed regularly to assess the effectiveness of Corrective Action Plan activities. Confirmation sampling conducted after the completion of Corrective Action Plan activities as part of the Remedial Excavation Work Plan would ensure that hazardous site conditions are no longer present and ensure that development of the proposed project would not create a significant hazard to the public or the environment. Implementation of the mitigation measure would mitigate impacts caused by existing contamination and impacts would be a less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measure HAZ-1 is required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Nearby Airport Hazard

Impact HAZ-5	**The proposed project would not, for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.**

Impact Analysis
The project site is not located within two miles of an airport and is not located within an airport land use plan. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project site. No impact would occur.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
No Impact.

Emergency Response or Evacuation Plan

Impact HAZ-6	**The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**

Impact Analysis
The proposed project includes modifications and improvements to the existing roadways and may result in partial or complete road closures during construction activities. If road closures are necessary, the proposed project would prepare and implement a Traffic Control Plan (TCP) to ensure that construction activities do not impair or interfere with an adopted emergency response plan or emergency evacuation plan. The proposed project would comply with General Plan Policy EH-5.3 which requires avoiding placing new developments in areas where emergency response and evacuation cannot be provided within acceptable levels. The project site is located in an area already served by emergency services and development of the proposed project would not result in emergency response not being provided within acceptable levels. The proposed project would not result in permanent modification to roadways that would interfere with any adopted emergency plans. Modification to roadways that is proposed as part of the proposed project would be constructed in accordance with the City’s standards to provide adequate emergency access. Therefore, project construction and operation activities would not interfere with an emergency evacuation or response plan, and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Wildland Fires

Impact HAZ-7	**The proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.**

Impact Analysis
The project site is not located in or near a state responsibility area or a very high fire hazard zone of a locally responsible area (CAL FIRE 2007, 2008). Primary access to the project site would be through Mowry Avenue and adequate site ingress and egress to the project site for emergency vehicles would be provided.

All utilities required for the new development would be located underground and the proposed project includes installation of fire hydrants throughout the project site to mitigate fire hazards. The proposed project would be required to implement General Plan policies, such as General Plan Policy EH-5.3 which requires new developments be placed in areas where adequate emergency response can be provided, as well as the CFC and the Uniform Building Code which would reduce effects of development on wildland fire hazard impacts to a less than significant level. As such, the proposed project is not expected to be exposed to risks associated with wildland fires, and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

3.10 HYDROLOGY AND WATER QUALITY

This section describes the environmental and regulatory setting for hydrology and water quality. It also describes existing conditions and potential impacts related to hydrology and water quality that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.10.1 Environmental Setting

Watershed and Regional Drainage

A watershed is the geographic area draining into a river system, ocean, or other body of water through a single outlet and includes the receiving waters. The City is located in the Lower Alameda Creek Watershed, which is further divided into three sub watersheds that are present within the City. The project site is located within the Mowry Slough watershed which consists of a network of storm drains and channels that have replaced small creeks that formerly drained into Mowry Slough (City of Newark 2013b).

Groundwater

The City is located within the Niles Cone Groundwater Basin, which is part of the larger Santa Clara Valley Groundwater Basin. The Niles Cone Groundwater Basin is bounded on the north by the boundary of Alameda County Water District and southern portion of Hayward, on the east by the Diablo Range, on the south by the Alameda-Santa Clara County border, and on the west by San Francisco Bay. The Niles Cone Groundwater Basin is designated as a medium-priority basin by the California Department of Water Resources.

The Niles Cone Basin is currently listed as having existing beneficial uses for groundwater and is the principal source of local supply for the ACWD. Groundwater recharge occurs through percolation of both local and imported water in Alameda Creek and the adjacent recharge ponds in the Quarry Lakes Regional Recreational Area. The water is subsequently recovered through ACWD's groundwater production wells and provides a potable supply to people in cities of Fremont, Newark, and Union City (City of Newark 2013b).

Water Quality

Most of the streams and creeks that originally flowed through the City have been replaced by a network of storm drains and channels that discharge urban runoff in to Newark Slough, Plummer Creek Slough, and Mowry Slough. The surface water bodies that exist in the City include engineered channels maintained by the ACFC&WCD, Plummer Creek, Newark Slough, Mowry Slough, tidal marshes, tidal flats, salt ponds, and small tidal estuaries (City of Newark 2013b). Pollutants could be present in stormwater runoff, including sediment, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, and viruses. Stormwater runoff is the principal source of pollution entering surface and ground water in the San Francisco Bay region. Typical pollutants include oil, grease, or antifreeze releases from cars or trucks; paint or paint products; leaves or yard waste; pesticides, herbicides, or fertilizers from yards and gardens; solvents and household chemicals; animal wastes, litter, or sewer leakage; and construction debris such as fresh concrete, mortar, or cement.

Flooding

Flood hazard zones are identified on official Flood Insurance Rate Maps issued by the Federal Emergency Management Agency. The project site is designated as Zone X and Zone X (Shaded). The northern part of the project site is within an area of minimal flood hazard (Zone X); however, the majority of the project site is located in an area with a 0.2 percent annual chance of shallow flooding of less than one foot (Zone X Shaded) (FEMA 2021).

Seiches, Dam Inundation, and Tsunamis

According to the City's General Plan EIR and ABAG, the City is located within the inundation areas of three dams; Del Valle, Turner, and Calaveras, all of which are classified as high hazard dams because their failure could result in a significant loss of life and property damage (City of Newark 2013b). The Del Valle Dam is located approximately 15.5 miles northeast of City limits, James H. Turner Dam is located approximately 8.2 miles northeast of City limits, and Calaveras Dam is located approximately 9 miles east of City limits.

Seiches are standing waves oscillating in a landlocked body of water, typically caused by strong winds or seismic ground shaking. There are no large bodies of water or reservoir within the City and therefore, there is no likelihood of seiches occurring within the City. Tsunamis are tidal waves created by undersea fault movement. These waves are fast moving, create large swells of water, and upon reaching the coast can sweep inland with a large amount of force. The risk of flooding due to a tsunami event is considered to very low within the City and ABAG's tsunami evacuation maps for the Bay Area does not identify City as being located within tsunami inundation zones.

Sea Level Rise

According to the Areas 3 and 4 Specific Plan RDEIR, global temperatures have increased by approximately one degree Fahrenheit and sea level has risen by approximately 0.5 foot over the last century. The Areas 3 and 4 Specific Plan RDEIR included a range of potential future sea levels based on the Intergovernmental Panel on Climate Change's climate change scenarios. The mid-range projection of sea level change by 2058 was approximately 160 millimeters, or about six inches. Within the Areas 3 and 4 Specific Plan, the residential structures of Area 4 would be most directly impacted by global climate and sea level changes. According to the Areas 3 and 4 Specific Plan RDEIR, the most currently available estimates for sea level rise by 2050 range from 0.3 foot to 1.5 feet, and by 2100 from 0.6 foot to 4.8 feet. This would be consistent with the Adapting to Rising Tides (ART) Bay Area Sea Level Rise and Shorelines Analysis Maps' sea level rise projections. According to the ART map, 48 inches (four feet) of sea level rise would result in flooding to the project site (ART 2023). The ART Bay Area Sea Level Rise and Shorelines Analysis Maps' provides a regional-scale illustration of coastal flooding due to specific sea level rise and storm surge scenarios, and are intended to improve sea level rise awareness and preparedness.

New developments within the Areas 3 and 4 Specific Plan area are required to comply with the Newark Municipal Code Section 15.40.051, Standards of Construction, which requires new construction and substantial improvements of any structure to have the lowest floor, including basement, elevated to or above the base flood elevation. Newark's Municipal Code calls for residential structures to be elevated to or above the base flood elevation or to a minimum of six inches above the building pad which shall be at a minimum elevation of 11.25 feet on the NGVD, whichever affords the greater degree of flood damage protection. This means the building pads for residential structures must be at 11.25 feet AMSL with the finished floor a minimum of six inches above the building pad (i.e. at 11.75 feet AMSL) (City of Newark 2015b). General Plan Policy EH-3.3 requires new residential developments to be constructed above the FEMA 100-year flood elevation. Additionally, the proposed project would be required to be elevated to accommodate BCDC's adopted sea level rise guidance which recommends a minimum pad elevation of 12.2 feet and the minimum pad elevation requirements of the RPC-SAT's projected likely range for sea level rise by the year 2100 of 3.4 feet.

San Francisco Bay Conservation and Development Commission

The Applicant reached out to BCDC staff on June 29, 2023, to request confirmation on whether the three parcels within the project site was located within BCDC jurisdiction. A response was received from BCDC staff on July 17, 2023, where BCDC staff confirmed that project site parcels identified as APN 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00 are not located within BCDC jurisdiction (Yuri Jewett, personal communication, July 17, 2023). Therefore, the project site parcels are not located within BCDC jurisdiction. As a courtesy, City staff would follow up with BCDC during the public review period.

3.10.2 Regulatory Setting

Federal

Federal Clean Water Act

The federal CWA (33 United States Code Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the NPDES permit process (CWA Section 402). Section 401 of the CWA regulates surface water quality and a Water Quality Certification is required for federal actions (including construction activities) that may result in impacts to surface water. In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. The proposed project is located within Region 2, regulated by the San Francisco Bay RWQCB.

National Pollutant Discharge Elimination System

The NPDES permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States, including discharges from municipal separate storm sewer systems. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and non-point source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions of discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring and other activities.

Developers whose projects disturb one or more acres of soil or which projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres are required to file a notice on intent to obtain coverage under the NPDES Construction General Permit. The Construction General Permit required the preparation and implementation of a stormwater pollution prevention plan which must be completed before construction begins. The SWPPP should contain a site map that shows the construction site perimeter; existing and proposed buildings, lots, roadways, and stormwater collection and discharge points; general topography both before and after construction; and drainage patterns across the project site. The SWPPP must list best management practices the discharger will use to manage stormwater runoff and the placement of those BMPs.

State

Porter Cologne Water Quality Control Act

The State of California established the SWRCB, which oversees the nine RWQCBs, through the Porter-Cologne Water Quality Control Act (Porter-Cologne). Through the enforcement of Porter-Cologne, the SWRCB determines the beneficial uses of the waters (surface and groundwater) of the State, establishes narrative and/or numerical water quality standards, and initiates policies relating to water quality. The SWRCB and, more specifically, the RWQCB, are authorized to prescribe Waste Discharge Requirements for the discharge of waste, which may impact waters of the State. Furthermore, the development of water quality control plans, or Basin Plans, are required by Porter-Cologne to protect water quality. The SWRCB issues both General Construction Permits and Individual Permits under the auspices of the federal NPDES program.

State Water Resources Control Board and Regional Water Quality Control Boards

In California, the SWRCB has broad authority over water quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the federal government under the CWA.

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The City of Newark is within the jurisdiction of the San Francisco Bay RWQCB (Region 2). The San Francisco Bay RWQCB adopted a Water Quality Control Plan for the San Francisco Bay Basin (the Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. Areas of the City of Newark that have shallow groundwater may require dewatering during excavation and trenching activities for new development. This activity is subject to the RWQCB construction dewatering permit requirements (R2-2012-0060). Discharge of any sediment-laden water from a dewatering site into waters of the State is prohibited. Discharge of uncontaminated groundwater from dewatering is a conditionally exempted discharge by the RWQCB. However, if the excavation and dewatering occur within an area of the City where previous groundwater contamination has been reported and still exists; the extracted groundwater would require treatment prior to discharge. The disposal of dewatered discharges would require a permit or a waiver (exemption) from the RWQCB for discharge to surface creeks and groundwater. The ACWD is the appropriate agency if permits are required for dewatering wells and local agencies should be contacted if the discharge will be released to storm or sanitary sewers.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) is a three-bill package that passed the California state legislature and was signed into California state law by Governor Jerry Brown in September 2014. SGMA establishes a framework for long-term sustainable groundwater management across California and requires local agencies to bring overdrafted basins into balanced levels of pumping and recharge The California Department of Water Resources (DWR) uses the California Statewide Groundwater Elevation Model Priority List to rank groundwater basins across the state according to priority levels of high, medium, low, or very low, and SGMA specifies deadlines for completion of Groundwater Sustainability Plans (GSPs) in order of basin priority. Under SGMA, high- and medium-priority basins, as designated by DWR, must establish GSPs in order of basin priority. Under SGMA, high- and medium-priority basins, as designated by DWR, must establish Groundwater Sustainability Agencies (GSAs) that oversee the preparation and implementation of a local GSP.

Local

San Francisco Bay Conservation and Development Commission

In 1969, the McAteer-Petris Act designated BCDC as the agency responsible for the protection of San Francisco Bay and its natural resources. BCDC fulfills this mission through the implementation of the San Francisco Bay Plan, an enforceable plan that guides the future protection and use of San Francisco Bay and its shoreline.

As a permitting authority along the San Francisco Bay shoreline, BCDC is responsible for granting or denying permits for any proposed fill, extraction of materials, or change in use of any water, land, or structure within the Commission’s jurisdiction. BCDC has jurisdiction of Mowry Slough ending at the culvert at the Mowry Avenue bridge crossing (approximately 0.2 miles west of project site), at the bend of the channel near Plummer Creek (approx, and jurisdiction over managed wetlands in the Southwest Newark Residential and Recreational Focus Area. Projects located within BCDC jurisdiction that involve Bay fill must be consistent with the Bay Plan policies on the safety of fills and shoreline protection (City of Newark 2013b).

Alameda County Flood Control and Water Conservation District

The ACFC&WCD provides flood protection for Alameda County residents and businesses. The ACFC&WCD plans, designs, constructs, and maintains flood control projects such as natural creeks, channels, levees, pump stations, dams, and reservoirs. In 2016, the ACFC&WCD updated the Hydrology & Hydraulics Manual which serves as a guide for minimum design requirements and provides a hydrologic model for all of Alameda County. The ACFC&WCD is also charged with administering the Clean Water Program for unincorporated areas of Alameda County, the 14 cities of Alameda County, the ACFC&WCD, and the Zone 7 Water Agency. The ACFC&WCD provides administrative and contracting services for the Alameda Countywide Clean Water Program to help comply with federal and state requirements to improve water quality and better manage urban stormwater runoff.

Alameda County Clean Water Program

The City is subject to the Provision C.3 requirements that are post construction stormwater management requirements for new development and redevelopment projects. Provision C.3 requirements are separate from, and in addition to, requirements for erosion and sediment control and for pollution prevention measures during construction. These requirements apply to all new development or redevelopment projects that create or replace 10,000 square feet of impervious surfaces. Project applicants are required to implement site design measure, source control measure, and stormwater treatment measures to reduce stormwater pollution after construction of the project. The permit specifies methods to calculate the required size of treatment devices (City of Newark 2013b).

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project:

Goal LU-7: Southwest Newark Residential and Recreational Project. Develop the Southwest Newark Residential and Recreational Project as one of the Silicon Valley's premier new neighborhoods, with executive housing and high quality recreation.

- **Policy LU-7.7: Maintaining Hydrologic Features.** Maintain the natural hydrologic features of the Southwest Newark Residential and Recreational Project area to the extent feasible, and maintain or improve the current quality of water leaving the site.
- **Policy LU-7.8: Mitigating Construction Impact.** Avoid and mitigate construction impacts on wetlands, aquatic habitat, wildlife, and water quality as development takes place in the Southwest Newark Residential and Recreational Project. Measures to minimize such impacts should be included in project approvals, consistent with state and federal agency oversight and regulations.

Goal CS-3: Water Resources. Conserve and enhance Newark's water resources,

- **Policy CS-3.1: Protection of Water Resources.** Ensure that land use decisions consider the availability of water for domestic and non-domestic uses, potential impacts on groundwater quality and groundwater recharge capacity, and potential off-site impacts on water quality.
- **Policy CS-3.2: Water Conservation Standards.** Promote water conservation through development standards, building requirements, irrigation requirements, landscape design guidelines, and other applicable City policies and programs.
- **Policy CS-3.4: Reducing Water Pollution.** Protect the quality of Newark's surface waters by supporting controls on point source and non-point sources of pollution.

Goal EH-3: Flooding Hazards. Reduce risk to life and property associated with flooding.

- **Policy EH-3.1: Planning to Avoid Flood Hazards.** Identify flood prone areas in Newark and utilize this data for land use and transportation planning purposes. Flood resistant construction techniques and minimum building elevations shall be required to reduce flood hazards.

- **Policy EH-3.2: Maintaining Drainage Patterns.** Prohibit development, grading, and land modification activities that would adversely affect Newark's drainage system or create unacceptable erosion impacts.

- **Policy EH-3.3: Residential Development in the Flood Plain.** Require that new residential development, including streets and other surface improvements, be constructed above the 100-year flood elevation.

Goal CSF-5: Infrastructure. Provide safe, reliable, and efficiently operated infrastructure which meets Newark's long-term water, sewer, and stormwater management needs.

- **Policy CSF-5.4: Flood Control.** Coordinate with Alameda County Flood Control and Water Conservation District and Alameda County Public Works to ensure that stormwater runoff is managed in a way that reduces flood hazards.

- **Policy CSF-5.5: Drainage with New Development.** Ensure that new development provides drainage and flood protection improvements which reduce on-site and downstream hazards such as ponding, flooding, and erosion. New development areas should be designed to minimize impervious surfaces in order to reduce associated site runoff and maximize groundwater recharge.

3.10.3 Environmental Impacts

This section analyzes the project's potential to result in significant hydrology and water quality impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The evaluation of potential hydrologic and water quality impacts was based on a review of City documents, including the General Plan and General Plan EIR. Mapping tools provided by FEMA were also reviewed. The information obtained from these sources are summarized to establish existing conditions and to identify potential environmental effects. In determining the level of significance, the analysis assumes that the proposed project would comply with relevant federal, state, and local ordinances and regulations.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's impacts to hydrology and water quality are significant. Would the proposed project:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
- Result in substantial erosion or siltation on- or off-site;
- Substantially increase the rate or amount of surface runoff in a manner which would result in flood on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantially additional sources of polluted runoff; or
- Impede or redirect flood flows?
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Project Impact Analysis and Mitigation Measures

Surface and Groundwater Quality

Impact HYD-1	**The proposed project could violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.**

Impact Analysis

Construction activities required for the proposed project would include demolition, site clearing, grading, utility connections, building construction, frontage improvements, and landscaping on-site. Construction activities would involve grading of the entire project site and permanent disturbance of the site. These activities have the potential to generate stormwater runoff and to discharge pollutants, such as fuel, solvents, oil, paints, and trash, into the City's storm drain system. The proposed project would be required to comply with General Plan Policy LU-7.8 and CS-3.4 which requires protection of water quality from pollution and mitigation of construction impacts on water quality. Protection of water quality during construction would be achieved with compliance and implementation of the NPDES General Construction Permit. The proposed project would comply with the NPDES General Construction Permit which requires the preparation of a SWPPP and incorporation of BMPs to control sedimentation, erosion, and hazardous materials from contacting stormwater, with the intent of keeping all products of erosion from moving off-site into receiving waters. The preparation and implementation of the SWPPP and applicable BMPs have been incorporated into Mitigation Measure HYD-1 to reduce potential water quality impacts to a less than significant level.

Additionally, as required by Mitigation Measure HAZ-1, the proposed project would include on-site remediation activities including the remediation of contaminated surface waters in the existing retention basins. Surface water would be removed from the existing retention basins and piped to a USD sewer inlet in conformance with USD permit requirements. The surface water in all three stormwater retention basins would be removed and discharged to the sanitary sewer system under permit. With conformance to the USD permit requirements, the discharge of surface waters would not result in a violation of water quality requirements or waste discharge requirements.

Post construction impacts from development could affect drainage patterns and increase the overall amount of impervious surfaces, thus creating changes to stormwater flows and water quality. Water quality in stormwater runoff is regulated locally by the Alameda County Clean Water Program, which includes the C.3 provision set by the San Francisco Bay RWQCB. C.3 requirements apply to all new development or redevelopment projects that create or replace 10,000 square feet of impervious surfaces. C.3 requirements are separate from, and in addition to, requirements for erosion and sediment control and for pollution prevention measures during construction. Project applicants are required to implement site design measures, source control measures, and stormwater treatment measures to reduce stormwater pollution after construction of the proposed project. Implementation of site design measures, source control measures, and stormwater treatment measures would ensure the proposed project is in compliance with General Plan Policy CS-3.4 which requires the protection of water quality from point source and non-point sources of pollution.

The proposed on- and off-site improvements from the proposed project would result in approximately 881,450 square feet of impervious surfaces and 465,680 square feet of pervious surfaces at the site. The proposed project would install a storm drain system consisting of bioretention areas, curbs and gutters along the roadways, and underground storm drain pipes. The storm drainage system would utilize LID techniques which may include directing roof runoff to vegetated areas, storm drain stenciling, and site design that promotes infiltration. Storm drain pipes installed throughout the project site would convey stormwater to the two on-site bioretention treatment areas which would be planted with water conserving grass species, shrubs, and trees that are adapted to bioswale conditions. The bioretention treatment areas would discharge flows through the on-site storm drain system, into the adjacent City owned open space parcel, consistent with the historic drainage path. The use of bioretention areas and discharge of flows consistent with the historic drainage path would ensure the proposed project would comply with General Plan Policy LU-7.7 which requires the maintenance of natural hydrologic features in the area to the extent feasible. The proposed project would also construct off-site stormwater improvements along Mowry Avenue. The proposed project would construct improvements to storm drains within Mowry Avenue which would collect and convey flow towards the ACFC&WCD Channel Line B at the terminus of Mowry Avenue and the proposed roadway improvement would also include four bioretention treatment areas along Mowry Avenue. The proposed drainage system improvements would be designed and constructed in accordance with the City’s requirements and C.3 requirements. In addition, the proposed project would be required to prepare a Stormwater Management Plan (SWMP) that includes post construction BMPs that control pollutant levels. A Post Construction Stormwater Control Plan has been prepared for the proposed project by Carlson, Barbee and Gibson, Inc which includes LID design strategies, source control measures, and documents the proposed drainage design necessary to comply with applicable C.3 guidelines. The Post Construction Stormwater Control Plan would be submitted to the City upon finalization of the project design and would be implemented into the proposed project. Compliance with City requirements and C.3 standards and implementation of the post construction SWMP would ensure that operation of the proposed project does not result in violation of water quality standards or waste discharge requirements.

Therefore, operation of the proposed project would result in a less than significant impact regarding water quality degradation and construction of the proposed project would result in a less than significant impact with implementation of Mitigation Measure HYD-1 and Mitigation Measure HAZ-1.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

Mitigation Measure HAZ-1 is required.

MM HYD-1: **Prepare and Implement a SWPPP.** Prior to the issuance of any construction-related permits, the applicant shall prepare and submit a Notice of Intent (NOI) to the SWRCB and prepare a SWPPP in compliance with the NPDES General Construction Permit. The SWPPP shall include a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills); description of the type and location of erosion and sediment control BMPs to be implemented at the project site; and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the project site. A copy of the SWPPP must be current and remain on-site. Water quality BMPs identified in the SWPPP could include but are not limited to the following:

- Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures, such as terraces, dikes, and ditches, shall collect and direct runoff water around vulnerable areas to prepared drainage outlets.
- Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.
- Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of groundwater.
- Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.
- Fuel and vehicle maintenance areas shall be established away from all drainage courses, and these areas shall be designed to control runoff.
- Temporary erosion control measures, such as silt fences, staked straw bales, and temporary revegetation, shall be employed for disturbed areas. No disturbed surfaces

will be left without erosion control measures in place during the winter and spring months.

- A spill prevention and countermeasure plan shall be developed to identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site. The plan will also require the proper storage, handling, use, and disposal of petroleum products.
- Construction activities shall be scheduled to reduce land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Groundwater Management

Impact HYD-2	**The proposed project could substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.**

Impact Analysis
Historically high groundwater at the project site has been reported at 5 feet bgs and based on the preliminary investigations and borings conducted at the project site, groundwater is estimated to be at a depth of 4 to 8.5 feet bgs (Berlogar, Stevens, and Associates 2019). Groundwater could be encountered during excavation activities and require dewatering. The Applicant would be required to comply with the waste discharge requirements of the San Francisco Bay RWQCB. Discharge of non-stormwater from an excavation that contains sediments or other pollutants to sanitary sewer, stormwater systems, creek beds, or receiving waters without treatment is prohibited. Discharge of uncontaminated groundwater from dewatering is a conditionally exempted discharge by the San Francisco Bay RWQCB. The proposed project would require implementation of Mitigation Measure GEO-3 which requires the preparation and implementation of a dewatering plan in accordance with the waste discharge requirements of the RWQCB. The dewatering plan would detail the location of dewatering activities, equipment, and discharge point in accordance with the requirements of the RWQCB. The dewatering plan would be required to be submitted to the City for review and approval prior to the start of construction activities. Implementation of Mitigation Measure GEO-3 would ensure the proposed project would comply with General Plan Policy CD-3.1 which requires the consideration of potential impacts to groundwater quality and water quality. Therefore, with implementation of Mitigation Measure GEO-3, the proposed project's construction activities would result in a less than significant impact to groundwater.

Water required for operation of the proposed project would be provided by the ACWD which utilizes treated groundwater as one of its sources for water supply. The proposed project would create 881,450 square feet of impervious surface at the project site, which could potentially impact groundwater because areas currently available for the infiltration of rainfall would be reduced. However, the proposed project would incorporate 465,680 square feet of pervious surface at the project site consisting of landscaped areas and bioretention treatment areas. The proposed project would be required to comply with General Plan Policy CSF-5.5 which requires new development to provide drainage improvements to reduce runoff and maximize groundwater recharge The General Plan EIR identified that implementation of LID guidelines that include the use of permeable paving materials and on-site infiltration would increase the potential for groundwater recharge, and use of site design features required by the C.3 requirements and implementation of water use efficiency measures would ensure that groundwater supplies are not depleted (City of Newark 2013b). The proposed project would construct storm drain systems with LID techniques incorporated and pervious areas would include bioretention areas and landscaped areas which would allow for infiltration for groundwater recharge. The proposed drainage system improvements would be designed and constructed in accordance with the City's water efficiency guidelines and C.3 requirements which would ensure the proposed project's compliance with General Plan Policy CD-3.2 and ensure the promotion of water conservation through development standards, building requirements, irrigation requirement, and landscape design guidelines. Therefore, with implementation of standards and requirements applicable to groundwater recharge and groundwater supplies such as implementation of LID guidelines and construction of drainage systems in accordance with the City's water efficiency guidelines and C.3 requirements, operation of the proposed project would not substantially decrease groundwater supplies or impede groundwater recharge, and impacts would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measure GEO-3 is required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Drainage Pattern

Impact HYD-3	**The proposed project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:** **i) Result in substantial erosion or siltation on- or off-site;** **ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;** **iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or** **iv) Impede or redirect flood flows.**

Impact Analysis

i. Result in substantial erosion or siltation on- or off-site

Construction of the proposed project would include ground disturbing work that would involve grading of portions of the project site, off-site ground disturbing work along Mowry Avenue, and the permanent disturbance of the 29 acre site. As a result, construction activities could result in erosion related impacts. As required by General Plan Policy LU-7.8, the proposed project is required to mitigate construction impacts on water quality, including those resulting from erosion. As outlined under Impact HYD-1, the proposed project would implement Mitigation Measure HYD-1 which requires the preparation of a SWPPP in accordance with the NPDES General Construction Permit. The SWPPP would include BMPs and pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills) that would be implemented during construction activities to reduce the potential of erosion impacts. With implementation of Mitigation Measure HYD-1, the proposed project's construction would not result in substantial erosion or siltation on- or off-site.

Operation of the proposed project is not anticipated to result in substantial erosion or siltation. Storm drain pipes installed throughout the project site would convey impervious surface runoff to the on-site bioretention areas before discharging into the adjacent City owned open space parcel. These features would provide treatment, retention, and/or detention at the project site to reduce the volume of stormwater runoff and ensure that polluted runoff does not discharge into the storm drain system. Additionally, the proposed storm drainage system would be designed and constructed in accordance with C.3 requirements which requires implementation of site design measures, source control measures, and stormwater treatment measures to reduce stormwater pollution after construction of the proposed project. The new storm drain improvements constructed for the proposed project would ensure that the proposed project would comply with General Plan Policy CS-3.4, which requires the protection of water quality by supporting controls of point source and non-point sources of pollution, as the proposed project would treat runoff prior to it being discharged. Therefore, with implementation of applicable storm drainage requirements, operation of the proposed project would not result in substantial erosion or siltation on- or off-site. With implementation of Mitigation Measure HYD-1, the proposed project would result in less than significant impacts related to erosion and siltation.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site

The proposed project involves the development of a 29 acre project site with 203 single-family residences. The proposed project would result in 881,450 square feet of impervious surfaces at the project site which would result in an increase in impervious surface at the site and increase the amount of stormwater runoff from the site. The proposed project would be required to comply with General Plan Policy CSF-5.5 which requires new development to provide drainage improvements to reduce site runoff. To control runoff, the proposed project would construct a storm drain system consisting of bioretention areas, curbs and gutters along the roadways, and underground storm drain pipes. Stormwater runoff would be directed to the storm drain pipes on-site which would convey stormwater to the two on-site bioretention areas. The bioretention treatment areas would then discharge flows through the on-site storm drain system into the adjacent City owned open space parcel, consistent with the historic drainage path. The proposed project would also construct improvements to the off-site storm drain system. The proposed project would construct improvements to storm drain pipes within Mowry Avenue which would collect and convey flow towards the ACFC&WCD Channel Line B at the terminus of Mowry Avenue and would construct four bioretention treatment areas along Mowry Avenue. The proposed project would design and construct storm drain systems in accordance with applicable requirements to control the volume of surface runoff at the project site. Therefore, storm drain systems would be designed to handle the increased surface runoff from the site and the proposed project would not result substantial increase in the rate or amount of surface runoff in a manner that would result in on- or off-site flooding and impacts would be less than significant.

iii. Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff

As described above, construction activities would have the potential to generate stormwater runoff and to discharge pollutants, such as fuel, solvents, oil, paints, and trash, into the City's storm drain system. In addition, the increase in impervious surface resulting from project implementation would alter the type and level of pollutants in stormwater runoff from the project site. To comply with General Plan Policy LU-7.8, which requires avoidance and mitigation of construction impacts on water quality, the proposed project would implement Mitigation Measure HYD-1 During construction activities, the proposed project would conform to the requirements of the NPDES General Construction Permit, which requires the preparation and implementation of a SWPPP. The SWPPP would specify BMPs to incorporate during construction to prevent, control, and reduce polluted runoff from entering the City's storm drain system and waterways. Implementation of these BMPs during construction is required as part of Mitigation Measure HYD-1.

As identified in the City's General Plan EIR, the City requires as a standard condition of approval that major development projects complete drainage and hydrology analysis to ensure that on- and off-site drainage facilities can accommodate increased stormwater flows. A Post Construction Stormwater Control Plan has been prepared for the proposed project by Carlson, Barbee and Gibson, Inc which includes LID design strategies, source control measures, and documents the proposed drainage design necessary to comply with applicable C.3 guidelines. The Post Construction Stormwater Control Plan would be submitted to the City upon finalization of the project design and would be implemented into the proposed project. The proposed project would implement C.3 requirements for new development and construct a storm drain system with LID techniques incorporated and bioretention treatment areas on- and off-site. Stormwater generated at the project site would be directed towards the bioretention treatment areas before being released into the existing drainage pattern to ensure polluted runoff does not enter the City's systems. The Areas 3 and 4 Specific Plan RDEIR assessed the capacity of existing or planned storm drain system to carry runoff from the planned development areas and found that impacts would be less than significant (City of Newark 2013b). With implementation of City requirements and C.3 requirements, the proposed project's operation would not create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Construction of the proposed project would require implementation of Mitigation Measure HYD-1 to prevent and reduce polluted runoff from the construction site. Therefore, impacts would be less than significant with implementation of Mitigation Measure HYD-1.

iv. Impede or redirect flood flows

The project site is designated as Zone X and Zone X (Shaded). The northern part of the project site is within an area of minimal flood hazard (Zone X); however, the majority of the project site is located in an area with a 0.2 percent annual chance of shallow flooding of less than one foot (Zone X Shaded) (FEMA 2021). Project construction would require the import of clean fill to elevate the proposed pad grades for the homes above the FEMA 100-year flood plain elevation as required by Newark Municipal Code Section 15.40.051 and to accommodate BCDC's adopted sea level rise guidance. The import of clean fill to elevate the proposed pad grades would ensure compliance with General Plan Policy EH-3.3 which requires new residential developments to be constructed above the 100-year flood elevation. The proposed project would have a minimum pad elevation of 13.0 feet NGVD with an average pad elevation of 14.2 feet NGVD. The proposed project would elevate the proposed pad grades for the homes above the FEMA 100-year flood plain elevation of 9.3 feet and would exceed the City's requirement of having a minimum pad elevation of 11.25 feet. Additionally, the project site would be elevated to accommodate BCDC's adopted sea level rise guidance which recommends a minimum pad elevation of 12.2 feet and would meet the minimum pad elevation requirements of the RPC-SAT's projected likely range for sea level rise by the year 2100 of 3.4 feet. The proposed project could have the potential to exacerbate coastal squeeze which is defined as the loss of natural habitats or deterioration of their quality arising from placement of structures along the shoreline, preventing the landward transgression of those habitats that would naturally occur in response to sea level rise. However, given the baseline condition of the project site as already developed with existing structures, development of the proposed project would not exacerbate potential coastal squeeze impacts beyond what is already present. Therefore, this would not be a driving impact for the proposed project.

The proposed project would also include the construction of storm drain systems which would include bioretention treatment areas to accommodate surface runoff. The new constructed storm drainage system on-site would be designed and constructed to handle potential flood volumes and runoff from the site would be discharged through the on-site storm drain system into the adjacent City owned open space parcel, consistent with the historic drainage path. The proposed project would not substantially alter existing drainage pattern of the site in a matter which would impede or redirect flood flows and impacts would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measure HYD-1 is required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

Project Inundation

Impact HYD-4	**The proposed project would not, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.**

Impact Analysis
According to the ABAG, the City is located within the inundation area of three dams; however, the California Division of Safety of Dams inspects each dam on an annual basis to ensure the dam is safe, performing as intended, and is not developing problems. Additionally, the project site is not located in a tsunami or seiche zone. The risk of dam failure is extremely low and the potential for project inundation resulting from being located in a tsunami or seiche zone is low. Therefore, impacts would be less than significant.

As identified above under Section 3.10.1, the project site is designated as Zone X and Zone X (Shaded). The northern part of the project site is within an area of minimal flood hazard (Zone X); however, the majority of the project site is located in an area with a 0.2 percent annual chance of shallow flooding of less than one foot (Zone X Shaded) (FEMA 2021). In accordance with General Plan Policy EH-3.3, the proposed project would be constructed above the 100-year flood elevation. The proposed project would use clean imported fill to elevate the proposed pad grades for the homes and would have a minimum pad elevation of 13.0 feet NGVD and an average pad elevation of 14.2 feet NGVD. Therefore, the proposed project would be above the FEMA 100 year flood plain elevation of 9.3 feet which would provide the project site with flood damage protection. The proposed pad grades would exceed the City's standards for residential structures located in a flood hazard zone which requires a minimum pad elevation of 11.25 feet and would be above the BCDC minimum pad elevation recommendation for sea level rise guidance of 12.2 feet. Additionally, the proposed project's pad elevation would meet the minimum pad elevation requirements of the RPC-SAT's projected likely range for sea level rise by the year 2100 of 3.4 feet. Developing the proposed project to exceed the BCDC sea level rise guidance for minimum pad elevation would also ensure that the proposed project would not be inundated by potential sea level rise anticipated to affect the area in the future. Therefore, project inundation resulting from flood hazards would be a less than significant impact.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Water Quality Control Plan or Sustainable Groundwater Management Plan

Impact HYD-5	**The proposed project could conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

Impact Analysis

The State Department of Water Resources identified the Niles Cone Groundwater Basin as a medium-priority basin. The ACWD, who manages the groundwater of the Nile Cone Groundwater Basin, prepared and submitted an Alternative to a Groundwater Sustainability Plan in 2016 and was approved in 2019 by the DWR. The proposed project would comply with the Alternative to a Groundwater Sustainability Plan for the Niles Cone Groundwater Basin and would not conflict with or obstruct the implementation of a sustainable groundwater management plan.

The San Francisco Bay RWQCB adopted a Basin Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectors for all waters addressed through the Basin Plan. The proposed project would be constructed and operated in accordance with the Basin Plan. As required by Mitigation Measure HYD-1, the proposed project would obtain coverage under the NPDES General Construction Permit and prepare a SWPPP that includes BMPs to meet water discharge requirements. Additionally, if construction activities encounter groundwater, the proposed project would implement Mitigation Measure GEO-3 and prepare a dewatering plan in accordance with the discharge requirements of the RWQCB. Implementation of Mitigation Measures HYD-1 and GEO-3 would ensure that the proposed project would not conflict with any applicable water quality control plan. The proposed project would be constructed and operated in accordance with applicable water quality control plans and would not conflict with or obstruct implementation of any plans. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

Mitigation Measure HYD-1 and Mitigation Measure GEO-3 are required.

Level of Significance After Mitigation

Less Than Significant Impact with Mitigation.

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3.11 LAND USE AND PLANNING

This section describes the environmental and regulatory setting for land use and planning. It also describes existing conditions and potential impacts related to land use and planning that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.11.1 Environmental Setting

Regional Setting

The City of Newark covers an area of approximately 9,000 acres or approximately 14 square miles. The City is located between Interstate 880 and San Francisco Bay, south of State Route 84 and north of Stevenson Boulevard. The Don Edwards San Francisco Bay National Wildlife Refuge is located along the western perimeter of the City on the shore of San Francisco Bay and the freeways represent the northern and eastern limits of the City, separating Newark from surrounding Fremont. Approximately 1,800 acres of Newark's total area is in residential use, approximately 375 acres is in commercial use, 930 acres is in industrial or office-flex use, 250 acres is in public or institutional use, and 1,130 acres consists of roads and other ROWs. These areas represent approximately 50 percent of the land area of the City and the remaining 50 percent of Newark's land area consist of undeveloped land. Of the remaining 50 percent, approximately 960 acres is vacant and zoned for development, with 280 acres of "conservation" open space, and approximately 3,025 acres of salt evaporation ponds and ancillary facilities used for salt production (City of Newark 2013a).

Project Site Setting

The proposed project is located in the City of Newark, southwest of the intersection of Mowry Avenue and the UPRR tracks, west of Cherry Street. The project site is approximately 29 acres and consists of three parcels identified as APNs 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00. The majority of the project site is currently developed as an auto part and scrap metal salvage yard. The auto part and scrap metal salvage lot, known as "Pick-n-Pull," that includes a 13,000 square foot warehouse, 1,500 square foot sales office, 3,000 square foot workshop, and a large parking area for storing vehicles that consists of crushed rock and asphalt. The northern parcel of the project site is currently undeveloped, agricultural land.

The undeveloped northern parcel of the project site is roughly triangular in shape and occupies an area of about 10 acres. Site topography is generally flat although fill has been placed in the central area of the undeveloped parcel. The surface elevation is about 10 feet AMSL around the perimeter of the parcel with a mound up to about 15 feet AMSL in the center. The surface elevation of the middle and southern parcels of the project site is about 10 feet AMSL along the northern property line where it abuts the undeveloped northern parcel as well as along the Mowry Avenue frontage and in the southwestern area of the salvage yard where the warehouse building is located. The topography of the parcels throughout the main yard area varies from about 10 feet AMSL at the west to 5 feet AMSL at the far east end of the yard.

Surrounding Land Uses

The project site is generally bounded to the northeast and east by the City's open space parcel, formerly used for agriculture. Mowry Avenue and ACFC&WCD Line B canal lies to the west. The property to the south and southwest, known as the Harwinder Singh site, was previously developed with one warehouse type structure near Mowry Avenue, and the site was used as an auto-wrecking yard. The building has since been demolished, and there are presently no buildings on the Harwinder Singh site. UPRR tracks are approximately 300 to 1,000 feet to the northwest of the project site. There is a pair of constructed water quality basins along the eastern boundary and at the southern tip of the project site. Additionally, Cargill owns and operates salt production ponds located west of the project site, and Mowry Slough begins approximately 1,500 feet southwest of the site.

General Plan Land Use Designation

The City's General Plan designated the project site as Low Density Residential. According to the General Plan, the allowable density of the Low Density Residential designation is less than 8.7 dwelling units per acre. The City's General Plan defines the Low Density Residential designation as intended for single-family residential development on lots larger than 5,000 square feet. It corresponds to most of Newark's residential neighborhoods. Multiple zoning districts apply within Low Density Residential areas to distinguish areas with different minimum lot sizes. Other compatible uses, such as schools, childcare centers, parks, and religious facilities may also locate in areas with this designation, subject to appropriate permitting requirements (City of Newark 2013a).

Zoning

The project site is zoned as Park. The project is proposing to rezone the project site from Park to PD-RS-6000.

The purpose of the RS residential single-family district is intended for residential densities up to 8.7 units per net acre. It provides for single-family residential developments on lots typically larger than 5,000 square feet. In addition to single-family homes, this district provides for other compatible uses, such as schools, childcare centers, parks, and community facilities that may be appropriate in a single-family residential neighborhood. This district implements the low density residential general plan land use designation.

The purpose of the PD Planned Development Overlay district is to provide one or more properties to be developed under a plan that provides for better coordinated development and incorporates development standards crafted to respond to site conditions in order to:

A. Provide for greater flexibility in the design of the developments that is otherwise possible through the strict application of zoning district regulations;

B. Ensure compliance with the general plan and provide various types of land use which can be combined in compatible relationship with each other as a part of a totally planned development; and

C. Promote creativity in building design and innovation in development concepts.

Areas 3 and 4 Specific Plan

The project site is within the Areas 3 and 4 Specific Plan which is comprised of Area 3, encompassing 296 acres, and Area 4, encompassing 560 acres. Areas 3 and 4 are further divided into Sub Areas A through F. The proposed project lies within Sub Area D of Area 4 and is designated for a golf course or other recreational uses. The proposed project is not consistent with the land use identified by the Areas 3 and 4 Specific Plan. As such, the proposed project also requires a Specific Plan Amendment to change the use to residential single-family.

The Areas 3 and 4 Specific Plan allocated 1,260 residential units to be constructed within the Specific Plan area and designated specific parcels within the Specific Plan area for the development of these allocated residential units. The project site was designed for golf course or other recreational use development by the Specific Plan and though the Specific Plan's allocated 1,260 units have not yet all been developed, the Development Agreement for the Sanctuary West Project, which is located within the Specific Plan area east of the project site, were assigned the remaining allocated units within the Specific Plan area. Therefore, the development of the proposed project's 203 residential units would not be within the Specific Plan allocated residential units of 1,260 units, rather the proposed project's residential units would be above the allowed number of units for the Specific Plan area. As such, the approval of the proposed Specific Plan Amendment and rezoning of the project site would allow for the development of more units within the Specific Plan area above the planned number of units. The proposed project's 203 residential units and estimated number of residents resulting from development of the proposed project would be within the anticipated growth for City's number of residential units and population and would contribute to the City's RHNA.

3.11.2 Regulatory Setting

State

General Plans

The land use planning and zoning authority of local jurisdictions in California is set forth in the state's planning laws. California Government Code (GC) Section 65300, et seq. obliges cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. The general plan addresses a broad range of topics including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow flexibility in the approach taken to achieve the plan's goals.

State Zoning Law

The State Zoning Law (California GC Section 65800, et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific district, are required to be consistent with the general plan and any applicable specific plans. When amendments to the general plan are made, corresponding changes in the zoning ordinance may be required within a reasonable time to ensure the land uses designated in the general plan would also be allowable by the zoning ordinance (GC Section 65860, sub.[c]).

Local

San Francisco Bay Conservation and Development Commission

In 1969, the McAteer-Petris Act designated the San Francisco Bay BCDC as the agency responsible for the protection of San Francisco Bay and its natural resources. BCDC fulfills this mission through the implementation of the San Francisco Bay Plan, an enforceable plan that guides the future protection and use of San Francisco Bay and its shoreline.

As a permitting authority along the San Francisco Bay shoreline, BCDC is responsible for granting or denying permits for any proposed fill, extraction of materials, or change in use of any water, land, or structure within the Commission's jurisdiction. BCDC has jurisdiction for Mowry Slough ending at the culvert at the Mowry Avenue bridge crossing, at the bend of the channel near Plummer Creek, and jurisdiction over managed wetlands in the Southwest Newark Residential and Recreational Focus Area. Projects located within BCDC jurisdiction that involve Bay fill must be consistent with the Bay Plan policies on the safety of fills and shoreline protection (City of Newark 2013b).

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project:

Goal LU-1: Quality of Life. Maintain a desirable quality of life in Newark by preserving a small town, neighborhood-oriented atmosphere and sustaining a balanced mix of land uses.

- **Policy LU-1.2: Growth Focus Areas**. Achieve a future growth pattern which includes new neighborhoods on vacant land along the southern and western edges of the city, and infill development in transit-served areas such as Old Town and the Greater NewPark Mall Area. Zoning and development review decisions should recognize these areas as the priority locations for growth and change over the next 20 years.

- **Policy LU-1.10: Vacant and Underutilized Sites.** Encourage the development of Newark's remaining vacant and underutilized sites for their highest and best use, consistent with the designations shown on the General Plan Diagram. Future growth in the city should generally be directed to areas identified in this General Plan.

- **Policy LU-1.17: Sustainable Development Emphasis**. Ensure that new development incorporates green building and sustainable design principles and encourage renovation of existing development to use water and energy more efficiently. Newark will reduce dependence on fossil fuels by citing homes, jobs, shopping, and services within walking distance of each other, and developing a circulation network that encourages walking, bicycling, and transit use.

Goal LU-4: Community Design and Identity. Enhance Newark's identity as a city of high-quality development that is distinctive from other cities in the Bay Area.

- **Policy LU-4.6: Streetscapes**. Ensure that medians, sidewalks, planting strips and other areas within the right-of-way of major thoroughfares are attractively landscaped and well maintained.
- **Policy LU-4.7**: **Lighting**. Manage exterior lighting to reduce potential light and glare impacts, improve public safety, and enhance the character of the streetscape. Exterior lighting includes streetlights for roads and parking areas, pedestrian lighting for sidewalks and walkways, building illumination, and accent lighting on special architectural and landscaping features. Lighting helps shape the character of the city and its neighborhoods through illumination level, light fixture type, finish, color, height, design, and location.
- **Policy LU-4.13**: **Bayfront Identity**. Reinforce Newark's identity as a bayfront city by orienting new development on the western and southern edges of the city toward the bay and shoreline areas. Future projects in these areas should enhance views to the water and wetlands and be compatible with the area's scenic and recreational qualities. The bayfront identity should be emphasized in gateways and public art as well.
- **Policy LU-4.14: View Protection**. Protect and enhance panoramic views and vistas of horizon features such as Coyote Hills, Mission Peak, the East Bay and Peninsula Hills, and San Francisco Bay.

Goal LU-7: Southwest Newark Residential and Recreational Project. Develop the Southwest Newark Residential and Recreation Project as one of the Silicon Valley's premier new neighborhoods, with executive housing and high-quality recreation.

- **Policy LU-7.1: Southwest Newark Residential and Recreational Project (Areas 3 and 4 Development).** Facilitate the development of 637 acres formerly known as the "Areas 3 and 4 project" consistent with previously approved plans for this area. The residential holding capacity of this area shall be 1,260 units.
- **Policy LU-7.2: Wetland Enhancement.** Create or enhance wetland habitat areas within non-developed portions of the Southwest Newark project area to offset loss of wetlands and aquatic habitat and provide additional habitat opportunities for rare plant and wildlife species.
- **Policy LU-7.3: Biological Resource Protection.** Maintain, protect, and enhance the natural biological resources of the Southwest Newark Residential and Recreational Project Area, particularly sensitive habitats and associated rare plants and animals, while integrating development and human activity. Disturbance of wetland and aquatic habitat should be avoided.
- **Policy LU-7.4: Controlling Invasive Plants**. Avoid the introduction and spread of non-native and invasive weeds as a result of development activities in this area. Require management plans to control the population of invasive species prior to grading, fill, and development activities.
- **Policy LU-7.5: Landscaping Palette**. Ensure that the choice of plants and landscaping in the Southwest Newark Residential and Recreational Project responds to soil conditions, wind conditions, and the cooler bayside climate. Landscaping should reinforce vista points, create

variations in textures and color, define circulation routes and pathways, and include features which provide a strong sense of identity.

- **Policy LU-7.6: Open Space Amenities**. Include a major open space and recreational amenity within the Southwest Newark Residential and Recreational Project boundary. The preferred amenity is an 18-hole golf course with clubhouse. The former solid waste disposal site at the west end of Mowry Avenue should be considered for inclusion in the Golf Course site. In the event a golf course in deemed infeasible, then another recreational use that is acceptable to the city shall be provided through developer fees. In addition, development in this area shall provide for neighborhood parks consistent with the ratios established by the General Plan.

- **Policy LU-7.7: Maintaining Hydrologic Features.** Maintain the natural hydraulic features of the Southwest Newark Residential and Recreational Project to the extent feasible and maintain or improve the current quality of water leaving the site.

- **Policy LU-7.8: Mitigating Construction Impacts**. Avoid and mitigate construction impacts on wetlands, aquatic habitat, wildlife, and water quality as development takes place in the Southwest Newark Residential Recreational Project. Measures to minimize such impacts should be included in project approvals, consistent with state and federal agency oversight and regulations.

- **Policy LU-7.9: Inclusionary Housing.** Address inclusionary housing requirements consistent with the Area 3 and 4 Development Agreement.

Newark Zoning Code

The Newark Zoning Code contains the City's Official Zoning Map that delineates the boundaries of zoning designations within the City and regulations that govern the use of land and placement of buildings and improvements within the various classes of districts. The purpose of the Newark Zoning Code is to implement the City's General Plan and to protect and promote the public health, safety, peace, comfort, convenience, prosperity and general welfare. The Zoning Code is included as Title 17 of the City's Code of Ordinances. Chapter 17.07 described the purpose, regulations, and standards of the residential zoning districts and Chapter 17.12 described the regulations and standards of the Planned Development overlay district.

3.11.3 Environmental Impacts

This section analyzes the project's potential to result in significant land use and planning impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The analysis of potential land use impacts considers the project's consistency with adopted plans and policies that regulate land use on the project site, and the project's compatibility with surrounding land uses. The determination of consistency with applicable land use policies and ordinances is based upon a review of the previously identified planning documents that regulate land use or guide land use decisions pertaining to the project site. CEQA Guidelines section 15125(d) requires that an EIR discuss inconsistencies with applicable plans that the decision-makers should address. Evaluations are made to determine whether a project is consistent with such plans. Projects are considered consistent with regulatory plans if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals. The intent of the consistency evaluation is to determine if noncompliance with regulatory plans would result in a significant impact. The impact analysis was based on a review of the General Plan and the Areas 3 and 4 Specific Plan to identify planned land uses and policies applicable to the project. Existing land uses were determined from site reconnaissance and General Plan designations. The City's zoning regulations were also reviewed to determine the project's consistency with existing zoning.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's impacts to land use and planning are significant. Would the proposed project:

- Physically divide an established community?
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Project Impact Analysis and Mitigation Measures

Established Community

Impact LU-1 The proposed project would not physically divide an established community.

Impact Analysis

The project site is currently developed with an auto parts and scrap metal salvage yard. The project site is bounded to the northeast and east by the City's open space parcel, and Mowry Avenue and ACFC&WCD Line B canal lies to the west. The property to the south and southwest, known as the Harwinder Singh site, was previously developed with a warehouse-type structure and was previously used as an auto-wrecking yard; however, the building has since been demolished and there are no buildings presently on the Harwinder Singh site. UPRR tracks are approximately 300 to 1,000 feet to the northwest of the project site. The project site and surrounding areas are not developed as an established community and the proposed project would not include the construction of new roadways that could divide an established community. Therefore, the proposed project would not physically divide an established community and there would be no impact.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Conflict with Plans, Policies, or Regulations

Impact LU-2	**The proposed project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.**

Impact Analysis

General Plan Consistency Analysis

The City's General Plan designates the project site as Low Density Residential. The Low Density Residential designation of the General Plan has an allowable density of less than 8.7 dwelling units per acre. The proposed project would be consistent with this requirement and construct 203 single-family detached units, resulting in a density of 7 units per acre. The analysis in Table 3.11-1 demonstrates that the proposed project would not create inconsistencies with the applicable policies of the General Plan.

Table 3.11-1: General Plan Consistency Analysis

Policy	Consistency Analysis
Land Use	
Goal LU-1: Maintain a desirable quality of life in Newark by preserving a small town, neighborhood-oriented atmosphere and sustaining a balanced mix of land uses.	**Consistent.** The proposed project would construct a new community of single-family homes with a neighborhood-oriented atmosphere which would include private streets, on-site open space areas, and landscaping throughout the project site.
Policy LU-1.14: Cost Recovery. Ensure that new development generates sufficient revenue and pays its reasonable share to offset its cost impacts on public services and facilities.	**Consistent.** The proposed project would pay all associated fees to offset impacts on public services and facilities such as the parks impact fee and development impact fees.
Policy LU-1.17: Sustainable Development Emphasis. Ensure that new development incorporates green building and sustainable design principles and encourage renovation of existing development to use water and energy more efficiently. Newark will reduce dependence on fossil fuels by citing homes, jobs, shopping, and services within walking distance of each other, and developing a circulation network that encourages walking, bicycling, and transit use.	**Consistent.** The proposed project would incorporate sustainability features into the project design such as using low water use plants for landscaping, constructing storm drain systems which would utilize LID techniques, and incorporating bioretention areas into the project design to provide on-site treatment and retention of stormwater. Additionally, the proposed project would be constructed to be 100 percent electric.
Goal LU-2: Ensure compatibility between adjacent uses.	**Consistent.** The project site's surrounding lands are not developed with significant existing uses. Adjacent land uses include an open space parcel, salt production ponds, and a parcel previously developed as an auto-wrecking yard that has since been demolished. The proposed project would introduce new land uses to the project area. However, the proposed project would be designed and constructed to ensure compatibility with adjacent uses.
Policy LU-2.4: Buffering from Transportation Facilities. Ensure that the design of new residential development near rail lines, truck routes, freeways, or major thoroughfares includes setbacks, landscape screening, and other provisions to minimize exposure to negative impacts such as noise and air pollution.	**Consistent.** UPRR tracks are located approximately 300 to 1,000 feet to the northwest of the project site and the project site does not directly border any transportation facilities. The proposed project would be adequately set back from the UPRR tracks and would include construction of a new crossing across the UPRR tracks and a mid-block crossing to the Silliman

Policy	Consistency Analysis
	Center. Landscaping would be provided throughout the project site to provide screening of the UPRR tracks which would minimize exposure to existing transportation facilities.
Goal LU-4: Enhance Newark's identity as a city of high quality development that is distinctive from other cities in the Bay Area.	**Consistent.** The proposed project would construct a new single-family residential community and would be designed in accordance with the City's design guidelines to provide high quality development for the City.
Policy LU-4.6: Streetscapes. Ensure that medians, sidewalks, planting strips and other areas within the right-of-way of major thoroughfares are attractively landscaped and well maintained.	**Consistent.** The proposed project would construct new streets and construct improvements to existing roadways. Roadways would be designed and constructed in accordance with City standards and landscaping would be provided along roadways in accordance with City Zoning Code Chapter 17.21 which includes Citywide regulations related to landscaping.
Policy LU-4.7: Lighting. Manage exterior lighting to reduce potential light and glare impacts, improve public safety, and enhance the character of the streetscape.	**Consistent.** The proposed project would design and construct lighting in accordance with the City's lighting standards such as providing shielding and ensuring light and glare from the proposed project does not affect adjacent properties. Lighting installed for the proposed project would be constructed in accordance with City Zoning Code Chapter 17.17.060 which includes lighting and illumination regulations.
Goal LU-7: Develop the Southwest Newark Residential and Recreational Project as one of the Silicon Valley's premier new neighborhoods, with executive housing and high quality recreation.	**Consistent.** The proposed project would construct a new high quality residential community with 203 single-family homes within Area 4 of the Southwest Newark Residential and Recreational Project. The proposed project would also provide approximately 4.89 acres of on-site open space located within the project site that would provide recreational opportunities.
Policy LU-7.1: Southwest Newark Residential and Recreational Project (Area 3 and 4 Development). Facilitate the development of the 637 acres formerly known as "The Area 3 and 4 project" consistent with previously approved plans for this area. The residential holding capacity of this area shall be 1,260 units.	**Consistent.** The proposed project would construct 203 new single-family residential units in Area 4 of the Southwest Newark Residential and Recreational Project. The proposed project includes a Specific Plan Amendment and rezoning to allow the project site to be developed with residential uses and provide additional residential units above the holding capacity specified in the Specific Plan. With the approval of the Specific Plan Amendment and rezoning, the proposed project would be consistent with this policy.
Policy LU-7.6: Open Space Amenities. Include a major open space and recreational amenity within the Southwest Newark Residential and Recreational Project boundary. The preferred amenity is an 18-hole golf course with clubhouse. The former solid waste disposal site at the west end of Mowry Avenue should be considered for inclusion in the Golf Course site. In the event that a golf course is deemed infeasible, then another recreation use that is acceptable to the city shall be provided through developer fees. In addition, development in this area shall provide for neighborhood parks consistent with the ratios established by the General Plan.	**Consistent.** Though the proposed project would not include the development of a golf course, the proposed project would construct a new residential community that would include 4.89 acres of open space that would provide limited recreational opportunities to the residents of the proposed project. In addition to the on-site open space, the proposed project would pay a parks impact fee to ensure consistency with the parkland standard ratio established by the City.

Policy	Consistency Analysis
Policy LU-7.8: Mitigating Construction Impacts. Avoid and mitigate construction impacts on wetlands, aquatic habitat, wildlife, and water quality as development takes place in the Southwest Newark Residential and Recreational Project. Measures to minimize such impacts should be included in project approvals, consistent with state and federal agency oversight and regulations.	**Consistent.** The proposed project would include Mitigation Measure HYD-1 which requires the preparation and implementation of a SWPPP with BMPs identified to protect water quality. Additionally, the proposed project would implement Mitigation Measures BIO-1 through BIO-7 which would ensure there would be no construction related impact to wildlife, wetlands, or aquatic habitats.
Transportation	
Goal T-2: Create a citywide pedestrian and bicycle network that provides safe access to destinations within the city, connects to an integrated regional network, and is accessible to users of all ages, abilities, and means.	**Consistent.** The proposed project would construct bicycle lanes and crosswalks along Mowry Avenue to provide safe access from the project site to the surrounding areas.
Policy T-2.6: Pedestrian and Bicycle Provisions within New Development. Ensure safe and convenient pedestrian and bicycle access to and through new public and private developments. The City will use the development review process to ensure – and where appropriate to require – provisions for pedestrians and bicycles in new development areas.	**Consistent.** See discussion for Goal T-2.
Conservation and Sustainability	
Goal CS-1: Protect Newark's natural environment, landscape, and physical features.	**Consistent.** The proposed project would be designed, constructed, and operated in accordance with all applicable City standards and regulations to protect Newark's natural environment, landscape, and physical features.
Policy CS-1.1: Environmental Impacts of Development. Ensure that development minimizes its impacts on Newark's environment and natural resources through sound planning, design, and management.	**Consistent.** The proposed project would be designed to minimize impacts on Newark's environment and natural resources. The proposed project would include Mitigation Measure HYD-1 which requires the implementation of a SWPPP to ensure the proposed project does not result in significant impacts to water quality. Additionally, the proposed project would implement Mitigation Measures BIO-1 through BIO-9 to protect natural resources within and around the project site.
Policy CS-1.4: Soil Erosion. Identify and eliminate erosion problems on public and private lands. The potential for erosion should be considered as a design and engineering factor in new development.	**Consistent.** The proposed project includes Mitigation Measure GEO-1 which requires the preparation of geotechnical studies to consider geological impacts such as erosion. Additionally, the proposed project includes Mitigation Measure HYD-1 which requires the implementation of a SWPPP which would include BMPs to control erosion and the discharge of sediment during construction.
Goal CS-2: Conserve Newark's wetlands and baylands.	**Consistent.** The proposed project would not include construction in wetland areas and would take steps to ensure wetland areas located adjacent to the project site are not affected.
Policy CS-2.1: Wildlife and Habitat Protection. Preserve and protect Newark's plant and animal species and habitats, including wetlands, salt marshes, creeks, and lakes. Ensure that land use decisions avoid and	**Consistent.** The proposed project is located adjacent to identified wetland areas. The proposed project would not include construction in the wetland areas and would include measures within the project to protect wildlife habitat.

Policy	Consistency Analysis
mitigate potential impacts on wildlife habitat to the extent possible.	
Policy CS-2.2: Special Status Species. Ensure that adverse impacts on special status species, including those deemed rare, threatened, endangered, or candidate species for protection, are avoided and mitigated to the greatest extent feasible as development takes place.	**Consistent.** The proposed project would be required to implement Mitigation Measures BIO-1 through BIO-6 identified in Section 3.4, Biological Resources which include pre-construction mitigation for special-status species. Additionally, the proposed project would implement Mitigation Measure BIO-8, which include post-construction mitigation for the protection of special-status species. Implementation of mitigation measures identified in Section 3.4 would ensure that there are no significant impacts to special status species..
Policy CS-2.5: Development Near Wetlands. Manage land use and development of upland sites in a manner that minimizes off-site impacts to nearby wetlands.	**Consistent.** See discussion for Goal CS-2 and Policy CS-2.1.
Goal CS-3: Conserve and enhance Newark's water resources.	**Consistent.** The proposed project would be constructed and operated in accordance with the City's water resource protection standards to conserve Newark's water resources.
Policy CS-3.1: Protection of Water Resources. Ensure that land use decisions consider the availability of water for domestic and non-domestic uses, potential impacts on groundwater quality and groundwater recharge capacity, and potential off-site impacts on water quality.	**Consistent.** The proposed project's impacts to water resources is analyzed in this EIR. See Section 3.10 Hydrology and Water Quality and Section 3.19 Utilities and Service Systems for a detailed analysis of potential impacts to water resources. The proposed project would include Mitigation Measure HYD-1 which would ensure that there would be no potential impacts to water quality from construction of the proposed project. In addition to Mitigation Measure HYD-1, the proposed project would implement Mitigation Measure HAZ-1 which would include remediation of onsite contaminated surface waters and groundwater. Remediation of contaminated surface waters and groundwater would ensure that there would be no potential impacts to water quality from existing contamination. Additionally, Mitigation Measure GEO-3 would ensure that discharge of contaminated groundwater does not occur during dewater activities. The proposed project would utilize storm drain systems with LID techniques incorporated and permeable paving materials which would increase the potential for groundwater recharge at the site. The proposed project would provide treatment of site runoff prior to it being discharged which would ensure that the proposed project would not result in water quality impacts.
Policy CS-3.2: Water Conservation Standards. Promote water conservation through development standards, building requirements, irrigation requirements, landscape design guidelines, and other applicable City policies and programs.	**Consistent.** The proposed project would be designed and constructed in accordance with the City's water conservation standards. The proposed project would include the use of low water use plants for landscaping and storm drain systems with LID techniques incorporated to meet water conservation standards.
Policy CS-3.4: Reducing Water Pollution. Protect the quality of Newark's surface waters by supporting controls of point source and non-point sources of pollution.	**Consistent.** The proposed project would include the preparation and implementation of an SWPPP, as required by Mitigation Measure HYD-1, which would include pollution prevention measures.

Policy	Consistency Analysis
Goal CS-5: Reduce greenhouse gas emissions in Newark and make reduction of the City's carbon output a high priority.	**Consistent**. The proposed project would be designed and constructed in accordance with City standards and regulations for greenhouse gas and would include construction of features such as pedestrian and bicycle systems to encourage use of alternative transportation methods and reduce greenhouse gas emissions.
Policy CS-5.2: Pedestrian and Bicycle Friendly Design. Ensure that new development is planned and designed to facilitate walking and bicycling as well as driving. This can potentially reduce the number of vehicle trips and related greenhouse gas emissions.	**Consistent.** The proposed project would include improvements to Mowry Avenue to provide safe pedestrian and bicycle systems from the project site to the surrounding areas. Providing safe pedestrian and bicycle systems from the project site to surrounding areas would promote and facilitate the use of alternative transportation systems and reduce the use of personal vehicles resulting in a reduction of vehicle trips and related GHG emissions.
Policy CS-5.8: Planning for Sea Level Rise. Require proposed development in low-lying areas to comply with applicable City of Newark standards for construction in flood hazard zones.	**Consistent.** The proposed project involves the import of approximately 252,000 CY of clean fill to elevate the proposed pad grades for the homes above the 100 year flood plain elevation. The proposed pad grades would exceed the City's standard for construction in flood hazard zones and would accommodate the San Francisco Bay BCDC's currently adopted sea level rise guidance.
Goal CS-6: Reduce the impacts of buildings and development on greenhouse gas levels and the environment in general.	**Consistent.** As identified in Section 3.8, Greenhouse Gases, the proposed project would be consistent with the City's CAP and the California Climate Change Scoping Plan. Additionally, the proposed project would be designed and constructed in accordance with Title 24 CALGreen standards and requirements for energy efficiency. Additionally, the proposed project's structures would be 100 percent electric.
Policy CS-6.2: Encouraging Greener Construction. Encourage greener construction methods and greater use of recycled-content materials in new residential, commercial, and industrial construction projects.	**Consistent.** The proposed project would be constructed in compliance with CALGreen requirements.
Policy CS-6.5: Minimizing Impervious Surface Coverage. Minimize impervious surface coverage and related stormwater runoff in new development areas by allowing narrower roads and shared driveways and parking areas. Other means of reducing urban runoff, such as rain barrels and bioswales, also should be encouraged.	**Consistent.** The proposed project would include bioretention areas located within the project site to reduce urban runoff and minimize impervious surface coverage. The proposed project would include features within the project design to minimize impervious surface coverage. The proposed project would incorporate 465,680 square feet of pervious surfaces at the project site consisting of landscaped areas and biotreatment areas. Additionally, the proposed project would utilize permeable pavement materials.
Parks, Recreation, and Open Space	
Goal PR-2: Expand and improve Newark's parks and recreational facilities to meet existing and future needs.	**Consistent.** The proposed project includes the enhancement of open space areas around the stormwater pond areas for passive recreation.
Policy PR-2.2: Parks in New Development. Require new parks to be provided within large-scale new development. Where the provision of an on-site park is infeasible, require the payment of an in-lieu fee for parkland acquisition to serve that development.	**Consistent.** The proposed project would develop on-site open space areas located within the project site. However, the proposed project would pay the full parks impact fee to offset increased demand to park facilities from the new development.

Policy	Consistency Analysis
Policy PR-2.4: Pocket Parks. Allow a portion of the parkland dedication requirement to be met through the provision of on-site pocket parks and play lots in new development.	**Consistent.** The proposed project would develop on-site open space areas within the project site which would provide amenities such as a lawn, pedestrian path, and picnic tables. However, as the on-site open space areas would not rise to the level of a park due to limited development, the proposed project would pay the full parks impact fee to offset increased demand to park facilities.
Environmental Hazards	
Goal EH-1: Reduce the potential for injury, harm, property damage, and loss of life resulting from environmental hazards.	**Consistent.** The proposed project would be designed and constructed in accordance with the CBC and the City's development standards to protect against environmental hazards. Additionally, the proposed project would implement Mitigation Measure GEO-1 which requires the implementation of recommendations includes in the geotechnical studies which include detailed investigation of ground shaking, liquefaction, soil stability and other geologic hazards. Additionally, the proposed project would include implementation of Mitigation Measure HAZ-1 which require remediation of existing on-site contamination at the project site. The Applicant would be required to implement the Corrective Action Plan and Remedial Excavation Work Plan which provides detailed plans to remediate contaminated soil, soil gas, groundwater, surface water, and sediments through a combination of removing the soil contamination through excavation, groundwater containment through in-situ remediation, and surface water contamination through dewatering, and if conditions warrant, natural attenuation, to residential standards. Compliance with identified mitigation measures would ensure there would be no significant impacts from environmental hazards.
Policy EH-1.1: Development Regulations and Code Requirements. Establish and enforce development regulations and building code requirements to protect residents and workers from flooding, liquefaction, earthquakes, fires, and other hazards.	**Consistent.** See discussion for Goal EH-1. The proposed project would be designed and constructed in accordance with the CBC and the City's development regulations to protect against environmental hazards. Additionally, the proposed project would implement Mitigation Measure GEO-1 which requires the implementation of recommendations includes in the geotechnical studies which include detailed investigation of ground shaking, liquefaction, soil stability and other geologic hazards. Implementation of recommendations would be completed in accordance with established development regulations and CBC requirements.
Policy EH-1.5: Adequacy of Access. Require adequate access and clearance for fire equipment, fire suppression personnel, and evacuation for new development.	**Consistent.** The proposed project would be designed to provide adequate access throughout the site for emergency vehicles and personnel. The proposed project would be developed in accordance with City standards for emergency access.
Goal EH-2: Reduce risks to life and property associated with geologic hazards.	**Consistent.** The proposed project would be designed and constructed with geologic hazard mitigation measures to reduce risks associated with geologic hazards. Mitigation Measure GEO-1 and GEO-2 would require implementation of recommendations included in

Policy	Consistency Analysis
	the previously prepared geotechnical studies to ensure the proposed project is constructed to withstand geologic hazards thereby reducing the risks to life and property.
Policy EH-2.1: Earthquake Safety in New Construction. Require new development to meet structural integrity standards which minimize the potential for damage during earthquakes.	**Consistent.** The proposed project would be constructed in accordance with the earthquake design parameters of the CBC and would be constructed to minimize potential earthquake related impacts. Additionally, the proposed project would implement Mitigation Measure GEO-1 which would require implementation of recommendations included in the geotechnical studies prepared for the proposed project which include design recommendations to minimize potential damage during earthquakes.
Goal EH-3: Reduce the risks to life and property associated with flooding.	**Consistent.** The proposed project would be constructed to have elevated pad grades above the 100-year flood plain elevation as required by the City for new development located in a flood plain.
Goal EH-3.3: Residential Development in the Flood Plain. Require that new residential development, including streets and other surface improvements, be constructed above the 100-year flood elevation.	**Consistent.** See discussion for Goal EH-3.
Policy EH-3.7: Mitigating Downstream Flood Impacts. Design new development to reduce the potential for downstream flooding. Measures such as porous pavement and on-site drainage retention facilities should be considered to reduce downstream flooding.	**Consistent.** The proposed project would include storm drain systems with LID techniques incorporated and would construct bioretention areas within the project site to manage site runoff.
Goal EH-7: Ensure that new structures/uses are designed and constructed to preclude excessive, inappropriate, and undesirable noise effects.	**Consistent.** The proposed project would implement Mitigation Measure NOI-1 which requires preparation of a project-specific acoustical study to determine necessary noise control treatments to reduce interior noise levels. Additionally, the proposed project would implement Mitigation Measure NOI-2 which requires noise from all mechanical equipment associated with the project to comply with requirements identified in Newark Municipal Code Section 17.24.100, Paragraph A.2.a.
Policy EH-7.3: Reducing Exposure to Operational Noise. In new residential and mixed-use developments, require that stationary equipment (such as air conditioning units and condensers) be placed in separate spaces, rooftops, or other areas such that noise impacts to interior living areas will be reduced. Similarly, potentially noisy common areas, such as trash collection areas and loading zones, should be located away from residential units or other noise-sensitive spaces.	**Consistent.** The proposed project would implement Mitigation Measure NOI-2 which requires noise from all mechanical equipment associated with the project to comply with requirements identified in Newark Municipal Code Section 17.24.100, Paragraph A.2.a. Additionally, the proposed project would prepare a noise analysis once on-site equipment is selected and equipment would be designed to incorporate measures as needed, such as shielding, barriers, and/or attenuators to reduce noise levels.
Policy EH-7.6: New Noise Sources. Require new developments that have the potential to create long-term noise increases to mitigate potential impact to off-site receptor properties.	**Consistent.** See discussion for Policy EH-7.3.
Policy EH-7.7: Acoustical Study Requirements. Require acoustical studies for new developments in areas where noise levels exceed the ‘normally acceptable’ levels for the proposed land use. For residential uses,	**Consistent.** Mitigation Measure NOI-1 identified in Section 3.13, Noise, requires the preparation of a project-specific acoustical study in accordance with General Plan Policy EH-7.7 to determine necessary

Policy	Consistency Analysis
the analysis should include mitigation measures to limit the noise exposure in interior living spaces to 45 dB Ldn, consistent with California Title 24.	noise control treatments to reduce the impact of traffic noise on the interior of the residential units. Additionally, as identified in the discussion under Policy EH-7.3, the proposed project would implement Mitigation Measure NOI-2 which requires the preparation of a noise analysis once on-site equipment is selected and equipment would be designed to incorporate measures as needed, such as shielding, barriers, and/or attenuators to reduce noise levels
Health and Wellness	
Goal HW-1: Air quality that meets state and federal standards and provides improved respiratory health for Newark residents.	**Consistent.** Section 3.3, Air Quality, identified that the proposed project would not result in air quality impacts and the proposed project would meet state and federal standards.
Policy HW-1.3: Reducing Exposure to Air Pollution in New Development. Use site planning and architectural design to reduce potential exposure of sensitive uses to major air pollution sources, including freeways and industrial activities.	**Consistent.** Section 3.3, Air Quality, identified Mitigation Measures AIR-1 and AIR-2 to be implemented during construction to ensure that development of the proposed project would not result in substantial air pollution. Additionally, the proposed project would not be a major air pollution source nor is the project site located near major air pollution sources.
Goal HW-7: Safe and secure neighborhoods and public spaces.	**Consistent.** The proposed project would construct a new residential community with 203 single-family homes. The proposed project would construct lighting throughout the site to illuminate the main entrances of the single-family homes, private streets, sidewalks, common space areas and driveways for security and safety purposes.
Policy HW-7.1: Eyes on the Street. Design new development to encourage “eyes on the street” and discourage the potential for criminal activity.	**Consistent.** The proposed project would be designed with lighting provided throughout the site to ensure the site is well illuminated during nighttime and discourage the potential for criminal activity. Lighting installed for the proposed project would be constructed in accordance with City Zoning Code Chapter 17.17.060 which includes lighting and illumination regulations.
Policy HW-7.2: Development Lighting. Require lighting plans for new development that ensures that common spaces and parking areas illuminated in a way that improves public safety.	**Consistent.** The proposed project would be designed and constructed in accordance with the City’s lighting standards. Lighting installed for the proposed project would be constructed in accordance with City Zoning Code Chapter 17.17.060 which includes lighting and illumination regulations.
Community Services and Facilities	
Goal CSF-2: Provide excellent schools that deliver high-quality educational services to Newark students while serving as neighborhood centers and fostering civic pride.	**Consistent.** The proposed project would pay a school impact fee to provide funding for schools within the City.
Policy CSF-2.2: Mitigation of School Impacts. When new residential development is approved, require mitigation of school impacts to the full extent permitted by law. Work collaboratively with the Newark Unified School District to ensure the appropriate fees are collected and other appropriate mitigation measures are taken.	**Consistent.** The proposed project would pay a school impact fee to NUSD to mitigate impacts to schools from the proposed development.

Policy	Consistency Analysis
Goal CSF-5: Provide safe, reliable, and efficiently operated infrastructure which meets Newark's long-term water, sewer and stormwater management needs.	**Consistent.** The proposed project would construct improvements to the existing water, sewer, and stormwater infrastructure along Mowry Avenue.
Policy CSF-5.5: Drainage within New Development. Ensure that new development provides drainage and flood protection improvements which reduce on-site and downstream hazards such as ponding, flooding, and erosion. New development areas should be designed to minimize impervious surfaces in order to reduce associated site runoff and maximize groundwater recharge.	**Consistent.** The proposed project would install a storm drain system on-site consisting of bioretention areas, curbs and gutters along the roadways, and underground storm drain pipes to manage site runoff. The storm drainage system would be designed to include LID techniques which may include directing roof runoff to vegetated areas, storm drain stenciling, and site design that promotes infiltration. Additionally, the proposed project would also involve off-site stormwater improvements along Mowry Avenue and would construct improvements to the existing storm drains and construct bioretention treatment areas along Mowry Avenue.

Specific Plan Consistency Analysis

The project site is located within the Areas 3 and 4 Specific Plan and the project site is designated for a golf course or other recreational uses. The proposed project is not consistent with the land use identified by the Areas 3 and 4 Specific Plan. As such, the proposed project also requires a Specific Plan Amendment to change the existing designated golf course or recreational use to a residential single-family use. While the Specific Plan designation would change following the approval of the proposed project, the change would result in a better alignment of the project site with the General Plan designation and the project site would be developed for residential uses, as planned by the General Plan. Additionally, the Specific Plan Amendment would allow for the development of additional residential units above the allocated maximum capacity of residential units for the Specific Plan area identified in the Specific Plan.

A detailed analysis of the proposed project's consistency with applicable goals and policies of the Areas 3 and 4 Specific Plan is provided in Table 3.11-2 to identify whether the proposed project would create an inconsistency with the General Plan. The analysis in Table 3.11-2 demonstrates that the proposed project would not create inconsistencies with the applicable policies of the Specific Plan.

Table 3.11-2: Newark Areas 3 and 4 Specific Plan Consistency Analysis

Policy	Consistency Analysis
Goal: Maintain, protect and enhance the planning areas' natural biological resources particularly sensitive habitats and associated rare plants and animals while integrating development and human uses.	**Consistent.** The proposed project would be required to implement Mitigation Measures BIO-1 through BIO-9 identified in Section 3.4, Biological Resources of this EIR. Implementation of mitigation measures identified in Section 3.4 would ensure that construction and operation of the proposed project would not result in impacts to biological resources.
Policy 6-3: Development of the golf course should contain as much natural habitat as is feasible, such as unmaintained native grassland areas rather than turf	**Not Applicable.** Though the project site was identified for development as a golf course in the Areas 3 and 4 Specific Plan, the project proposes a Specific Plan Amendment to develop the site for residential uses.

Policy	Consistency Analysis
and native trees and other vegetation where appropriate.	The Specific Plan Amendment would better align the project site with the site's General Plan land use designation and the project site would be developed with residential uses, as planned by the General Plan. Additionally, the Specific Plan Amendment would allow for the development of additional residential units above the allocated maximum capacity of residential units for the Specific Plan area identified in the Specific Plan.
Policy 6-5: To maintain hydrology and water quality as currently exists in natural habitat areas, development of the golf course should use state of the art management methods such as a computerized irrigation system connected to an on-site weather station to limit watering to the exact needs of the course, sprinkler head designs to ensure a very even distribution of water to reduce water use and runoff, unmaintained native grasses in the outer roughs, designated irrigated and non-irrigated areas, retention of runoff (particularly off-season) within the golf course, accurate application of fertilizer to that required to eliminate contaminated runoff and retention of nuisance or off-season flows within the development area.	**Not Applicable.** See discussion under Policy 6-3.
Policy 6-6: Development of residential and golf course areas should be configured to optimize habitat areas (e.g., contiguous and large) for wildlife in remaining or preserved wetlands to provide needed habitat elements; limit disturbance from residences, the golf course, and recreational activities (e.g., hiking or dog walking along levees); avoid, to the extent feasible, or replace and enhance habitat for endangered species habitat lost; and allow for adequate movement for wildlife species within Area 4 with particular attention paid to waterbirds and special-status species found in the area: burrowing owls, peregrine falcons, tricolored blackbirds (colonies), salt marsh harvest mice, salt marsh wandering shrews, pallid bats, and Yuma bats and breeding northern harriers, Alameda song sparrows, Bryant's savannah sparrows, and San Francisco common yellowthroats.	**Not Applicable.** See discussion under Policy 6-3. However, development of the project site would implement Mitigation Measures BIO-1 through BIO-9 to ensure that development does not result in significant impacts to biological resources. Mitigation Measure BIO-1 through BIO-9 include both pre-construction and post-construction measures to protect special-status species and other natural resources in the area.
Policy 6-7: Temporary disturbance to all wetland and aquatic habitat should be avoided to the maximum extent feasible during construction activities using measures such as demarcation of construction areas with Environmentally Sensitive Area fencing	**Consistent.** As identified in the Biological Resources Technical Report (Appendix C), the project site does not include wetlands. Additionally, as identified in Section 3.4, Biological Resources, the potentially jurisdiction aquatic features located within or near the project site were artificially constructed and are not regulated by USACE, RWQCB, or CDFW. The proposed project would require extension of unity infrastructure through the ACFC&WCD Line D channel which is a jurisdiction aquatic feature. However, the extension would be completed with by jack-and-bore that would go underneath and avoid the Line D channel and therefore, construction of extension of the utility infrastructure would not disturb any wetland or aquatic habitat. The proposed project would not disturb any wetlands or aquatic habitats.
Policy 6-8: Minimize construction related impact on rare, threatened, endangered or other special-status species	**Consistent.** The proposed project would be required to implement Mitigation Measures BIO-1 through BIO-6

Policy	Consistency Analysis
particularly in natural, created or enhanced habitat areas remaining or preserved on-site such as burrowing owls, salt marsh harvest mice, salt marsh wandering shrews, pallid and Yuma bats, and nesting northern harriers, peregrine falcons, Alameda song sparrows, Bryant's savannah sparrows, San Francisco common yellowthroats, and tricolored blackbird colonies. Measures may include conducting pre-construction/pre-disturbance surveys, establishing buffer zones, avoiding habitat, creating alternate habitat, salvaging individuals, and during the breeding season: avoiding construction activities, excluding individuals from construction areas, removal of vegetation.	identified in Section 3.4, Biological Resources of this EIR which include pre-construction mitigation for special-status and sensitive wildlife species. Implementation of mitigation measures identified in Section 3.4 would ensure that construction of the proposed project would not result in impacts to biological resources.
Policy 6-9: Minimize construction related impact water quality degradation in natural, created or enhanced habitat areas remaining or preserved on-site using measures such as incorporating best management practices, minimizing soil disturbance adjacent to wetland and marsh habitat, suppressing dust during construction, and avoiding contamination of adjacent natural habitats during environmental cleanup of the auto wrecking yards.	**Consistent.** As required by Mitigation Measure HYD-1, the proposed project would include the preparation and implementation of an SWPPP which would include BMPs and measures to minimize construction related impacts to water quality.
Policy 6-10: The City of Newark shall require design and implementation of and must review and approval an Invasive Plant Species Management Plan prior to grading or importation of fill material as part of any proposed development in Specific Plan Areas 3 and 4 to reduce the potential establishment or spread of non-native, invasive weed populations as a result of development activities. This management plan will outline methods to control the existing populations of non-native, invasive species that are not a severe ecological threat and to remove those weed species present that pose a severe ecological threat from the accessible portion of the site to prevent the spread of their seed during and after construction and to prevent the invasion of graded area by invasive species.	**Consistent.** The proposed project would be required to implement Mitigation Measure BIO-7, identified in Section 3.4, Biological Resources of this EIR, which requires the preparation and implementation of an Invasive Species Management Plan. The plan would be submitted to the City for approval prior to the issuance of any building or grading permits.
Policy 6-11: The design of the golf course should minimize, to the extent practicable, disturbance by golfers of adjacent sensitive natural resources such as sensitive habitats, vegetation wildlife, and rare plant or animals with such measures as having high-use areas such as tees and greens set back from the edge of the golf course, broad rough/out-of-bounds areas along the interface between the golf course and sensitive habitats, "out of bounds" areas clearly marked, and focused lighting that does not extend into natural or habitat areas.	**Not Applicable.** See discussion under Policy 6-3. However, the proposed project would be designed to minimize disturbance of adjacent sensitive natural resources.

Newark Zoning Code Consistency

The Newark Zoning Code designates the project site as Park (City of Newark 2013a). The project is proposing to rezone the project site from Park to PD-RS-6000. The rezoning request is to better align the zoning with the proposed use of the project and the existing General Plan designation. Additionally, the rezoning would allow the project site to develop residential units above the allocated housing unit capacity of the Areas 3 and 4 Specific Plan. Due to the minimum lot size and setbacks prescribed in the RS-6000 zoning district, a Planned Unit Development is being proposed to allow a deviation from the standards listed in the RS-6000 development standards in the Newark Municipal Code. Proposed deviations include a deviation from the minimum setbacks and minimum lot sizes. The proposed project would not meet the minimum lot size of 6,000 square feet for the RS-6000 zoning district and would not meet the minimum setbacks required at corners. While the zoning designation would change following the approval of the proposed project, the change would result in a better alignment of the project site with the General Plan designation and the project site would be developed for residential uses, as planned by the General Plan.

With the approvals required, the proposed project would be constructed in accordance with any land use plan, policy, and regulation adopted for the purpose of avoiding and mitigating environmental effects and this impact would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

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3.12 MINERAL RESOURCES

This section describes the environmental and regulatory setting for mineral resources. It also describes existing conditions and potential impacts related to mineral resources that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.12.1 Environmental Setting

According to the City's General Plan, there are no mining operations within the City itself and there is one mining operation located just west of the City limit. However, this is a gravel quarry located within the City of Fremont which was closed in 2007 with no expectation for it to reopen (City of Newark 2013a). The City's General Plan EIR determined that given the extent of urban development in the City and the proximity of sensitive environmental resources, future mineral extraction within the City's plan area is unlikely.

According to the Mineral Land Classification maps prepared by the DOC Division of Mines and Geology, the project site is located in a Mineral Resource Zone (MRZ) -3 zones. Land designated as MRZ-3 zones are areas containing mineral deposits the significance of which cannot be evaluated from available data (DOC 1996). Due to increased development of the City since the evaluation in 1996, ground disturbance activities resulting from increased development would have presumably unearthed unknown mineral resources in the City if they were present. If unknown mineral resources had been discovered, the evaluation would have been updated and the General Plan EIR would have analyzed potential impacts to mineral resources. As the General Plan EIR identified a less than significant impact relating to mineral resources from implementation of the General Plan (City of Newark 2013b), the need for updated evaluation to assess impacts are not required.

3.12.2 Regulatory Setting

Federal

There are no relevant federal regulations for mineral resources.

State

Surface Mining and Reclamation Act of 1975

Mining and mineral extraction operations throughout the state are subject to the California Surface Mining and Reclamation Act (SMARA). SMARA provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. The purpose of SMARA is to identify and protect areas containing significant mineral resources. SMARA encourages the production, conservation, and protection of the state's mineral resources.

Local

City of Newark General Plan

The City's General Plan does not include any goals or policies related to mineral resources.

3.12.3 Environmental Impacts

This section analyzes the project's potential to result in significant mineral resources impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of the General Plan EIR and the DOC's Division of Mine Reclamation mineral lands classification maps.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's impacts to mineral resources are significant. Would the proposed project:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Project Impact Analysis and Mitigation Measures

Loss of Mineral Resource

Impact MIN-1	**The proposed project would not result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state.**

Impact Analysis
The DOC's Mineral Lands Classification Map of Aggregate Resources classifies the project site as being within an MRZ-3 zone. MRZ-3 zones are areas containing mineral deposits the significance of which cannot be evaluated from available data (DOC 1996). However, the City's General Plan did not identify any mineral resources of value on or near the site and no mineral extraction activities exist within City limits (City of Newark 2013b). Mineral extraction is not included as part of the proposed project and the project's proposed zoning would not allow mineral extraction. The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, and no impact would occur.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

Mineral Resource Recovery Site

Impact MIN-2	**The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.**

Impact Analysis

The DOC Division of Mine Reclamation identifies the project site as an MRZ-3 zone. MRZ-3 zone classifications are given to areas that contain mineral deposits but the significance of it cannot be evaluated from the available data. There are no locally important mineral resource recovery sites delineated in the City's General Plan, specific plan or any other land use plan (City of Newark 2013b). Therefore, the proposed project would not result in the loss of availability of a locally important mineral resource recovery site, and no impact would occur.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

No Impact.

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3.13 NOISE

This section describes the environmental and regulatory setting for noise and vibration. It also describes existing conditions and potential impacts related to noise that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible. Descriptions and analysis in this section are based on noise modeling performed by HELIX Environmental Planning, Inc. The noise modeling output is included in this EIR as Appendix G.

3.13.1 Environmental Setting

Noise Fundamentals and Terminology

Noise is generally defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on human health. Because noise is an environmental pollutant that can interfere with human activities, evaluation of noise is necessary when considering the environmental impacts of a proposed project.

Sound is mechanical energy (vibration) transmitted by pressure waves over a medium such as air or water. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an existing sound level.

Although the decibel (dB) scale, a logarithmic scale, is used to quantify sound intensity, it does not accurately describe how sound intensity is perceived by human hearing. The perceived loudness of sound is dependent upon many factors, including sound pressure level and frequency content. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called A-weighting, written as dB(A) and referred to as A-weighted decibels. There is a strong correlation between A-weighted sound levels and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. Table 3.13-1 summarizes typical A-weighted sound levels for different common noise sources.

Table 3.13-1: Typical A-Weighted Sound Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet flyover at 1,000 feet	110	Rock band
Gas lawnmower at 3 feet	100	Food blender at 3 Feet
Diesel truck at 50 Feet at 50 miles per hour	90	Garbage Disposal at 3 Feet
Noisy urban area, daytime	80	Vacuum Cleaner at 10 Feet
Gas lawnmower, 100 feet	70	Normal Speech at 3 Feet
Commercial area	60	Large business office

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Heavy traffic at 300 feet	50	Dishwasher in next room
Quiet urban daytime	40	Theater, large conference room (Background)
Quiet urban nighttime	20	Library
Quiet suburban nighttime	10	Bedroom at night, concert hall (Background)
Quiet rural nighttime	0	Broadcast/recording studio

Source: Caltrans 2013

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (Leq), the minimum and maximum sound levels (Lmin and Lmax, respectively), percentile-exceeded sound levels (such as L10, L20), the day-night sound level (Ldn), and the community noise equivalent level (CNEL). Ldn and CNEL values often differ by less than 1 dB. As a matter of practice, Ldn and CNEL values are considered to be equivalent and are treated as such in this assessment. Table 3.13-2 defines sound measurements and other terminology used in this report.

Table 3.13-2: Definition of Sound Measurements

Sound Measurements	Definition
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
A-Weighted Decibel (dB(A))	An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
Maximum Sound Level (Lmax)	The maximum sound level measured during the measurement period.
Minimum Sound Level (Lmin)	The minimum sound level measured during the measurement period.
Equivalent Sound Level (Leq)	The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy.
Percentile-Exceeded Sound Level (Lxx)	The sound level exceeded xx percent of a specific time period. L10 is the sound level exceeded 10 percent of the time. L90 is the sound level exceeded 90 percent of the time. L90 is often considered to be representative of the background noise level in a given area.
Day-Night Level (Ldn)	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 P.M. to 7:00 A.M.
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 P.M. to 10:00 P.M. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 P.M. to 7:00 A.M.

Sound Measurements	Definition
Peak Particle Velocity (PPV)	A measurement of ground vibration defined as the maximum speed (measured in inches per second) at which a particle in the ground is moving relative to its inactive state. PPV is usually expressed in inches/second.
Frequency: Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.

Source: FHWA 2006

With respect to how humans perceive and react to changes in noise levels, a 1 dB(A) increase is imperceptible, a 3 dB(A) increase is barely perceptible, a 5 dB(A) increase is clearly noticeable, and a 10 dB(A) increase is subjectively perceived as approximately twice as loud. These subjective reactions to changes in noise levels were developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broadband noise and to changes in levels of a given noise source. These statistical indicators are thought to be most applicable to noise levels in the range of 50 to 70 dB(A), as this is the usual range of voice and interior noise levels. Numbers of agencies and municipalities have developed or adopted noise level standards, consistent with these and other similar studies to help prevent annoyance and to protect against the degradation of the existing noise environment.

For a point source such as a stationary compressor or construction equipment, sound attenuates based on geometry at a rate of 6 dB per doubling of distance. For a line source such as free-flowing traffic on a freeway, sound attenuates at a rate of 3 dB per doubling of distance. Atmospheric conditions including wind, temperature gradients, and humidity can change how sound propagates over distance and can affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound that travels over an acoustically absorptive surface, such as grass, attenuates at a slightly greater rate than sound that travels over a hard surface, such as pavement. The increased attenuation is typically in the range of 1–2 dB per doubling of distance. Barriers, such as buildings and topography that block the line of sight between a source and receiver, also increase the attenuation of sound over distance.

Decibel Addition

Because dBs are logarithmic units, sound pressure levels cannot be added or subtracted through ordinary arithmetic. On the dB scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, their combined sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one source produces a sound pressure level of 70 dB(A), two identical sources would combine to produce 73 dB(A). The cumulative sound level of any number of sources can be determined using dB addition.

Vibration Standards

Vibration is like noise such that noise involves a source, a transmission path, and a receiver. While related to noise, vibration differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system that is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of peak particle velocity (PPV) in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 3.13-3 notes the general threshold at which human annoyance could occur is 0.1 PPV for continuous/frequent sources. Table 3.13-4 indicates the threshold for damage to typical residential and commercial structures ranges from 0.3 to 0.5 PPV for continuous/frequent sources.

Table 3.13-3: Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum Peak Particle Velocity (inches/second)	
	Transient Sources	Continuous/Frequent Sources
Barely perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.90	0.10
Severe	2.0	0.40

Notes: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seal equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: Caltrans 2020

Table 3.13-4: Guideline Vibration Damage Potential Criteria

Structure and Condition	Maximum Peak Particle Velocity (inches/second)	
	Transient Sources	Continuous/Frequent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.30	0.12
Historic and some old buildings	0.50	0.20
Older residential structure	0.70	0.30
New residential structures	1.2	0.50
Modern industrial/commercial buildings	2.0	0.50

Notes: Transient sources again create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seal equipment, vibratory pile drivers, and vibratory compaction equipment.
Source: Caltrans 2020

The operation of heavy construction equipment, particularly pile driving and other impact devices, such as pavement breakers, create seismic waves that radiate along the surface of the ground and downward into the earth. These surface waves can be felt as ground vibration. Vibration from the operation of this equipment can result in effects ranging from annoyance of people to damage of structures. Varying geology and distance will result in different vibration levels containing different frequencies and displacements. In all cases, vibration amplitudes will decrease with increasing distance. Perceptible groundborne vibration is generally limited to areas within a few hundred feet of construction activities.

Table 7-4 “Vibration Source Levels for Construction Equipment” in the 2018 Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual lists vibration source levels for the construction equipment most likely to generate high levels of ground vibration (FTA 2018). The equipment listed in the FTA table includes impact and sonic pile drivers, clam shovel drops, hydromills, vibratory rollers, hoe rams, large and small bulldozers, caisson drilling, loaded trucks, and jackhammers. Table 3.13-5 below summarizes typical reference vibration levels generated by select construction equipment planned for this project.

Table 3.13-5: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity at 25 Feet
Vibratory roller	0.210
Large bulldozer	0.089
Caisson Drilling	0.089
Loaded trucks	0.076
Small bulldozer	0.003

Source: FTA 2018

Vibration amplitude attenuates over distance and is a complex function of how energy is imparted into the ground and the soil conditions through which the vibration is traveling. The following equation can be used to estimate the vibration level at a given distance for typical soil conditions (FTA 2018). “PPVref” is the reference PPV from Table 3.13-5 and “Distance” is the distance between the source and the receptor:

PPV = PPVref x (25/Distance)^1.5

Existing Project Setting

Sensitive Receptors

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are considered more sensitive to noise intrusion than are commercial or industrial activities. Ambient noise levels can also affect the perceived desirability or livability of a development.

The project site is located within an agricultural and industrial area in the southwestern portion of the City, and most of the project site is used as an auto parts and scrap metal salvage lot (the “Pick-n-Pull”). The northern parcel of the project site is currently undeveloped, open land. The parcel adjacent to the project site to the southwest is used for commercial vehicle storage. Mowry Avenue is adjacent to the project site’s western boundary and ends approximately 700 feet south of the project site. Salt production ponds are located on the west side of Mowry Avenue. The property to the north is undeveloped land formerly used for agriculture. The UPRR tracks are located approximately 300 feet north of the project site's northernmost point. The area to the east of the project site is permanent open space.

Noise-sensitive land uses are land uses that may be subject to stress and/or interference from excessive noise, such as residential dwellings, schools, hospitals, educational facilities, and libraries. Industrial and commercial land uses are generally not considered sensitive to noise. The closest noise-sensitive land use in the project vicinity is the Silliman Community Activity Center, located approximately 1,000 feet (0.19 mile) north of the project site. The outdoor recreation fields associated with the Silliman Activity Center are not typically considered noise-sensitive land uses. The closest residential land uses to the project site are multi-family homes approximately 2,100 (0.40 mile) to the northeast. The closest schools to the project site are the Ohlone College Newark Center for Health Sciences and Technology, approximately 2,650 feet (0.5 mile) northeast of the project site, and the Newark Memorial High School, approximately 3,483 feet (0.66 mile) northeast.

Existing Ambient Noise Levels

The existing noise environment in a project area is characterized by the area's general level of development due to the high correlation between the level of development and ambient noise levels. Areas that are not urbanized are relatively quiet, while areas that are more urbanized are noisier as a result of roadway traffic, industrial activities, and other human activities.

The predominant existing noise sources in the vicinity of the project site are vehicular traffic on Mowry Avenue associated with the existing Pick-n-Pull business, operational noise from the existing Pick-n-Pull business, passenger and freight trains on the UPRR tracks, overflights of commercial aircraft, and equipment such as tractors, graders and loaders associated with seasonal salt harvesting.

Two short-term ambient noise measurements (M1 and M2) were conducted during a site visit on April 30, 2019 by HELIX Environmental Planning, Inc. Site M1 was located in the vacant north portion of the project site, approximately 250 feet north of the Pick-n-Pull business and approximately 450 east of Mowry Avenue. Site M2 was located on the shoulder of Mowry Avenue, approximately 700 feet south of the UPRR tracks, and approximately 35 feet from the centerline of Mowry Avenue.

Measurements were taken using a Larson Davis SoundTrack LxT Sound Level Meter mounted on a tripod approximately 5 feet above the ground. The sound-level meter was field-calibrated immediately prior to the noise measurement to ensure accuracy using a Larson Davis Model CAL250 Calibrator. All measurements were made with meters that conform to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983 R2006). All instruments were maintained with National Institute of Standards and Technology traceable calibration per the manufacturers' standards.

Sources of noise noted during measurement M1 included operational noise from the Pick-n-Pull business, commercial aircraft overflying the site, and one passenger train (including train warning horns). Sources of noise noted during measurement M2 included traffic on Mowry Avenue, operational noise form the Pick-n-Pull business, commercial aircraft overflying the site, and three passenger trains (including train warning horns). The measured noise levels and related weather conditions for the short-term measurements are shown in Table 3.15-6, Short-term Noise Measurement Results. See Appendix G for survey notes from the short-term measurements.

Table 3.13-6: Short-Term Noise Measurement Results

Measurement	Location	Conditions	Time	dB(A) Leq	Notes
M1	North center of the site, approximately 250 feet from the Pick-n-Pull and 450 feet from Mowry Avenue.	59°F, 7 mph wind, 61 percent humidity, sunny	9:23 AM to 9:38 AM	48.5	Noise from Pick-n-Pull; aircraft at approximately 2-minute intervals; 1 train
M2	Shoulder of Mowry Avenue, approximately 700 feet south of the UPRR tracks and 35 feet from roadway centerline.	61°F, 8 mph wind, 59 percent humidity, sunny	9:49 AM to 10:01 AM	58.4	60 cars, 2 medium trucks, 3 heavy trucks; noise from Pick-n-Pull; aircraft at approximately 2 to 4-minute intervals; three trains

Source: HELIX Environmental Planning, Inc.
°F = degrees Fahrenheit; mph = miles per hour

3.13.2 Regulatory Setting

Federal, state, and local agencies regulate different aspects of environmental noise. Generally, the federal government sets noise standards for transportation-related noise sources closely linked to interstate commerce. These include aircraft, locomotives, and trucks. No federal noise standards are directly applicable to this project. The state government sets noise standards for transportation noise sources such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies. Local general plans identify general principles intended to guide and influence development plans.

State

California Building Code

Part 2, Title 24 of the CCR California Noise Insulation Standards establishes minimum noise insulation standards to protect persons within new hotels, motels, dormitories, long-term care facilities, apartment houses, and dwellings other than single-family residences. Under Section 1207.11 “Exterior Sound Transmission Control”, interior noise levels attributable to exterior noise sources cannot exceed 45 L_{dn} in any habitable room. Where such residences are located in an environment where exterior noise is 60 L_{dn} or greater, an acoustical analysis is required to ensure interior levels do not exceed the 45 L_{dn} interior standard. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the building must also specify a ventilation or air conditioning system to provide a habitable interior environment.

California Green Building Standards

The 2016 CALGreen establishes interior noise insulation standards for nonresidential occupied buildings, such as offices. CALGreen Section 5.507 “Environmental Comfort,” states the following:

5.507.4.1 Exterior noise transmission. Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite Sound Transmission Class (STC) rating of at least 50 or a composite Outside-Inside Transmission Class (OITC) rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. *Within the 65 CNEL noise contour of an airport*

Exceptions:

1. *L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.*
2. *L_{dn} or CNEL for other airports and heliports for which a land use plan that has not been developed shall be determined by the local general plan noise element.*
3. *Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway notice source as determined by the Noise Element of the General Plan.*

5.507.4.1.1 Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq}-1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance method. For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq} -1Hr) of 50 dB(A) in occupied areas during any hours of operations.

5.507.4.2.1 Site features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the building, addition or alteration project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

California Environmental Quality Act

The CEQA Guidelines Appendix G indicates a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards or causes a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed under the Thresholds of Significance criteria section.

Local

City of Newark General Plan

Chapter 9 “Environmental Hazards”, Table EH-2 in the City of Newark General Plan (Figure 3-5) identifies land use compatibility noise standards for noise-sensitive land uses affected by transportation and non-transportation noise sources. As shown in the table below, the ranges for noise-sensitive single-family residential land uses impacted by noise are as follows:

- “Normally Acceptable” – <60 dB(A) Ldn
- “Conditionally Acceptable” – 55-70 dB(A) Ldn
- “Normally Unacceptable” – 70-75 dB(A) Ldn
- “Clearly Unacceptable” – Higher than 75 dB(A) Ldn

Sites with ambient noise at “conditionally acceptable” levels should be undertaken only after a detailed analysis of the noise reduction requirements is made and after needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh-air supply systems or air conditioning will normally suffice. New construction with exterior noise levels in the “Normally Unacceptable” range are discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

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TABLE EH-2 NOISE COMPATIBILITY GUIDELINES FOR NEWARK

Land Uses	Interior CNEL or L_{dn} (dBA)	Exterior Noise Exposure, CNEL or L_{dn} (dBA)
Residential-Low Density Single-Family, Duplex, Mobile Homes	45*	
Residential-Multiple Family	45*	
Transient Lodging, Motels, Hotels	45*	
Schools, Libraries, Churches, Hospitals, Nursing Homes	45*	
Auditoriums, Concert Halls, Amphitheaters	--	
Sports Arena, Outdoor Spectator Sports	--	
Playgrounds, Neighborhood Parks	--	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	--	
Office Buildings, Businesses, Commercial and Professional	50	
Industrial, Manufacturing, Utilities, Agricultural	--	

Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Normally Unacceptable: New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Clearly Unacceptable: New construction or development generally should not be undertaken.

* Noise level requirement with closed windows, mechanical ventilation, or other means of ventilation shall be provided per Chapter 12 Section 1205 of the Building Code.

Source: State of California General Plan Guidelines, 2003.

Source: Table EH-2, City of Newark General Plan, December 2013

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
3-5

Title
City of Newark Noise Compatibility Guidelines

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The City of Newark General Plan also lists several noise actions and policies relevant to the proposed project:

Goal EH-6: Maintaining Peace and Quiet. Maintain the peace and quiet of Newark neighborhoods and promote an environment where noise does not adversely affect sensitive land uses.

- **Policy EH-6.6: Construction Noise – Regulating Construction Hours.** Reduce noise associated with construction activities by prohibiting construction in residential neighborhoods between the hours of 7 PM and 7 AM Monday through Friday and at all times on Saturdays, Sundays, and State/federal holidays.
- **Policy EH-6.7: Construction Noise – Addressing Sources of Construction Noise.** Reduce noise associated with construction activities by requiring properly maintained mufflers on construction vehicles, requiring the placement of stationary construction equipment as far as possible from developed areas, and requiring temporary acoustical barriers/shielding to minimize construction noise impacts at adjacent receptors. Special attention should be paid to noise-sensitive receptors (including residential, hospital, school, and religious land uses).

Goal EH-7: Design of New Structures. Ensure that new structures/uses are designed and constructed to preclude excessive, inappropriate, and undesirable noise effects.

- **Policy EH-7.1: Land Use Planning and Noise Compatibility.** Use the noise compatibility guidelines in Table EH-2 and the future-conditions noise contour map in Figure EH-4 to plan for appropriate land uses near existing uses that generate noise. Noise mitigation should be included to ensure that new residential areas and other noise-sensitive uses are appropriately buffered from significant noise sources.
- **Policy EH-7.2: Noise Compatibility Strategies.** Where land use noise compatibility conflicts currently exist, explore the need for mitigation measures on noise sources that may adjacent to sensitive receptors. In planning for future developments, promote the use of buffer zones, barrier/shielding measures, and/or sound isolation building techniques to preclude noise impacts to noise-sensitive land uses.
- **Policy EH-7.3: Reducing Exposure to Operation Noise.** In new residential and mixed-use developments, require that stationary equipment (such as air conditioning units and condensers) be placed in separate spaces, rooftops, or other areas such that noise impacts to interior living areas will be reduced. Similarly, potentially noisy common spaces, such as trash collection areas and loading zones, should be located away from residential units or other noise-sensitive spaces.
- **Policy EH-7.4: Residential Noise Standard – Exterior.** Plan for and implement strategies to maintain exterior noise levels that are consistent with the noise compatibility guidelines in Table EF-2. For residential areas, this limit is 60 dB(A) Ldn for outdoor living areas. Where this level is exceeded due to freeways, arterials, and/or railroads, the construction of berms, walls, buffer zones, and other noise-reduction measures to reduce noise to the greatest extent feasible will be required.

- **Policy EH-7.5: Residential Noise Standard - Interior.** Use site planning and architectural design to protect occupants of new buildings from excessive noise, per California State Noise Insulation Standards (CCR Title 24) and Chapter 35 of the Uniform Building Code. For example, site planning should place bedrooms and other noise-sensitive rooms away from exterior noise sources and architectural design should use double-paned windows and other insulating measures to reduce interior noise.

- **Policy EH-7.6: New Noise Sources.** Require new developments that have the potential to create long-term noise increases to mitigate potential impact to off-site receptor properties.

- **Policy EH-7.7: Acoustical Study Requirement.** Require acoustical studies for new developments in areas where the noise levels exceed the "normally acceptable" levels for the proposed land use; based on Table EH-2. For residential uses, the analysis should include mitigation measures to limit the noise exposure in interior living spaces to 45 dB(A) Ldn, consistent with California Title 24.

  Acoustical studies should have the following minimum attributes:

  - Be the responsibility of the development applicant.
  - Be prepared by qualified persons experienced in the field of environmental noise assessment and architectural acoustics.
  - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe existing local conditions.
  - Include estimates for existing and projected (20 years hence) noise levels in terms of (a) Ldn or CNEL and (b) any future noise regulations to be adopted by the City. Those existing and projected noise levels shall be compared to the adopted policies of the Noise Element.
  - Include recommended mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report should address the effects of maximum noise levels in sleeping rooms and potential sleep disturbance issues.
  - Include estimates for interior and exterior noise exposure after the prescribed mitigation measures have been implemented.
  - Describe a post-project assessment program that could be used to evaluate the effectiveness of the proposed mitigation measures.

- **Action EH-7.A: Noise Mitigation.** Use the development review process to ensure that noise impacts are mitigation through setbacks/buffer zones, earthen berms, sound walls, building siting/orientation, and other means.

- **Action EH-7.B: Conditional Use Permits.** Use the development review process, including conditional use permits, to limit activities which would generate high levels of noise during nighttime hours (i.e., from 7 PM to 7 AM).

City of Newark Municipal Code

Section 17.24.100 "Noise" in the City of Newark Municipal Code addresses noise as follows:

A. *Noise Limits. It shall be unlawful for any person to disturb the peace, quiet, and comfort of the community, or any portion thereof, or neighborhood therein, by creating or causing to be created any unreasonable noises.*

   1. *Applicability. The provisions of this subsection apply to noises from all sources within the city except the following:*

      a. *Alarms and Warning Devises: Aural alarms or warning devices, including but not limited to fire alarms, burglar alarms, and emergency vehicle sirens and air horns. However, if a standard or minimum noise level is prescribed for particular type of aural alarm or warning device by the laws or regulations of the State of California, the noise emitted from such alarm or warning device shall not exceed such standard or minimum level by more than three dBA.*

      b. *Emergency Response Activities: Noise from emergency response activities.*

      c. *Events at Which No Mechanical or Amplifying Equipment is Employed: Noise from events conducted lawfully and without the use of sound of any kind that is mechanically produced or amplified or focused by any means.*

      d. *Audio Equipment Used by Public Safety Officers: Noise from audio equipment used or operated by public safety officers in the performance of their duties.*

      e. *Generators Required for Medical Purposes or During Power Outages: Noise from generators required for medical purposes or during power outages.*

      f. *Permitted for Temporary Uses or Activities: Specific uses or activities for which a temporary exemption was granted through a conditional use permit, minor use permit, or other permit or authorization granted by the city.*

   2. *Noise Restriction by Decibel.*

      a. *Residential Property Noise Limits.*

         i. *No person shall produce or allow to be produced by human voice, machine, device, or any combination of same, on residential property, a noise level at any point outside of the property plane that exceeds 70 dBA between the hours of 7:00 a.m. and 9:00 p.m. or 60 dBA between the hours of 9:00 p.m. and 7:00 a.m.*

         ii. *No person shall produce or allow to be produced by human voice, machine, device, or any combinations of same, on multifamily residential property, a noise level more than 60 dBA three feet from any wall, floor, or ceiling inside any dwelling unit on the same property, when the windows and doors of the dwelling unit are closed, except within the dwelling unit in which the noise source or sources may be located.*

b. *Commercial and Industrial Property Noise Limits. Except for commercial and industrial property abutting residential property, no person shall produce or allow to be produced by human voice, machine, device, or any other combination of same, on commercial or industrial property, a noise level at any point outside of the property plane that exceeds 70 dBA.*

i. *Abutting Residential Property. Commercial and industrial property that abuts residential property shall be subject to the residential property noise limits set forth in subsections (a)(i) and (ii) above.*

c. *Public Property Noise Limits. Except as otherwise provided in these regulations, no person shall produce or allow to be produced on public property, by human voice, machine, device, or any combination of same, a noise level that exceeds 60 dBA at a distance of 25 feet or more from the source. Noise from activities of the City of Newark is exempted from these regulations.*

3. *Construction and Landscaping Activities. Unless otherwise provided pursuant to a duly-issued permit or a condition of approval of a land use entitlement, the construction, alteration, or repair of structures and any landscaping activities, occurring between the hours of 10:00 a.m. and 6:00 p.m. on Sundays and holidays, and 7:00 a.m. and 7:00 p.m. on other days, shall be subject to the following:*

a. *No individual device or piece of equipment shall produce a noise level exceeding 83 dBA at a distance of twenty-five feet from the source. If the device or equipment is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close as possible to twenty-five feet from the equipment.*

b. *The noise level at any point outside of the property plane shall not exceed 86 dBA. During all other times, the decibel levels set forth in Subsection 17.24.100.A.2, Noise Restriction by Decibel, control.*

B. *Noise Creation and Noise Exposure.*

1. *Acoustic Study. An acoustic study shall be required for any proposed project which could create or be subject to a noise exposure greater than that deemed "normally acceptable" by the general plan.*

2. *Noise Attenuation Measures. Any project subject to the acoustic study requirements of Subsection 17.24.100.A.1, Acoustic Study, may be required as a condition of approval to incorporate noise attenuation measures deemed necessary to ensure that noise standards are not exceeded.*

a. *New noise-sensitive uses (e.g., schools, hospitals, churches, and residences) shall incorporate noise attenuation measures to achieve and maintain an interior noise level of 45 dBA.*

b. *Noise attenuation measures identified in an acoustic study shall be incorporated into the project to reduce noise impacts to satisfactory levels.*

c. *Emphasis shall be placed upon site planning and project design measures. The use of noise barriers shall be considered and may be required only after all feasible design-related noise measures have been incorporated into the project.*

3.13.3 Environmental Impacts

This section analyzes the project's potential to result in significant noise impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

Results from the HELIX Environmental Planning, Inc. site measurements were used to provide baseline noise conditions at nearby sensitive receptors and within the project site vicinity. For the purpose of this analysis, potential sensitive receptors were determined by reviewing current aerial photography and from notes from HELIX Environmental Planning, Inc.

Impacts from future project-related traffic were estimated using predicted traffic counts from the traffic volumes provided by HELIX Environmental Planning, Inc. and Fehr & Peers, 2021.

Noise from the Project's mechanical systems would operate regularly and are therefore required to comply with the requirements listed in Section 17.24.100 "Noise" in the City of Newark Municipal Code.

The Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) was used to estimate the impact from short-term construction activities. The RCNM is used as the FHWA's national standard for predicting noise generated from construction activities. The RCNM analysis includes the calculation of noise levels at a defined distance for a variety of construction equipment. The spreadsheet inputs include acoustical use factors and distance to receptors and calculates the expected Lmax values and Leq values at a selected receptor.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's noise impacts are significant. Would the proposed project result in:

- Generation of a substantial temporary or permanent increase in the ambient noise levels in the vicinity of the project noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- Generation of excessive groundborne vibration or groundborne noise levels?
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

EPA Guidelines

The EPA has established guidelines (EPA 1978) for assessing the impact of an increase in noise levels. These guidelines have been used for several years as industry standards to determine the potential impact of noise increases on communities. Most people will tolerate a small increase in background noise (up to about 5 dB(A)) without complaint, especially if the increase is gradual over a period of years (such as from gradually increasing traffic volumes). Increases greater than 5 dB(A) may cause complaints and interference with sleep. Increases above 10 dB(A) (heard as a doubling of judged loudness) are likely to cause complaints and should be considered a serious increase. Table 3.7-7 defines each of the traditional impact descriptions, their quantitative range, and the qualitative human response to changes in noise levels.

Table 3.13-7: EPA Impact Guidelines

Increase over Existing or Baseline Sound Levels	Impact Per EPA Region Guidelines	Qualitative Human Perception of Difference in Sound Levels
0 dB to 5 dB	Minimum impact	Imperceivable or Slight difference
6 dB to 10 dB	Significant impact	Significant Noticeable difference—complaints possible
Over 10 dB	Serious impact	Loudness changes by a factor of two or greater. Clearly audible difference—complaints likely

Notes:
dB = decibels
EPA = U.S. Environmental Protection Agency

Project Impact Analysis and Mitigation Measures

Noise Levels in Excess of Standards

Impact NOI-1 **The proposed project could result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

Impact Analysis

Exterior Traffic Noise Level Impacts

Traffic noise depends primarily on vehicle speed (tire noise increases with speed), proportion of medium and large truck traffic (trucks generate engine, exhaust, and wind noise in addition to tire noise), and number of speed control devices, such as traffic lights and stop signs (accelerating and decelerating vehicles and trucks can generate more noise).

Changes in traffic volumes can also have an impact on overall traffic noise levels. For example, it takes 25 percent more traffic volume to produce an increase of only 1 dB(A) in the ambient noise level. For roads already heavy with traffic volume, an increase in traffic numbers could even reduce noise because the heavier volumes could slow down the average speed of the vehicles. A doubling of traffic volume results in a 3 dB(A) increase in noise levels. Typically, a 6 dB increase or more over baseline or existing sound levels would be considered a significant impact.

To describe future noise levels due to traffic added from the proposed project, existing and 2040 peak hour existing traffic volumes (with and without the Project) listed in the traffic study, provided in Appendix H, were used to determine the percentage increase of traffic on the roads adjacent to the Project site and nearby sensitive receptors.

Tables 3-13.8 and 3-13.9 shows the peak hour counts associated with traffic on the local roadway network under the existing and existing plus project traffic conditions. The last columns in the table show the overall percentage change and the estimated difference in peak hour noise level in dB(A).

Table 3.13-8: Traffic Peak Hour Counts and Estimated Noise Increase - Existing

Roadway Section	Existing Peak Hour Traffic Count	Existing Peak Hour Traffic Count with Project	Percentage Change	Estimated dB(A) Change
Mowry Avenue				
Project to Cherry St.	414	561	35.5%	1.4
Cherry St to Cedar Blvd	1556	1630	4.8%	0.2
Cedar Blvd to Alpenrose Ct	2171	2245	3.4%	0.1
Alpenrose Ct to I-880	2763	2825	2.2%	0.1
Cherry Street				
Central Ave to Mowry Ave	2694	2731	1.4%	0.1
Mowry Ave to Stephenson Blvd	2210	2246	1.6%	0.1

Table 3.13-9: Traffic Peak Hour Counts and Estimated Noise Increase - 2040

Roadway Section	2040 Peak Hour Traffic Count	2040 Peak Hour Traffic Count with Project	Percentage Change	Estimated dB(A) Change
Mowry Avenue				
Project to Cherry St.	640	787	23.0%	0.9
Cherry St to Cedar Blvd	2560	2634	2.9%	0.1
Cedar Blvd to Alpenrose Ct	3490	3564	2.1%	0.1
Alpenrose Ct to I-880	4280	4342	1.5%	0.1
Cherry Street				
Central Ave to Mowry Ave	4420	4457	0.8%	0.03
Mowry Ave to Stephenson Blvd	3960	3996	0.9%	0.04

The project is expected to minimally increase traffic counts along all roads around the project site. There will be essentially no change in traffic noise (1.4 dB(A) or less) expected along these streets. Therefore, the proposed project should not cause increased traffic noise levels over the baseline conditions at the neighboring sensitive receptors, and this would be a less than significant impact.

Interior Traffic Noise Level Impacts

***Note –** In accordance with the CBIA v. BAAQMD CEQA case law, the effect of the environment on the project is not generally a CEQA consideration, unless the project would exacerbate an existing condition. Although this issue is not a CEQA impact, it is a consideration for the City in determining project approval.*

The California Building Code states that the interior noise levels attributable to exterior sources shall not exceed 45 dB(A) in any habitable room. The needed sound isolation requirements of a building's exterior façade system would be dependent on the following conditions:

- The dimension of the rooms with exterior windows
- The finishes within the rooms
- The ratio of clear glass to solid wall in the exterior wall assembly
- The exterior solid wall construction

Modern construction with punch windows typically provides a 25 dB(A) exterior-to-interior noise level reduction with windows closed. Therefore, sensitive receptors exposed to exterior noise levels of 70 dB(A) Ldn or less would typically comply with the required interior noise level standard as stated in the California Building Code. Modern construction using window walls, curtainwalls, or a high ratio of exterior clear glass would provide less reduction with the windows closed. Buildings using a large amount of glass are required to comply with the required interior noise level standard as stated in the California Building Code if exposure to exterior noise levels of 67 dB(A) Ldn or less is anticipated.

According to Policy EH-7.7 in the City of Newark General Plan, a project-specific acoustical analysis shall be completed at the time detailed development plans are prepared to determine appropriate mitigation to reduce interior noise levels to 45 dB(A) Ldn and include ways to incorporate such mitigation into the project design and implementation. Appropriate mitigation incorporated into the project design and implementation include measures such as, but not limited to, sound rated windows and doors, sound rated wall construction, acoustical caulking, and protected ventilation openings, Therefore, the proposed project would be required to implement Mitigation Measure NOI-1 which requires the preparation of a project-specific acoustical analysis to determine necessary noise control treatments. With the implementation of Mitigation Measure NOI-1, the impact of traffic noise on the interior of the residential units would be less than significant.

Train Noise

***Note –**Again, in accordance with the CBIA v. BAAQMD CEQA case law, the effect of the environment on the project is not generally a CEQA consideration, unless the project would exacerbate an existing condition. It would be difficult to argue that the project would result in more train traffic (and more train noise) on the UPRR tracks near the project site. Although this issue is not a CEQA impact, it is a consideration for the City in determining project approval. A preliminary analysis was completed to* *determine if noise from the UPRR track would result in exterior and interior noise levels above the City standards for future project residences.*

As noted from the studies by HELIX Environmental Planning, Inc., the UPRR tracks, approximately 300 feet north of the project site, carry freight trains and passenger trains for the Amtrak Capitol Corridor and Coast Starlight routes as well as the ACE route. The intersection of the UPRR tracks and Mowry Avenue is an “at-grade crossing.” Trains approaching an at-grade crossing are required to sound their warning horns 15 to 20 seconds before reaching the crossing, but not more than 1,320 feet (0.25 mile) before the crossing. In addition, the at-grade crossing is equipped with an audible warning device when the roadway barriers are lowered.

The schedule for passenger rail on UPRR tracks between the cities of Fremont and San Jose (passing the project site) in 2019 (prior to reduction in service due to the pandemic in 2020 and 2021) was 24 trains per weekday, with 22 trains scheduled in the hours between 7:00 A.M. and 10:00 P.M., and 2 trains scheduled in the hours between 5:00 A.M. and 7:00 A.M. For national security reasons, neither the Federal Railroad Administration (FRA) nor the UPRR disclose freight train schedules or counts. A reasonable assumption for the average daily mix of traffic on the UPRR tracks is 24 passenger trains and 6 freight trains.

The FTA provides a spreadsheet that can be used to model the noise impacts from railroad traffic, including at-grade crossing warning horns and barrier alarms (FTA 2018). Based on an assumption of passenger trains averaging one diesel electric locomotive and six cars traveling at 50 mph, and freight trains averaging two diesel electric locomotives and 25 cars traveling at 40 mph, the predicted noise at the measurement location would be 74.4 dBA LDN, or 4.4 dBA above the measured level. Calibrating the model by subtracting 4.4 dBA from the results, the predicted noise level at the project residential lot closest to the UPRR tracks (lot 204, 300 feet from the tracks) would be 63.0 dB(A) Ldn (the FTA Transit Noise Assessment Model output is included in Appendix G). This would exceed the City residential standard of 60 dB(A) Ldn for exterior spaces.

Implementation of Mitigation Measure NOI-1 to require an acoustical study once the building shapes, orientations, and locations are known and to implement any design feature recommended by the study would reduce noise levels for project residences to levels at or below the City standards.

Salt Harvest Noise

The seasonal harvesting of salt from the crystallization beds across Mowry Avenue from the project site is typically completed using tractors, graders, and loaders. The noise from salt harvesting equipment would typically only last a few weeks per year and equipment use would be intermittent and would not be concentrated on the east side of the salt beds near Mowry Avenue and the project site. Therefore, future residents of the project would not be exposed to noise in excess of the City standards as a result of exiting salt harvesting operations.

Proposed Project Fixed-Source Noise

Typical single-family residential building construction would commonly involve new mechanical equipment, such as air conditioning units and exhaust fans. This equipment would generate noise that would radiate to neighboring properties. The noise from this equipment would be obliged to comply with the maximum noise level limits listed in Section 17.24.100, Paragraph A.2.a in the City of Newark Municipal Code.

When the actual on-site equipment is selected, in accordance with Mitigation Measure NOI-2, a noise analysis will be prepared by a qualified acoustical engineer and the equipment would be designed to incorporate measures as needed, such as shielding, barriers, and/or attenuators to reduce noise levels that may affect nearby properties. Noise levels from the project's fixed-source equipment at any point outside of the property plane will not exceed 70 dB(A) between the hours of 7:00 A.M. and 9:00 P.M. or 60 dB(A) between the hours of 9:00 P.M. and 7:00 A.M.

Therefore, with the requirements listed in Section 17.24.100, Paragraph A.2.a (as noted in Mitigation Measure NOI-2), the impact of fixed-source noise to the neighboring properties would be less than significant.

Short-term Construction and Remediation Noise Impacts

Two types of short-term noise impacts could occur during construction and remediation. The first type of short-term noise impact is traffic noise from construction and remediation crew vehicular commutes on the access roads leading to and from the project site. Trucks hauling material or debris to and from the project site would primarily travel along Mowry Avenue from the project site to I-880, approximately 1.2 miles north. Mowry Avenue has residential land uses on both side of the road. There are no alternate haul routes that would not pass by residential neighborhoods. Haul trucks associated with the project's remediation and construction activities could result in a temporary increase in traffic noise on Mowry Avenue in excess of the City standard of 60 dBA LDN and would be a potentially significant impact. As required by General Plan Policies EH-6.6 and EH-6.7, noise associated with construction activities are prohibited to certain hours and sources of construction noise are required to be addressed. The proposed project would comply with General Plan Policies EH-6.6 and EH-6.7 through implementation of Mitigation Measure NOI-3. Mitigation Measure NOI-3 would restrict construction and remediation to the hours between 7:00 A.M. and 6:00 P.M., Monday through Friday; and between 8:00 A.M. and 5:00 P.M. on Saturdays; and no construction would be permitted on Sundays and holidays. Therefore, with implementation of Mitigation Measure NOI-3, construction and remediation traffic from the proposed project would not result in a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the City General Plan, and impacts would be less than significant.

The second type of short-term noise impact is related to noise generated during construction and remediation. Each construction stage, including remediation activities, has its own mix of equipment, and consequently, its own noise characteristics. The various construction operations would change the character of the noise generated at the project site and therefore, the noise level as construction progresses. The loudest stages of construction typically involve earthmoving and grading equipment.

The construction of the proposed project would be conducted in thirteen (13) stages and each stage will use different construction equipment. Remediation activities are included within the thirteen construction stages identified below. The main types of noise-producing equipment for each construction stage are shown in Table 3.13-10.

Table 3.13-10: Construction Stage Equipment

Construction Stage	Construction Equipment	
Pick-n-Pull Inventory Removal	Crane Concrete/Industrial Saw	Excavators (3) Rubber Tired Dozers (2)
Demolition	Concrete/Industrial Saw Excavators (3)	Rubber Tired Dozers (2)
Mobilization	Crane	Tractor
Remedial Soil Cleanup	Excavator Water Truck	Rubber Tired Dozer Front End Loader
Grading	Excavators (2) Grader Water Truck Rubber Tired Dozer	Scrapers (2) Tractor Front End Loader
Underground Utilities	Crane Excavators (2) Water Truck	Rubber Tired Dozer Tractor Front End Loader
Jack and Bore Preparation	Crane Excavator	Skid Steer Loader Tractor
Jack and Bore	Bore/Drill Rig Crane	Excavator Pump
Jack and Bore Cleanup	Crane Skid Steer Loader	Tractor
Off-Site Street Improvements	Pavers (2) Paving Equipment (2)	Rollers (2) Pavement Scarafier
Paving	Pavers (2) Paving Equipment (2)	Rollers (2)
Building Construction	Crane Forklifts (3) Generator	Tractor Front End Loader Backhoe
Architectural Coating	Air Compressor	

Table 3.13-11 lists the types of construction equipment and the maximum and average operational noise level as measured at 1,000 feet from the operating equipment. The 1,000-foot distance represents the approximate closest distance between the project site and the closest receptor at the Silliman Community Center.

Table 3.13-11: Federal Highway Administration Roadway Construction Noise Model Source Noise Levels

Construction Equipment Source at the Project Site	Distance to Nearest Sensitive Receptor	Sound Level at Receptor		
		Lmax, dB(A)	Acoustical Use Factor (%)	Leq, dB(A)
Backhoe	1,000 feet	51.5	40	47.6
Compressor (air)	1,000 feet	51.6	40	47.7
Concrete/Industrial Saw	1,000 feet	63.6	20	56.6
Crane	1,000 feet	54.5	16	46.6
Dozer	1,000 feet	55.6	40	51.7
Drill Rig Truck	1,000 feet	53.1	20	46.1
Excavator	1,000 feet	54.7	40	50.7
Forklift	1,000 feet	57.4	40	53.4
Front End Loader	1,000 feet	53.1	40	49.1
Generator	1,000 feet	54.6	50	51.6
Grader	1,000 feet	59.0	40	55.0
Pavement Scarafier	1,000 feet	63.5	20	56.5
Paver and Paving Equipment	1,000 feet	51.2	50	48.2
Pumps	1,000 feet	54.9	50	51.9
Roller	1,000 feet	54.0	20	47.0
Scraper	1,000 feet	57.6	40	53.6
Skid Steer Loader	1,000 feet	53.1	40	49.1
Tractor	1,000 feet	58.0	40	54.0
Water Truck	1,000 feet	50.5	40	46.5

Notes:
Source: Federal Highway Administration Road Construction Noise Model v1.1 2018

A worst-case condition for construction activity would assume all noise-generating equipment were operating at the same time and at the same distance from the closest noise-sensitive receptor. Using this assumption, the RCNM program calculated the following combined Leq and Lmax noise levels from each stage of construction as shown in Table 3.13-12.

Table 3.13-12: Calculated Noise Level from Each Construction Stage

Construction Phase	Distance to Closest Noise Sensitive Receptor	Calculated Maximum Sound Level, dB(A)	Calculated Equivalent Sound Level, dB(A)
Pick-n-Pull Inventory Removal	1,000 feet	66.2	60.6
Demolition	1,000 feet	65.9	60.4
Mobilization	1,000 feet	59.6	54.7

Construction Phase	Distance to Closest Noise Sensitive Receptor	Calculated Maximum Sound Level, dB(A)	Calculated Equivalent Sound Level, dB(A)
Remedial Soil Cleanup	1,000 feet	59.9	55.9
Grading	1,000 feet	65.8	61.9
Underground Utilities	1,000 feet	63.4	59.1
Jack and Bore Preparation	1,000 feet	61.5	57.0
Jack and Bore	1,000 feet	60.4	55.6
Jack and Bore Cleanup	1,000 feet	60.5	55.8
Off-Site Street Improvements	1,000 feet	65.1	59.1
Paving	1,000 feet	60.1	55.6
Building Construction	1,000 feet	65.0	60.9
Architectural Coating	1,000 feet	51.6	47.7

Noise levels from construction and remediation should be within the “Normally Acceptable” land use compatibility range for residential properties as defined by the City of Newark General Plan and increases in noise levels from construction activity would be temporary. All construction activities at the site would follow the requirements listed in Mitigation Measure NOI-3.

In conclusion, construction and remediation noise would be short-term and intermittent. Furthermore, implementation of the Mitigation Measure NOI-3 and compliance with hours restrictions as dictated by the City would reduce construction and remediation noise to the closest noise-sensitive receptors to the extent feasible. Therefore, impacts from construction and remediation noise would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

MM NOI-1: **Project-Specific Acoustical Study.** A project-specific acoustical analysis shall be completed at the time detailed development plans are prepared, so that the design of the residential units would be sufficient to adequately reduce interior noise level to 45 dBA Ldn or lower. Building sound insulation requirements shall include the provision of forced-air mechanical ventilation for all new unit with direct line of sight to significant transportation noise sources or railroad lines in the project vicinity. Special building sound insulation treatment may be required. These treatments shall include, but are not limited to, sound rated windows and doors, sound rated wall construction, acoustical caulking, protected ventilation openings, etc. The specific determination of what treatments are necessary shall be determined on a unit-by-unit basis. The results of the analysis, including the description of the necessary noise control treatments to achieve the acceptable noise levels inside the living units, shall be submitted to the City along with building plans and shall be reviewed and approved by the Community Development Director prior to the issuance of a building permit.

The project-specific acoustical study shall have the following minimum attributes:

- Be the responsibility of the development applicant.
- Be prepared by qualified persons experienced in the fields of environmental noise assessment ad architectural acoustics.
- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe existing local conditions.
- Include estimates for existing and projected (20 years hence) noise levels in terms of (a) Ldn or CNEL and (b) any future noise regulations to be adopted by the City. Those existing and projected noise levels shall be compared to the adopted policies of the Newark General Plan Noise Element.
- Include recommended mitigation measures to achieve compliance with the adopted policies and standards of the Newark General Plan Noise Element. Where the noise source in question consists of intermittent single events, the report should address the effects of maximum noise levels in sleeping rooms and potential sleep disturbance issues.
- Include estimates for interior and exterior noise exposure after the prescribed mitigation measures have been implemented.
- Describe a post-project assessment program that could be used to evaluate the effectiveness of the proposed mitigation measures.

MM NOI-2: **Project Fixed-Source Noise.** The noise from all mechanical equipment associated with the project, including air conditioning units, shall comply with the requirements in Section 17.24.100, Paragraph A.2.a in the Newark Municipal Code. When the actual on-site equipment is selected, a noise analysis shall be prepared by a qualified acoustical engineer and the equipment shall incorporate measures as needed, such as shielding, barriers, and/or attenuators to reduce noise levels that may affect nearby properties, including adjacent homes. Noise levels from the project’s fixed-source equipment at any point outside of the property plane will not exceeds 70 dB(A) between the hours of 7:00 A.M. and 9:00 P.M. or 60 dB(A) between the hours of 9:00 P.M. and 7:00 A.M.

MM NOI-3: **Construction Activity.** All construction and remediation activity shall follow the City’s time and noise reduction measure requirements for construction activity. Development of the project site shall include the following construction-noise mitigation measures, to reduce noise impacts from project construction to a less than significant level.

- Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours of 7:00 A.M. to 6:00 P.M., Monday through Friday, and between 8:00 A.M. to 5:00 P.M. on Saturdays. Construction shall be prohibited on Sundays and holidays.

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Unnecessary idling of internal combustion engines shall be strictly prohibited.
- Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors.
- Construct temporary noise barriers to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA.
- Utilize “quiet” air compressors and other stationary noise sources where technology exists.
- Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction related heavy truck traffic in residential areas where feasible.
- Control noise from construction workers’ radios to a point where they are not audible at existing residences bordering the project site.
- The contractor shall prepare and submit to the City for approval a detailed construction plan identifying the schedule for major noise-generating construction activities.
- Designate a “disturbance coordinator” who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include in it the notice sent to neighbors regarding the construction schedule.

Level of Significance After Mitigation
Less Than Significant with Mitigation.

Excessive Groundborne Vibration

Impact NOI-2	The proposed project would not result in generation of excessive groundborne vibration or groundborne noise levels.

Impact Analysis
During construction of the proposed project, equipment such as trucks, bulldozers, and rollers may be used as close as 1,000 feet from the nearest sensitive receptor at the Silliman Community Center. Equipment used during project construction could generate vibration levels between 0.00001 PPV and 0.0008 PPV at 1,000 feet, as shown below in Table 3.13-13. All the groundborne vibration levels are below the FTA vibration threshold at which human annoyance could occur of 0.10 PPV. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working

hours. Therefore, construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors. As such, implementation of the project would have a less than significant impact related to vibration.

Table 3.13-13: Vibration Source Levels for Construction Equipment

Type of Equipment	Peak Particle Velocity at 1,000 Feet	Threshold at which Human Annoyance Could Occur	Potential for Proposed Project to Exceed Threshold
Large Bulldozer	0.0004	0.10	None
Loaded Trucks	0.0003	0.10	None
Caisson Drilling	0.0004	0.10	None
Small Bulldozer	0.00001	0.10	None
Vibratory Roller	0.0008	0.10	None

Source: Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (FTA 2018)

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Airport Land Use Plan

Impact NOI-3	**For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the proposed project would not expose people residing or working in the project area to excessive noise levels.**

Impact Analysis
The closest airport or private airstrip to the project site is the Moffett Federal Airport, approximately 6.5 miles southwest of the project. The project site is not within the airport influence area, or the 65 dBA CNEL noise contour for Moffett Federal Airport (Santa Clara County 2018). Commercial aircraft overfly the project site at altitudes between 4,000 and 10,000 feet above sea level while approaching or departing the three major commercial airports in the Bay Area: the San Francisco International Airport (approximately 20 miles northwest); the Oakland International Airport (approximately 17 miles northwest); and the Norman Mineta San Jose International Airport (approximately 10 miles southeast). According to the noise exposure maps for the three airports, the project site in not within the 65 dBA CNEL contour for any of the airports (San Francisco 2015; Port of Oakland 2006; San Jose 2020). Therefore, the project would not expose people residing or working in the project area to excessive noise levels from airports, and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

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3.14 POPULATION AND HOUSING

This section describes the environmental and regulatory setting for population and housing. It also describes existing conditions and potential impacts related to population and housing that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.14.1 Environmental Setting

Population Trends

Historic Growth

Newark went from a small town to a city during the 1960s and continued to grow through the 1970s, 1980s, and the 1990s at slightly declining rates. There were no significant gains in population between 2000 and 2009. The population of Newark grew by approximately 18 percent between 1970 and 1980 and grew by an additional 18 percent between 1980 and 1990. Population between 1990 and 2000 grew by approximately 12 percent, however, between 2000 and 2010, the population increased by only 0.8 percent. After 2010, the rate of population growth increased again, and the population of Newark grew by 11.3 percent between 2010 and 2020. The City's historic population growth between 1990 and 2022 is summarized in Table 3.14-1.

Table 3.14-1: Newark Historic Population Growth

Year	Population	Change from Previous (Percent)
1990	37,861	--
1995	39,213	3.6
2000	42,250	7.7
2005	42,524	0.6
2010	42,592	0.2
2015	44,426	4.3
2020	47,414	6.7
2022	47,229	-0.4

Source: DOF 2007, 2012, 2022a, 2022b
Population provided in this table are estimates and may be different from the census count.

Current and Projected Population

According to the City's General Plan Housing Element, the City had a population of 42,327 in 2010 (City of Newark 2015a). Since 2010, the City's population is estimated to have increased by 10.9 percent to 47,229 people in 2022 (DOF 2022b). By the year 2030, the City's population is expected to increase to approximately 52,100 people (City of Newark 2015a).

According to the ABAG's Projection 2040 and as outlined in Table 3.14-2, the population of Newark is projected to increase to 47,720 by the year 2040 (ABAG 2018). This would represent a one percent increase from the current 2022 estimated population of Newark. The City's General Plan Housing

Element based its population estimates using the ABAG Projections 2013 which is superseded by ABAG Projections 2040 which was adopted in 2018.

Table 3.14-2: ABAG Projections 2040

Year	Population	Change from Previous (Percent)
2025	45,355	--
2030	45,990	1.4
2035	46,355	0.79
2040	47,720	3.0

Source: ABAG 2018

Housing Trends

Housing Units and Average Household Size

The reported number of housing units in the City in 1990 was 12,284 units. The City's housing growth increased at a rate of approximately seven percent between 1990 and 2000. The housing growth rate significantly slowed down between the years 2005 and 2015 with the number of housing units increasing by less than one percent during the 10 year period. The rate of growth increased again to approximately 14.5 percent between 2015 and 2020. The City's housing growth between 1990 and 2022 is summarized in Table 3.14-3.

Table 3.14-3: Newark Historic Housing Units Growth

Year	Housing Units	Change from Previous (Percent)
1990	12,284	--
1995	12,635	2.9
2000	13,123	3.9
2005	13,409	2.2
2010	13,414	0.04
2015	13,421	0.05
2020	15,371	14.5
2022	15,811	2.9

Source: DOF 2007, 2012, 2022a, 2022b

According to the City's General Plan Housing Element, Newark's average household size was 3.28 persons per household in 2010 (City of Newark 2015a). The Department of Finance (DOF) E-5 Population and Housing Estimates for Cities, Counties and the State estimated that the total housing in Newark, as of January 1, 2022, to be 15,811 units with an average household size of 3.07 persons per household. Additionally of the 15,811 existing units, approximately 15,329 housing units were occupied, resulting in a 3.0 percent housing vacancy rate (DOF 2022b).

Regional Housing Need Allocation

ABAG prepared the RHNA to allocate regional housing growth among different jurisdictions. The RHNA is the state-mandated process to identify the total number of housing units (by affordability level) that each jurisdiction must accommodate in its Housing Element for an eight year period. The RHNA indicated that the City is expected accommodate 1,078 new housing units within the four income levels between 2015 and 2023. Table 3.14-4 summarizes the regional housing needs allocation by income category. It indicates that approximately 54 percent of the housing need will be moderate to upper-income households, and 46 percent will be very low to low income households (ABAG 2013).

Table 3.14-4: Housing Need Allocation

Jurisdiction	Very Low Income (<50% of Area Median Income)	Low Income (50-80% of Area Median Income)	Moderate Income (80-120% of Area Median Income)	Above Moderate Income (> 120% of Area Median Income)	Total
Newark	330	167	158	423	1,078

Source: ABAG 2013

Employment Trends

According to the City's Housing Element, Newark was originally a railroad and manufacturing center. During the 1960s, Newark experienced a boom in housing construction and a 174 percent increase in population and became a community for people commuting to jobs outside of the City. Growth of industry and business from the 1970s onward created more jobs within the City and between 1990 and 2000, the number of jobs in the manufacturing and service sectors more than doubled (City of Redwood City 2015a).

According to the General Plan Housing Element, ABAG projected a 22 percent increase in jobs in Newark between 2010 and 2035. Agricultural and mining jobs in the City have disappeared altogether, and the projections show that will continue to be the case. Retail, manufacturing, and wholesale jobs are anticipated to increase slightly, but most new jobs are anticipated to be in the service sector. According to the General Plan Housing Element, the City's active labor force was approximately 23,706 total persons in 2012 and is projected to increase to 23,350 by 2030. According to the Employment Development Department's (EDD) Monthly Labor Force Data for Cities and Census Designated Places, in December 2021, Newark had a total labor force of 24,700 people with 23,900 employed people and 900 people unemployed which results in a 3.6 percent unemployment rate (EDD 2022).

The City's General Plan Housing Element includes ABAG's employment projections from 2010 through 2030. The Housing Element projected that the City's jobs would increase by 21 percent from 17,930 in 2010 to 21,720 by 2030 (City of Newark 2015a).

3.14.2 Regulatory Setting

State

California Housing Element Law

The state law requires each city and county to adopt a general plan for future growth. This plan must include a housing element that identifies housing needs for all economic segments and provides opportunities for housing development to meet that need. At the state level, Department of Housing and Community Development (HCD) estimates the relative share of California's projected population growth that would occur in each county in the state, based on DOF population projections and historic growth trends. Where there is a regional council of governments, HCD provides the regional housing need to the council. The council then assigns a share of the regional housing need to each of its cities and counties. The process of assigning shares provides cities and counties the opportunity to comment on the proposed allocations. HCD oversees the process to ensure that the council of governments distributes its share of the state's projected housing need.

Each city and county must update its general plan housing element on a regular basis (approximately every five years). Among other things, the housing element must incorporate policies and identify potential sites that would accommodate a county's share of the regional housing need. Before adopting an update to its housing element, a city or county must submit the draft to HCD for review. HCD will advise the local jurisdiction whether its housing element complies with the provisions of California Housing Element Law.

The councils of government are required to assign regional housing shares to the cities and counties within their region on a similar five-year schedule. At the beginning of each cycle, HCD provides population projections to the councils of government, which then allocate shares to their cities and counties. The shares of the regional need are allocated before the end of the cycle so that the cities and counties can amend their housing elements by mandated deadlines.

Local

Association of Bay Area Governments Projections

ABAG is the official comprehensive planning agency for the San Francisco Bay region, which is composed of the nine counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma, and contains 101 cities. ABAG produces growth forecasts on four-year cycles so that other regional agencies, including the MTC and BAAQMD, can use the forecast to make project funding and regulatory decisions. ABAG projections are the basis for the Regional Transportation Plan and the regional Ozone Attainment Plan. In this way, ABAG projections have practical consequences that shape growth and environmental quality. The General Plans, zoning regulations and growth management programs of local jurisdictions inform the ABAG projections. The ABAG projections are also developed to reflect the impact of "smart growth" policies and incentives that could be used to shift development patterns from historical trends toward a better jobs-housing balance, increased preservation of open space, and greater development and redevelopment in urban core and transit-accessible areas throughout the ABAG region.

Regional Housing Needs Allocation

The California Housing Element Law requires local jurisdictions to allow the construction of a share of the region's projected housing needs. This share is called the RHNA. The specific RHNA number for a jurisdiction is important because state law mandates that each jurisdiction provide sufficient land to accommodate a variety of housing opportunities for all economic segments of the community to meet or exceed this number of housing units. ABAG, as the regional planning agency, calculates the RHNA for individual jurisdictions within Alameda County, including Newark.

City of Newark General Plan

The City of Newark's 2015 – 2023 Housing Element was adopted in 2015 and is part of the City's General Plan. The Housing Element contains a description of Newark's population trends, housing characteristics, and employment trends, an analysis of the city's housing needs in relation to RHNA, an overview of sites available for housing, an analysis of potential constraints to housing development, evaluation of the previous housing element, and housing goals and policies. The City's General Plan includes the following goals and policies related to population and housing.

Goal LU-1: Quality of Life. Maintain a desirable quality of life in Newark by preserving a small town neighborhood oriented atmosphere and sustaining a balanced mix of land uses.

- **Policy LU-1.2: Growth Focus Areas.** Achieve a future growth pattern which includes new neighborhoods on vacant land along the southern and western edges of the city, and infill development in transit served areas such as Old Town and the Greater NewPark Mall Area. Zoning and development review decisions should recognize these areas as the priority locations for growth and change over the next 20 years.
- **Policy LU-1.3: Job Housing Balance.** Seek to balance housing and job growth. The City should strive to have a roughly equal number of jobs and employed residents, with a mix of housing types that meets the needs of the local workforce.
- **Policy LU-1.10: Vacant and Underutilized Sites.** Encourage the development of Newark's remaining vacant and underutilized sites for their highest and best use, consistent with the designations shown on the General Plan Diagram. Future growth in the city should generally be directed to the areas identified in this General Plan.

3.14.3 Environmental Impacts

This section analyzes the project's potential to result in significant population and housing impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following evaluation of potential population, housing, and employment impacts associated with the proposed project was based on data obtained from the U.S. Census, DOF, and applicable planning documents from the City. The following impact discussions consider the impacts of the proposed project related to employment, population, and housing in the City.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's population and housing impacts are significant. Would the proposed project:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Project Impact Analysis and Mitigation Measures

Unplanned Population Growth

Impact POP-1	**The proposed project would not induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).**

Impact Analysis

This analysis assessed the proposed project's potential to induce substantial population growth. There are two types of population growth: direct and indirect. Direct population growth can occur from the development of new residential units. Indirect population growth can occur from the creation of new employment opportunities or the removal of barrier to growth (e.g., the extension of urban infrastructure to an undeveloped area). The proposed project would not directly or indirectly induce substantial unplanned population growth, as explained below.

For the purposes of this analysis, the 2020 census population of 47,529 will be used to determine projected growth. Additionally, the U.S. Census Bureau identified an average persons per household of 3.32 between the years 2017 and 2021 which will be used to determine the proposed project's resident generation (U.S. Census 2022).

Direct Population Growth

The proposed project would develop 203 single-family detached homes, thereby directly inducing population growth at the project site. The City's General Plan identified that the average household size in the City of Newark was 3.28 persons per household in 2010. According to the U.S. Census Bureau, the City's average household size was 3.32 persons per household between the years of 2017 and 2021 and based on the census bureau's estimated household size, the proposed project would result in approximately 674 new residents.

As of the 2020 census, the City's population is identified at 47,529 people (U.S. Census 2022). As discussed, the City's General Plan estimated that the City's population would grow to 52,100 by 2030. The addition of 674 residents from the proposed project would represent approximately 14.8 percent of the City's growth anticipated by 2030 from the 2020 census population. The addition of 203 single-family homes would also contribute to the City's RHNA. As discussed, City is expected to accommodate 1,078 new housing units between 2015 and 2023. As such, the proposed project would be within the 2030 population projections anticipated in the City's General Plan and would contribute to the City's RHNA. As the estimated number of residents generated from the proposed project would be within the population projected in the General Plan, it would not result in direct unplanned population growth as the increase in population from the proposed project was anticipated by the General Plan. The proposed project would not result in an increase in population over what was anticipated in the General Plan.

The Areas 3 and 4 Specific Plan planned for a maximum residential unit allocation of 1,260 units within the Specific Plan area. Though not all 1,260 units have been constructed, the remaining number of units available from the allocation has been designated for development by the Sanctuary West Project by its Development Agreement. Therefore, the proposed project's 203 units would not be within the maximum residential unit allocation within the Specific Plan. The proposed project is requesting a General Plan Amendment and rezoning of the site to allow for the development of residential units above the maximum allocation. With the approval of the rezoning and Specific Plan Amendment, the density of the Specific Plan area would be increased by a total of 254 units as the 29.21 acre project site would be zoned RS-6000 which has a maximum density requirement of 8.7 dwelling unit per acre. Though the rezoning and Specific Plan Amendment would result in unplanned population growth within the Specific Plan area, it would not result in substantial unplanned growth as it would still be within the General Plan growth projection for total housing units and resident population for the City and the proposed project would contribute to the City's RHNA. Therefore, the proposed project would not directly induce substantial unplanned population growth and impacts would be less than significant.

Indirect Population Growth

New extensions to area roads or other infrastructure and new employment opportunities are key factors in accounting for possible indirect population growth. The proposed project would not indirectly induce substantial unplanned population growth in the project site because it would not involve any new extensions to area roads or other infrastructure that could enable additional development in currently vacant areas not planned for growth and development in the General Plan. The proposed project includes off-site roadway and infrastructure improvements. The proposed project would include the extension of existing water and sanitary sewer main down Mowry Avenue from its current terminus located on the north side of the UPRR tracks. Additionally, the proposed project would include the extension of potable and non-potable water mains from the southwest corner of the Sanctuary West Project, located to the east of the project site. The potable and non-potable water mains would be jack-and-bored under the ACFC&WCD Line D channel and the UPRR ROW. The non-potable water main would be stubbed on the western edge of the UPRR ROW for future connection and the potable water main would extend northwest along the UPRR ROW, within an existing utility easement, to Mowry Avenue and then down Mowry Avenue to the project entrance at future 'A' Street. However, the extension of the water and sanitary sewer main would not result in indirect population growth as the project site is located near the terminus of Mowry Avenue and vacant developable lands located near the project site are limited. Due to the limitations on developable lands near the project site, the proposed project's extension of utility infrastructure would not result in indirect substantial growth. Therefore, the off-site roadway and utility infrastructure improvements would not result in a removal of barrier of growth and would not result in indirect population growth. Additionally, the proposed project does not include any elements outside of the residential and off-site improvement components and would not include new employment opportunities. Therefore, the proposed project would not indirectly induce substantial unplanned population growth and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Displacement of People

Impact POP-2	**The proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.**

Impact Analysis
The majority of the project site is currently developed as an auto part and scrap metal salvage lot that includes a warehouse, sales office, workshop, and a large parking area. The northern parcel of the project site is currently undeveloped. The project site does not currently contain residential development and therefore, the construction of the proposed project would not result in the displacement of existing people or housing and would not necessitate the construction of replacement housing elsewhere. The proposed project would have no impact.

Level of Significance Before Mitigation
No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
No Impact.

3.15 PUBLIC SERVICES

This section describes the environmental and regulatory setting for public services. It also describes existing conditions and potential impacts related to public services that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.15.1 Environmental Setting

Fire Protection

The ACFD provides fire protection services to approximately 508 square miles in Alameda County, including Dublin, Newark, San Leandro, Union City, and the unincorporated areas. ACFD responds to structure fires, wildland fires, auto fires and extrications, medical emergencies, special rescues, and natural disasters (City of Newark 2013a). There are three fire stations serving Newark. The nearest fire station to the project site is ACFD Station 27, located at 39039 Cheery Street approximately 0.60 miles northeast of the project site.

In the Fiscal Year of 2019 to 2020, the ACFD responded to 42,363 total calls (ACFD 2021). ACFD has established an average response time goal of five minutes or less for 90 percent of the time for the first responding unit for a first alarm assignment, with the remaining units arriving within 10 minutes or less 90 percent of the time (City of Newark 2013b).

Police Protection

The Newark Police Department (NPD) provides law enforcement services to the City of Newark from its headquarters located at 37101 Newark Boulevard approximately 1.75 miles northwest of the project site (City of Newark 2013a). For the fiscal year of 2021 to 2022, the NPD has authorized a staff of one Chief, two Captains, three Lieutenants, eight Sergeants, 45 Police Officers, and 26 non-sworn (civilian) full-time positions (City of Newark 2021).

Schools

The City is served by the Newark Unified School District (NUSD) which operates eight elementary schools, one junior high, one high school, one continuation high school, and one independent study school and serves approximately 6,000 students (NUSD 2020). Birch Grove Primary Elementary School (Kindergarten through grade 2), Birch Grove Intermediate Elementary School (Grade 3 through 6), Newark Junior High and Newark Memorial High School serves the area surrounding the project site (NUSD 2021). In the 2021 to 2022 school year, Birch Grove Primary had an enrollment of approximately 360 students, Birch Grove Intermediate had an enrollment of 422 students, Newark Junior High had an enrollment of 679 students, and Newark Memorial High had an enrollment of 1,634 students (California Department of Education 2022).

Parks

The Newark Recreation and Community Services Department operates and maintains 131 acres of City parks and several recreational facilities. Of this total, 121 acres are owned by the City and 10 acres are leased from the Newark Unified School District. There are 13 parks in the City, including eight neighborhood parks, three community parks, and two special use parks (City of Newark 2013a). The closest park to the project site is the Silliman Center Sports Fields, which is a 29.6 acre community park that provides sports fields, an aquatic center, and a community activity center which includes amenities such as, but not limited to, gymnasiums, locker rooms, dance studio, and fitness center. The Silliman Center Sports Fields is located on Mowry Avenue at Cherry Street, approximately 0.25 mile from the project site.

3.15.2 Regulatory Setting

State

California Building Code

Title 24 of CCR, also known as the California Building Code, is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes,
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions, and
- Building standards authorized by the California legislature that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

The CFC is a component of the California Building Standards Code and contains fire safety-related building standards.

Local

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project:

Goal PR-2: Parkland Acquisition and Expansion. Expand and improve Newark's parks and recreational facilities to meet the existing and future needs.

- **Policy PR-2.2: Parks in New Development.** Require new parks to be provided within large-scale new development. Where the provision of an on-site park is infeasible, require the payment of an in-lieu fee for parkland acquisition to serve that development.

- **Policy PR-2.3: Park Service Standards.** Establish the following park standards to determine where and how much parkland should be provided in Newark, and to calculate the amount of in-lieu fees where appropriate:

    - Within the City, provide at least 3.0 acres of parkland per 1,000 population. This total shall exclude wetlands and other areas that are not accessible for active or passive recreation;

    - Provide one neighborhood park per 5,000 population, with a park located within ½-mile of each residence; and/or

    - Provide one community park per 15,000 population, with a park located within 2 miles of each residence.

    These standards may be adjusted to facilitate high value and unique facilities such as linear trails, dog runs, formal gardens, and indoor facilities.

- **Policy PR-2.4: Pocket Parks.** Allow a portion of the parkland dedication requirement to be met through the provision of on-site pocket parks and play lots in new development.

Goal CSF-1: Community Services. Maintain community services and civic facilities that are readily accessible and respond to the needs of all Newark residents.

- **Policy CSF-1.1: Planning for Public Facilities.** Plan for adequate public facilities to meet Newark's current and future needs, based on demographic forecasts, fiscal and budgetary conditions, and adopted standards for municipal facilities and services.

Goal CSF-2: Educational Facilities. Provide excellent schools that deliver high-quality educational services to Newark students while serving the neighborhood centers and fostering civic pride.

- **Policy CSF-2.2: Mitigation of School Impacts.** When new residential development is approved, require mitigation of school impacts to the full extent permitted by law. Work collaboratively with the Newark Unified School Districts to ensure that appropriate fees are collected and other appropriate mitigation measures are taken.

Goal CSF-4: Public Safety. Provide responsive police, fire, and emergency medical services that ensure the safety of residents, employers, and visitors.

- **Policy CSF-4.1: Police Services.** Maintain professional, efficient, effective Police Department activities which promote a high level of public safety.

- **Policy CSF-4.2: Emergency Medical Services.** Ensure the provision of high-quality emergency medical response services, including paramedics and emergency medical technicians.

- **Policy CSF-4.4: Fire Prevention and Response Services.** Ensure the provision of fire prevention and response services which minimize fire risks and protect life and property.

3.15.3 Environmental Impacts

This section analyzes the project's potential to result in significant public services impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of the General Plan, General Plan EIR and the Newark Municipal Code.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's public services impacts are significant. Would the proposed project:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
    - Fire protection?
    - Police protection?
    - Schools?
    - Parks?
    - Other public facilities?

Project Impact Analysis and Mitigation Measures

Government Facilities

Impact PUB-1 **The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:**

Fire protection.

Police protection.

Schools.

Parks.

Other public facilities.

Impact Analysis

Fire Protection

The project site is located in an area already served by ACFD. However, development of the proposed project would incrementally increase the demand for fire protection services in the area. ACFD would provide fire protection services to the proposed residential development. The project site is located approximately 0.6 miles away from the nearest fire station and based on the short distance, emergency response to the project site would be able to meet the response time goal of five minutes. The proposed project would be required to pay a Development Impact Fee as required by Chapter 3.24 of the Newark Municipal Code. The funds collected from the Development Impact Fee would be used to provide public services and facilities, including fire protection services, within the City. Additionally, the proposed project would be designed and constructed in accordance with the City's fire protection requirements and the California Building Standards Code which includes the CFC. Implementation of the City's fire protection requirements and the California Building Standards Code would reduce the potential for fires at the site by providing fire hydrants throughout the site and ensuring the new development is equipped with fire protection measures such as alarms and sprinklers. Payment of required fees would offset cost of fire protection demands associated with the proposed project and incorporation of fire protection measures into the design of the development would minimize need for fire protection services. Therefore, though the proposed project would increase the need for fire protection services in the area it would not require the construction of new facilities or expansion of existing facilities as the proposed project would include measures to reduce and offset the increased demand. Impacts would be less than significant.

Police Protection

Law enforcement services for the project site would be provided by NPD. Implementation of the proposed project would result in an incremental increase in demand for police protection services at the project site and surrounding areas. The City's General Plan EIR identified that the NPD currently operates at a staffing level of less than 1.0 officers per 1,000 residents, which is below the national average of 1.5

officers per thousand residents (City of Newark 2013b). The City's General Plan EIR determined that buildout of the General Plan would result in a significant impact to police protection facilities as it would require a new building or expansion of the existing building. However, this impact was determined to be mitigated to a less than significant level with implementation of General Plan policies and collection of fees from new developments under the General Plan (City of Newark 2013b). The proposed project would be required to pay a Development Impact Fee as required by Newark Municipal Code Chapter 3.24. Payment of fees is determined to reduce impacts to a less than significant level as payment of impact fees would provide funding for the construction or expansion of policies facilities and funds are set aside to allow for construction of facilities as needed to accommodate future growth. Therefore, with the payment of required fees, the impacts to police protection services would be mitigated to a less than significant level and the proposed project would not require the construction of any unanticipated new or expanded police facilities.

Schools

The proposed project would include development of the project site with 203 single-family residential units and would increase demand for school facilities and services. The City's General Plan EIR identified that for planning purposes, NUSD estimated that on average new residential developments will generate 0.416 students per single-family unit (City of Newark 2013b). Therefore, using the General Plan generation estimate of 0.416 students per single-family unit, development of 203 single-family units would result in 84 new students. NUSD collects school impact fees on new residential construction within district boundaries on a per square foot basis. The fees serve to offset school facility costs associated with serving new students that result from new developments. Under SB 50, school districts may collect fees to offset the costs associated with increasing school capacity as a result of development and under the terms of this statute, payment of fees by property owners and developers is considered to mitigate in full for the purposes of CEQA any impacts to school facilities associated with a project. Therefore, with the payment of required fees, impacts associated with school facilities are considered mitigated and the proposed project would not result in the need for construction of unanticipated new or expanded school facilities and impacts would be less than significant.

Parks

Based on the City's General Plan EIR, the City currently operates at a parkland ratio of 3.01 acres of parkland per thousand residents, which meets the adopted standard. The proposed project would result in an increase of residents in the area of the project site and would result in increased uses of nearby parks. The City requires, as identified under General Plan Policy PR-2.2, that new development either dedicate land, pay a fee in lieu thereof, or both, at the option of the City, for park and/or recreational purposes. The proposed project would provide 4.89 acres of on-site open space. A majority of the on-site open space would be provided through private open space, provided as a rear yard for each home. However, the proposed project includes the development of 0.94 acres of common open space through the construction of a pocket park, landscaping, and bioretention areas. The common open space area located in the center of the project site would include amenities such as a lawn, pedestrian path, and picnic tables. Though the proposed project would provide on-site common open space areas, the common open space areas would not meet the requirements for park facilities and would not contribute acreage to the 3.0 acres per thousand resident parkland standard. Therefore, development of the proposed project may result in the City not being able to meet its adopted parkland standard. The construction of the common open space would not meet the requirements for park dedication and therefore, the proposed project would be required to pay the full parks impact fee to offset increased demand to park facilities from development of the proposed project. Payment of required fees would ensure funding for the construction or expansion of policies facilities and funds are set aside to allow for construction of facilities as needed to accommodate future growth. Inclusion of open space within the proposed project design and payment of fees would mitigate the impacts on existing park facilities resulting from development of the proposed project and therefore, the impact would be less than significant.

Other Public Facilities

The addition of 203 new single-family residences would create an incremental increase in the demand for library facilities and other public facilities. In accordance with Newark Municipal Code Chapter 3.24, the proposed project would be required to pay Development Impact Fees to offset costs to public facilities. With the payment of required fees, the proposed project would not result in the need for construction of any unanticipated new or expanded public facilities and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

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3.16 RECREATION

This section describes the environmental and regulatory setting for recreation. It also describes existing conditions and potential impacts related to recreation that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.16.1 Environmental Setting

The Newark Recreation and Community Services Department operates and maintains 131 acres of City parks and several recreational facilities. Of this total, 121 acres are owned by the City and 10 acres are leased from the Newark Unified School District. There are 13 parks in the City, including eight neighborhood parks, three community parks, and two special use parks (City of Newark 2013a). The closest park to the project site is the Silliman Center Sports Fields, which is a 29.6 acre community park that provides sports fields, an aquatic center, and a community activity center which includes amenities such as, but not limited to, gymnasiums, locker rooms, dance studio, and fitness center. The Silliman Center Sports Fields is located on Mowry Avenue at Cherry Street, approximately 0.25 mile from the project site.

3.16.2 Regulatory Setting

Federal

There are no federal regulations related to recreation.

State

Quimby Act

Section 66477 of the California Government Code, also known as the Quimby Act, was enacted in 1965 in an effort to promote the availability of park and open space areas in California. The Quimby Act authorizes cities and counties to enact ordinances requiring the dedication of land, or the payment of fees for park and/or recreational facilities in lieu thereof, or both, by developers of residential subdivisions as conditions to the approval of a tentative map or parcel map. The Quimby Act requires the provision of three acres of park area per 1,000 persons residing within a subdivision, unless the amount of existing neighborhood and community park exceeds that limit, in which case the city or county may adopt a higher standard not to exceed five acres per 1,000 residents. The Quimby Act also specifies acceptable uses and expenditures of funds from fees.

Local

City of Newark General Plan

The City of Newark General Plan includes the following goals and policies items relevant to the proposed project and recreation resources discussed in this section:

Goal PR-2: Parkland Acquisition and Expansion. Expand and improve Newark's parks and recreational facilities to meet existing and future needs.

- **Policy PR-2.2: Parks in New Development.** Require new parks to be provided within large-scale new development. Where the provision of an on-site park is infeasible, require the payment of an in-lieu fee for parkland acquisition to serve that development.
- **Policy PR-2.3: Park Service Standards.** Establish the following park standards to determine where and how much parkland should be provided in Newark, and to calculate the amount of in-lieu fees where appropriate:
    - within the city, provide at least 3.0 acres of parkland per 1,000 population. This total shall exclude wetlands and other areas that are not accessible for active or passive recreation,
    - provide one neighborhood park per 5,000 population, with a park located within ½ mile of each residence, and
    - provide one community park per 15,000 population, with a park located within 2 miles of each residence.

  These standards may be adjusted to facilitate high value and unique facilities such as linear trails, dog runs, formal gardens, and indoor facilities.
- **Policy PR-2.4: Pocket Parks.** Allow a portion of the parkland dedication requirement to be met through the provision of on-site pocket parks and play lots in new development.
- **Policy PR-2.8: Natural Features in Parks.** Design new parks to respect and conserve important natural features. Wetlands and other environmentally sensitive areas located within park boundaries should be designated for protection and restored to the greatest extent possible.

3.16.3 Environmental Impacts

This section analyzes the project’s potential to result in significant recreation impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of the General Plan, General Plan EIR and the Newark Municipal Code.

Thresholds of Significance

In accordance with the CEQA Guidelines’ Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project’s recreation impacts are significant. Would the proposed project:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse effect on the environment?

Project Impact Analysis and Mitigation Measures

Existing Parks

Impact REC-1	**The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.**

Impact Analysis

The proposed project would permanently increase the City's residential population and would increase the use of existing parks and recreation facilities. Nearby park facilities that may be utilized by residents of the proposed project include the Silliman Center Sports Fields, which is the closest park to the project site located approximately 0.25 mile from the project site. As identified under General Plan Policy PR-2.3, the City of Newark has adopted a 3.0 acre of parkland per 1,000 residents standard for planning purposes and its Quimby Act fee is based on this ratio (City of Newark 2013b). As required by General Plan Policy PR-2.2, the City requires that new development either dedicate land, pay a fee in lieu thereof, or both, at the option of the City, for park or recreational purposes. The proposed project would provide 4.89 acres of on-site open space, with the majority of on-site open space being provided through private open space, provided as a rear yard for each home. However, the proposed project also includes the development of 0.94 acres of common open space through the construction of on-site recreational area, landscaping and bioretention areas. The on-site recreational area would be located in the center of the project site and would include amenities such as a lawn, pedestrian path, and picnic tables. This area would be designed to serve residents within the subdivision, helping to avoid over-usage (accelerated deterioration) of other existing parks in the City. However, the construction of common open space areas within the project site would not meet the City's requirements for park dedication and therefore, the proposed project would be required to pay the full parks impact fee to offset the increased demand to existing park and recreational facilities resulting from development of the proposed project. Payment of required fees would ensure funding for the construction or expansion of policies facilities and funds are set aside to allow for construction of facilities as needed to accommodate future growth. Inclusion of open space within the proposed project design and payment of fees would mitigate potential impacts on existing parks and recreational facilities caused by the proposed project. The proposed project would comply with all City standards and requirements related to recreation, and impacts would be less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures|

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

Recreational Facilities

Impact REC-2	**The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.**

Impact Analysis

The proposed project would include 0.94 acres of common open space consisting of landscaped areas, a bioretention area, and on-site recreational area. The on-site recreation area would include amenities such as a lawn, picnic tables and a pedestrian path, none of which are expected to cause any adverse physical effects on the environment due to the small size of the park and the limited nature of the proposed improvements. The proposed project would not involve the construction or expansion of any off-site recreational facilities; however, as required by the City's General Plan Policy PR-2.2, the proposed project would be required to pay a parks impact fee to contribute funding for park and recreational facilities citywide. General Plan Policy PR-2.2 requires new developments to provide on-site parks or pay a fee in-lieu for parkland acquisition to serve the development (City of Newark 2013b). Funds collected through the parks impact fee would be used to help fund and pay for the construction or expansion of off-site improvements, the construction of which would be required to demonstrate it would not result in adverse environmental impacts. Therefore, since no adverse environmental impacts associated with construction of on site or off-site recreational facilities would occur, the impact is less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

3.17 TRANSPORTATION

This section describes the existing transportation setting and potential effects on the project site and its surrounding area from proposed project implementation. Descriptions and analysis in this section are based on information contained in the Transportation Impact Analysis Report prepared in September 2021 by Fehr & Peers. The document is included in this Draft EIR as Appendix H.

3.17.1 Environmental Setting

Roadway System

Freeways

The proposed project is served by Interstate 880 (I-880), also known as the Nimitz Freeway, and State Route (SR) 84.

I-880 extends in a north-south direction on the east side of the San Francisco Bay, between Oakland in the north, and San Jose in the south. I-880 has four travel lanes in each direction in the project vicinity (three mixed-flow lanes and one High Occupancy Vehicle (HOV) lane), for a total of eight lanes. I-880 has an interchange at Mowry Avenue that provides access to the project site. Near the study area the average daily traffic (ADT) volume is approximately 217,000 vehicles.

SR 84 extends in an east-west direction and is located approximately three miles northwest of the project site. SR 84 has six travel lanes, with three lanes in each direction and a westbound HOV lane. Two interchanges are provided which serve the City of Newark at Thornton Avenue and Newark Boulevard. SR 84 west of the Thornton Avenue interchange is a toll road and is a freeway east of interchange. Near the study area the ADT volume is approximately 68,000 vehicles.

Arterials

The local roadway system within the City is composed of a hierarchy of streets and roads with varying functions. Arterial roads range from two-lane arterials to six-lane arterials that link residential and commercial districts with the freeway network and provide intercity connections. Arterial roads near the project site include Cedar Boulevard, Central Avenue, Cherry Street, Mowry Avenue, and Stevenson Boulevard.

Cedar Boulevard is a four-lane arterial located north of the project site. The roadway extends in the north-south direction between Haley Street in the north and Stevenson Boulevard in the south. Near Mowry Avenue, Cedar Boulevard has an intermittent center median, Class II bike lanes, and continuous sidewalks on both sides of the street. The speed limit along Cedar Boulevard is 35-40 miles per hour (mph).

Cherry Street is a four-lane arterial located north of the project site. The roadway extends in the north-south direction with a landscaped median or center two-way left turn lane and turn pockets. Class II bike lanes are provided for most of the street south of Central Avenue, although they are missing at several constraint points including the Mowry Avenue/Cherry Street intersection. Cherry Street provides connections to Fremont, and it becomes Boyce Road south of the Newark City limit. There are continuous sidewalks on both sides of the street. The posted speed limit is 45 mph south of Central Avenue, and 35 mph north of Central Avenue.

Mowry Avenue, is a six-lane arterial between Cedar Boulevard and I-880, providing the main point of access to NewPark Mall and the project site. Between Cedar Boulevard and Cherry Street, Mowry Avenue narrows to four lanes and is designated a Class III bike route. Between Cherry Street and the UPRR tracks, Mowry Avenue continues as a four-lane road with Class II bike lanes and a Class I shared-use pathway. South of the railroad tracks, Mowry Avenue is one lane in each direction with no designated bicycle facilities. There are continuous sidewalks on both sides of the street north of the railroad tracks. The posted speed limit on Mowry Avenue is 35 mph.

Central Avenue is a four-lane arterial between I-880 and Newark Boulevard with Class II bike lanes. This section has a posted speed limit of 35 mph. West of Newark Boulevard, Central Avenue is designated a Class III bike route with posted speed limits between 35 and 40 mph. There are continuous sidewalks on both sides of the street.

Stevenson Boulevard is the southernmost east-west arterial in Newark. Stevenson Boulevard is a four-lane road with landscaped median with a speed limit of 40 mph, 35 mph west of Cherry Street. Class II bicycle lanes and continuous sidewalks are provided along the entire length of Stevenson Boulevard.

Bicycle Facilities

Existing bicycle facilities in the area consist of Class I paths, Class II lanes, and Class III routes. In the City's General Plan and the City's Pedestrian and Bicycle Master Plan (PBMP), Class I paths are defined as separate, bike paths or multi-use paths, Class II lanes are defined as striped lanes on a street or highway, and Class III routes are defined as signs or pavement markings for shared use with pedestrians or motor vehicles (City of Newark 2013a, 2017).

Most arterials in the project vicinity have an existing bicycle facility. Between I-880 and Cherry Street, Mowry Avenue is a Class III bike facility and Stevenson Boulevard is designated as a Class II. Both Mowry Avenue and Stevenson Boulevard provide both Class II bike lanes and a Class I bike path between Cherry Street and the UPRR tracks. Central Avenue provides a mix of Class II lanes and Class III routes south of I-880. East of Central Avenue, Cherry Street and Cedar Avenue also provide a mix of Class II lanes and Class III routes.

Currently there are no bicycle facilities along the project frontage on Mowry Avenue. There are no sidewalks facilities along the project frontage on Mowry Avenue; however, sidewalks exist on both sides of existing Mowry Avenue north of the UPRR tracks and extending to Cherry Street. The 2017 PBMP proposes several bicycle facility upgrades near the project site. The Class III segments of Mowry Avenue, Central Avenue, and Cedar Boulevard south of I-880 (including the segment of Mowry Avenue adjacent to the project site) are proposed as Class II lanes, while the Class II segment of Stevenson Boulevard is proposed as a Class IV separated bikeway. On Cherry Street, a Class II bike lane is proposed between Thornton and Central Avenue, and Class IV separated bikeways west of Central Avenue.

Transit System

Existing transit service near the project site include local bus service and regional rail services.

AC Transit operates local bus transit services in the East Bay and Transbay bus service to the Transbay Terminal in San Francisco. AC Transit is the primary bus service provider in 13 cities and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo, and Santa Clara Counties. Three AC Transit bus routes operate near the project site – Lines 200, 216, and 251. Line 200 travels between the Union City and Fremont BART stations, with a stop at the NewPark Mall every day and at the Silliman Recreation Center on weekends. Lines 216 and 251 both have a weekday western terminus at Ohlone College on Cherry Street and a weekend terminus at the Silliman Recreation Center on Mowry Avenue. Both lines connect to the Fremont BART station, while Line 216 also stops at the NewPark Mall and continues north to the Fremont and Union City BART Stations.

The closest stop to the project site for Lines 200 and 216 is at the Mowry Avenue/Cherry Street intersection, and the closest stop for Line 251 is at the Cherry Street/Jasmine Avenue intersection. On weekends, the closest stop for Lines 216 and 251 is at the Silliman Recreation Center.

For regional rail service, BART provides regional rail service connecting San Francisco, northern San Mateo county, and the East Bay. ACE and Amtrak also provide regional rail service within the San Francisco Bay Area and beyond. Based on BART Monthly Ridership Reports, the average weekday ridership in 2018 was about 412,000 systemwide. The closest BART Station to the project site is the Fremont Station which is located about three miles north of the project site. The station is served by the Richmond-Warm Springs/South Fremont and Daly City-Warm Springs/South Fremont lines and is the penultimate BART station to the south followed by Warm Springs/South Fremont Station. Fremont Station is served by about eight trains per hour, per direction, during the peak periods. Based on BART Monthly Ridership Reports, in the first half of 2019, about 11,800 weekday daily passengers (entries plus exits) use the Fremont BART Station.

The San Joaquin Regional Rail Commission operates ACE commuter rail service of over 85 miles between Stockton and San Jose. It operates a limited number of trains per day with four westbound trains in the morning from Stockton and four eastbound trains in the afternoon from San Jose. The nearest ACE station is in Fremont and is located on Fremont Boulevard near Peralta Boulevard.

Amtrak provides intercity rail service on the Capitol Corridor, connecting Auburn, Sacramento, Emeryville, Oakland, and San Jose. The service provides a limited number of daily round trips. The nearest Amtrak station in Fremont is shared with the ACE station on Fremont Boulevard near Peralta Boulevard. Average ridership at Fremont Station was about 122 passengers per day in 2018, based on Amtrak State Fact Sheets.

3.17.2 Regulatory Setting

State

California Department of Transportation

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all state-owned roadways in Alameda County. The state facilities providing regional access to and from the project site is I-880 and SR 84.

Senate Bill 743

On September 27, 2013, SB 743 was signed into law. The legislature found that with the adoption of the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the state had signaled its commitment to encourage land use and transportation planning decisions and investments that reduce vehicle miles traveled and thereby contribute to the reduction of GHG emissions, as required by the California Global Warming Solutions Act of 2006 (AB 32). SB 743 started a process that will likely change transportation impact analysis as part of CEQA compliance. Changes include the elimination of auto delay, LOS, and similar measures of vehicular capacity or traffic congestion as the basis for determining significant impacts in many parts of California (if not statewide). The new criteria, "shall promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses" (PRC Section 21099(b)(1)). On January 20, 2016, the OPR released revisions to its proposed Draft CEQA guidelines for the implementation of SB 743. In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the Guidelines section implementing SB 743 (Section 15064.3). OPR developed a Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018), which contains OPR's technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. The provisions of CEQA Guidelines Section 15064.3 shall apply prospectively as described in Section 15007. A lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide.

Regional

Regional Regulations Metropolitan Transportation Commission

MTC is the transportation planning, coordinating, and financing agency for the nine-county Bay Area, including Alameda County. It also functions as the federally mandated MPO for the region. Plan Bay Area is the Bay Area's Regional Transportation Plan and Sustainable Communities Strategy. Plan Bay Area, adopted jointly by ABAG and MTC July 18, 2013, lays out a development scenario for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by CARB. The regional housing and transportation plan adopted by MTC and ABAG on October 21, 2021, is the Plan Bay Area 2050. Plan Bay Area 2050 is a long-range blueprint to guide transportation investments and land-use decisions through 2050 while meeting the requirements of California's landmark 2008 SB 375, which calls on each of the state's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce GHG emissions from cars and light trucks. The project's relationship to GHG emissions reductions is discussed in detail in Section 3.8, Greenhouse Gas Emissions, of the Mowry Village Project Draft EIR.

Plan Bay Area 2050

The MTC and ABAG's Plan Bay Area 2050 is the Bay Area's RTP/SCS. Plan Bay Area 2050 was adopted jointly by the MTC and ABAG on October 21, 2021 and is a regional long-range plan for housing, economic development, transportation and environmental resilience and charts the course for the future of the San Francisco Bay Area. Plan Bay Area 2050 sets a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce

GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by CARB. An overarching goal of Plan Bay Area is to concentrate development in Priority Development Areas where there are existing services and infrastructure rather than allocate new growth to outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle, VMT, and associated GHG emissions reductions.

Local

City of Newark General Plan

The following lists goals and policies from the City of Newark General Plan pertaining to transportation that are applicable to the proposed project.

Goal T-2: Pedestrian and Bicycle Circulation. Create a citywide pedestrian and bicycle network that provides safe access to destinations within the city, connects to an integrated regional network, and is accessible to users of all ages, abilities, and means.

- **Policy T-2.1: Promoting Bicycling and Walking.** Promote bicycling and walking as viable modes of transportation for everyday trips as well as for recreation to increase the number of people of all ages, abilities, and means who bicycle and walk.
- **Policy T-2.2: Pedestrian Facilities.** Work to close gaps in the pedestrian network and improve sidewalk connectivity between residential and commercial areas. Develop curbs, gutters, sidewalks on all remaining Newark streets not yet fully improved to encourage safe, convenient pedestrian travel. Where appropriate, include marked crosswalks at intersections and install pedestrian countdowns at traffic signals to facilitate safe pedestrian movement across City streets.
- **Policy T-2.3: Bicycle Network.** Maintain and expand an interconnected network of bicycle routes, paths and trails, serving the City's neighborhoods, shopping districts, workplaces, and park and open space areas. The existing bicycle network should be expanded to provide connections to developing areas, including the Dumbarton TOD, the Southwest Residential and Recreational Project, Old Town Newark, and the NewPark Mall vicinity.
- **Policy T-2.5: Connecting to the Region.** Develop bicycle and pedestrian facilities that connect across City boundaries, integrate with larger regional systems, and improve intermodal connections to local and regional public transportation systems.
- **Policy T-2.6: Pedestrian and Bicycle Provisions within New Development.** Ensure safe and convenient pedestrian and bicycle access to and through new public and private developments. The City will use the development review process to ensure – and where appropriate to require – provisions for pedestrians and bicycles in new development areas.
- **Policy T-2.9: Recreational Trails.** Develop and maintain trails in parks and open space areas, and between Newark neighborhoods and the City's open spaces.
- **Policy T-2.10: Railroad Crossings.** Ensure that any future grade separated railroad crossings include sidewalks and designated lanes for bicycles.

- **Policy T-2.11: Bicycle Parking.** Provide secure, adequate, and easily accessible bicycle parking at key destinations throughout the city, including municipal facilities, schools, and new development. The style and design of bike racks should contribute to overall neighborhood and architectural aesthetics.

- **Policy T-2.12: Trails Along Railroads and Utilities.** Consider the use of railroad, flood control, and utility rights of way for jogging, biking, and walking trails, provided that safety and operational issues can be fully addressed. Such trails may be considered where the right-of-way is sufficiently wide to address safety considerations, and where a trail project would not interfere with railroad, flood control, or utility operations.

Goal T-5: Vehicle Circulation. A safe, efficient, and well-maintained network of roadways that facilitates vehicle travel in and around the City.

- **Policy T-5.4: Level of Service Standards.** Strive for Level of Service (LOS) "D" or better at all major intersections in Newark. It is recognized that lower levels are projected at some intersections due to future increases in local and regional traffic. Decreased in the desired LOS may be acceptable in certain intersections due to conditions beyond the City's control, or to achieve other mobility and economic development objectives.

- **Policy T-5.9: Emergency Access.** Improve the street system as necessary to facilitate emergency vehicle response and to provide multiple route options in the event a road is blocked by a emergency or is otherwise made impassable.

City of Newark Pedestrian and Bicycle Master Plan

The PBMP was approved by Newark City Council on February 23, 2017 and is a comprehensive planning document that provides a vision for Newark's future biking and walking environment. The PBMP classifies the following five types of bicycle facilities (City of Newark 2017):

- **Class I Bicycle Paths or Multi-Use Paths** provide a completely separate right-of-way and is designated for the exclusive use of bicyclists and pedestrians with minimal vehicle and pedestrian cross-flow. Bike paths are for non-motorized use only.

- **Class II Bicycle Lanes** provide a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally at least five feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted. Class II bicycle lanes are generally indicated on streets with speeds higher than 30 miles per hour.

- **Class III Bicycle Routes** provide a right-of-way designated for shared use with pedestrians or motor vehicles by signs or pavement markings. A Shared-Use Arrow (or "Sharrow") can be marked in the outside lane on a Class III route to show the suggested path of travel for bicyclists. A sign stating "Bicycles Allowed Full Use of Lane" citing the California Vehicle Code is often included.

- **Class III Bicycle Boulevards** are designed for shared bicycle use with motor vehicles, similar to bicycle routes. The key differentiator is that they are lower volume and lower speed roadways and typically include traffic calming.

- **Class IV Separated Bikeways** maximize protection for bicyclists in providing a physical separation between the bikeway and vehicular traffic. The separation may include, but is not limited to grade separation, inflexible physical barriers, or on-street parking. Separated bikeways, or cycle tracks, typically operate as one-way bikeway facilities in the same direction as vehicular traffic on the same side of the roadway.

Existing bicycle facilities in the area consist of Class I paths, Class II lanes, and Class III routes. The PBMP proposes several bicycle facility upgrades near the project site. The Class III segments of Mowry Avenue, Central Avenue, and Cedar Boulevards south of I-880 (including the segment of Mowry Avenue adjacent to the project site) are proposed as Class II lanes, while the Class II segment of Stevenson Boulevard is proposed as a Class IV separated bikeway. On Cherry Street, a Class II bike lane is proposed between Thornton and Central Avenues, and Class IV separated bikeways west of Central Avenue.

3.17.3 Environmental Impacts

This section analyzes the proposed project's potential to result in significant transportation impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for VMT Analysis

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changed the way transportation impact analysis is conducted as part of CEQA compliance. These changes include elimination of automobile delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts under CEQA. According to SB 743, these changes are intended to "more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions."

In December 2018, the OPR completed an update to the CEQA Guidelines to implement the requirements of SB 743. The Guidelines state that generally, VMT is the most appropriate measure to determine significant transportation impacts. The Guidelines require all lead agencies in California to use VMT-based thresholds of significance in CEQA documents published after July 2020. In OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018), recommendations are provided on how local agencies can identify and address VMT impacts. The OPR Guidelines state that local agencies have the discretion to develop and adopt their own or rely on thresholds recommended by other agencies. The City of Newark has not adopted their own specific VMT guidelines.

The OPR Guidelines recommend developing screening criteria for development projects that meet certain criteria that can readily lead to the conclusion that they would not cause a significant impact on VMT. The OPR Guidelines also recommend evaluating VMT impacts using an efficiency-based version of the metric, such as VMT per resident for residential developments and/or VMT per worker for office or other employment-based developments. Since City of Newark has not developed their own screening criteria or thresholds of significance, this analysis uses the screening criteria and thresholds of significance recommended by the OPR Guidelines.

VMT refers to the amount and distance of automobile travel attributable to a project. More specifically, VMT measures the per capita number of car trips generated by a project and distances cars will travel to and from a project, rather than congestion levels at intersections (e.g., LOS, graded on a scale of A – F). VMT is typically an output from travel demand models and is calculated based on the estimated number of vehicles multiplied by the distance traveled by each vehicle. This analysis is based on total VMT per population, where VMT includes all automobile trips with an origin and/or destination within the analyzed geographic area generated on a typical weekday. Population is defined as the total number of residents in the analyzed geographic area.

Prior to a full VMT analysis, screening criteria is used to readily determine if the project would not cause a significant impact on VMT. The screening criteria considers the project size and estimated trip generation, location in a low-VMT generating area, and location near high-quality transit. A project must meet at least one of the screening criteria to be presumed to result in a less than significant impact. If the project does not meet any screening criteria, a detailed VMT study is carried out.

The VMT analysis uses the Alameda County Transportation Commission (CTC) Countywide Travel Demand Model to estimate VMT. The Model includes a year 2020 scenario, which approximates existing conditions. The Bay Area regional average daily VMT per capita is 19.8 and the City of Newark citywide average daily VMT per capita is 22.8 under 2020 conditions.

Consistent with OPR’s Guidelines, the following thresholds are used to determine if the proposed project would have a significant impact on VMT:

- For residential uses, the project would cause substantial additional VMT if project generated VMT exceeds existing citywide average household VMT per capita minus 15 percent.

VMT Screening Analysis

According to the OPR Guidelines, screening thresholds can be used to quickly identify projects that can be expected to cause a less than significant impact without conducting a detailed study. OPR’s recommended screening thresholds and their applicability to the proposed project are described below.

Small Projects – Projects that generate fewer than 110 trips per day generally may be assumed to cause a less than significant VMT impact. As shown in Table 3.17-1, the proposed project would generate more than 110 trips per day and would not meet this screening threshold.

Low-VMT Area – Residential projects located in areas with low-VMT (i.e.,15 percent below the citywide average), that incorporate similar features (i.e., density, mix of uses, transit accessibility), are expected to exhibit similarly low VMT and cause a less than significant VMT impact. Based on the results of the Alameda CTC Model, the proposed project is not located in an area with VMT per capita below the threshold. Thus, the proposed project is not located in a low-VMT area and does not meet this screening threshold.

Table 3.17-1: Project Trip Generation Summary

Land Use	Units[1]	ITE Code	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
New Uses									
Single-Family Detached Housing	204[4]	210[2]	2,000	37	113	150	127	74	201
Adjustments									
Existing Uses (Pick-n-Pull)[3]			-920	-11	-3	-14	-16	-38	-54
Net New Vehicle Trips			**1,080**	**26**	**110**	**136**	**111**	**36**	**147**

Notes:
1. DU = Dwelling units.
2. ITE Trip Generation (10th Edition) land use category 210 (Single-Family Detached Housing):
Daily: Ln(T) = 0.92 * Ln(X) + 2.71
AM Peak Hour: T = 0.71 * (X) + 4.80 (25% in, 75% out)
PM Peak Hour: Ln(T) = 0.96 * Ln(X) + 0.20 (63% in, 37% out)
3. Existing use trip generation based on counts collected in March 2019.
4. The 2021 Fehr & Peers Draft Transportation Impact Analysis Report prepared for the proposed project references 204 DUs. As 204 DUs is more conservative than the proposed 203 DUs, this table reflects project trip generation based on 204 DUs.

Sources: ITE Trip Generation Manual, 10th Edition; Fehr & Peers, 2021.

Near Transit Stations – Projects located within 0.5-mile of an existing major transit stop[2] are expected to generate low VMT and cause a less than significant VMT impact. The Fremont BART Station is the nearest major transit top to the project site, and the proposed project is about three miles from the BART station. Since the project site is more than 0.5 miles walking distance from the BART station, the proposed project is not located near transit stations and does not meet this screening threshold.

The proposed project would not meet any of the OPR's applicable screening thresholds. Therefore, a detailed VMT analysis was carried out and is presented below.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's transportation impacts are significant. Would the proposed project:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

[2] According to the California Public Resources Code, § 21064.3, 'Major transit stop' is defined as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

- Result in inadequate emergency access?

Project Impact Analysis and Mitigation Measures

Conflict with Program, Plan, Ordinance, or Policy

Impact TRANS-1	**The proposed project would not conflict with program plan, ordinance or policy addressing the circulation system, including transit roadway, bicycle and pedestrian facilities.**

Impact Analysis
The proposed project does not conflict with the General Plan Circulation Element, or any other program, plan, ordinance or policy addressing the circulation system. The proposed project does not propose to amend or adjust roadway classifications, the roadway network, transit routes, or bicycle network as identified in the City's General Plan or PBMP.

Summary of Mowry Avenue Roadway Improvements

Mowry Avenue along the project frontage to the UPRR rail crossing is proposed to be widened to include a single travel lane provided in both directions, a center median with left turn pocket, bike lanes with buffers, landscaped parkways, stormwater treatment, and sidewalk along the project frontage. The proposed project would widen the ROW of Mowry Avenue, south of the UPRR tracks, from 49.5 feet to 96 to 104 feet to accommodate one 12 foot vehicle lane in the southbound direction, one 12 foot vehicle lane in the northbound direction, and a 12 foot wide median with left turn pocket to access the project site. A 6 foot bicycle lane with 3 foot buffer would also be provided in each direction of travel. A 5 foot parkway strip, 5 foot sidewalk, and 3 foot landscape strip on the northbound side would be provided with a 4 foot landscape strip and a minimum 10 foot setback from face of curb to the top of bank of the ACFC&WCD's Line B channel on the southbound side.

The proposed sidewalk along the eastern frontage of Mowry Avenue would conform to the existing UPRR crossing to the north. The proposed project would provide pedestrian crossing improvements at the UPRR crossing, which would be equipped with a crossing arm, upgraded roadway panels, signage, striping, and pedestrian path improvements to encourage safer pedestrian access to the proposed project, surrounding development, and recreation facilities. The UPRR crossing would also include any required gate signals, visual, and/or audio equipment, as required by UPRR or the Newark Municipal Code.

Additionally, existing Mowry Avenue north of the UPRR tracks and extending to Cherry Street will be re-striped and a mid-block crossing to the Silliman Center will be constructed. Re-striping the road will eliminate one travel lane in the southbound direction to accommodate a single 14 foot vehicle travel lane, a 3 foot bike buffer, a 6 foot bike lane and a 10 foot parking lane matching the northbound side of Mowry Avenue. These striping improvements will accommodate the proposed mid-block crossing proposed at the Silliman Center.

The mid-block crossing will be located approximately mid-point between the UPRR tracks and Cherry Street, along the Silliman Center frontage. Improvements will include construction of high visibility crosswalk markings, RRFBs, advance pedestrian crossing yield markings, advance pedestrian crossing signage, median refuge, curb extensions, and ADA compliant curb ramps.

Sidewalks would be provided along both sides of each private street and would connect to sidewalks along Mowry Avenue to be developed as part of the proposed project. Construction of the proposed project would include a sidewalk along the project frontage on Mowry Avenue. The sidewalk would connect to the proposed crossing provided at the UPRR tracks.

The residential development would be accessible directly from Mowry Avenue and would be oriented along several internal streets serving the neighborhood. The proposed private streets include three east/west oriented roadways referred as, “A” Street, “B” Street, and “C” Street, with “A” Street and “B” Street functioning as the main arterials through the neighborhood. The proposed private streets also include four north/south oriented roadways referred as, “D” Avenue, “E” Avenue, “F” Avenue, and “G” Drive, all of which intersect with the east/west oriented roadways within the residential development. The proposed private streets would total approximately 7.3 acres of the project site. Each street would include two travel lanes, parking and sidewalks on both sides, and trees along the frontages. Two courts are proposed within the project site, branching off the private streets. The streets are proposed to be privately owned and maintained by a HOA. Bulb-outs are proposed at street intersections to promote traffic calming and provide shorter street crossings for pedestrians.

Parking supply requirements are based on the Newark Municipal Code, Section 17.23.040 – Required Number of On-Site Parking Spaces. Based on the City’s requirements of two spaces per unit for single-family homes (detached), a total of 508 parking spaces would be required. The proposed project would provide 962 parking spaces, including 406 off-street covered spaces, 406 off-street driveway spaces, and 150 on-street guest spaces. With a planned supply of 962 spaces, the proposed parking supply would exceed the City’s requirements with a surplus of 454 spaces.

Each of the components described above are further discussed in detail below.

Automobile Access and On-Site Circulation

Motorists would access the project site via two access points located on Mowry Avenue, the only current public access to the project site. These access points connect to the internal street network, which would be private. The internal private streets would have an overall width of 46 feet, with a 36-foot curb-to-curb width, accommodating two-way automobile travel and parallel on-street parking on both sides of the street.

Adjacent to the project site, Mowry Avenue does not have sidewalks or bicycle facilities and the pavement is in generally poor condition. The proposed project’s site plan includes improvements to Mowry Avenue, along the project’s north frontage. These improvements include widening the current roadway to 48 feet to accommodate two 12-foot vehicle lanes and two 6-foot bike lanes with 3-foot buffers in each direction of travel and a 12-foot wide left-turn lane to access the project site. Mowry Avenue would have a ROW width of 96 to 104 feet. Section 16.12.010 of the City of Newark Municipal code establishes a minimum of 56 feet ROW and a minimum of 36 feet curb-face to curb-face for minor streets. The proposed design for Mowry Avenue would meet the City’s standards for both minimum ROW and curb-face to curb-face and the proposed project’s private streets would meet the City’s standard for minimum curb-face to curb-face.

The proposed project also has a 125-foot-long cul-de-sac with a circular end. Section 16.12.020 of the Municipal Code establishes a maximum cul-de-sac length of 600 feet, with a circular end, a minimum property line radius of 50 feet and a minimum curb radius of 45 feet. The proposed project’s site plan shows a 45-foot curb radius and a 50-foot overall width for the cul-de-sac. Therefore, the cul-de-sac dimensions are consistent with the Municipal Code.

The site plan also includes two courts at the northwest and southeast corners of the site, which are 134-foot and 116-foot long respectively. These courts provide a 10.5-foot vehicle lane in each direction, a five-foot sidewalk on one side only and provide access to the adjacent parcels only.

The proposed project would include several three-way and four-way intersections on-site. The proposed project's traffic study includes recommendations regarding specific traffic control measures to apply to the on-site intersections. Recommendations included in the traffic study include the development of internal intersection control guidelines and installation of stop signs at access points on Mowry Avenue. The internal intersections within the project site would include corner curb extensions, which would reduce the effective width of the street at the intersection approach to 20 feet for approaches with curb extension on both sides of the street and to 28 feet for approaches with curb extensions on only one side of the street. The site plan also shows mid-block curb extensions, which would reduce the street width to 30 feet.

Assuming a prevailing automobile speed of 25 mph or less, all internal project streets would provide adequate sight distance between vehicles traveling in conflicting directions and between vehicles and pedestrians. In addition, the bulb-outs at mid-block and intersection locations proposed through the site would reduce the effective width of the streets and result in lower travel speeds for automobiles.

A non-CEQA traffic operations analysis was also conducted that included seven study area intersections evaluated under existing and future conditions without and with the proposed project. The traffic operations analysis was prepared in compliance with the City's General Plan Policy T-5.4 which outlines the desired operational conditions for the City's roadways.

Based on the discussion above, the proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, automobile access, and on-site circulation.

Bicycle Parking, Access, and On-Site Circulation

Bicycle users would access the project site via two access points located on Mowry Avenue, using the Class II bike lanes on Mowry Avenue proposed by the project. No short- or long-term bicycle parking is shown on the site plan and the Municipal Code does not require any bicycle parking for single-family housing units. Bicyclists could use their own garage space to park their bikes. Bicyclists would share the streets with vehicles within the project site, as no dedicated bicycle facilities are included in the project site plan. Though no designated bicycle facilities are provided on internal private streets within the project site as the streets are not wide enough to accommodate the inclusion of a designed bike lane, Class II bike lanes would be provided on Mowry Avenue.

The City of Newark PBMP includes a policy to ensure safe and convenient pedestrian and bicycle access to and through new public and private developments. It requires that new developments to provide secure, adequate and easily accessible bicycle parking. However, single-family dwelling units are exempted from this requirement. The PBMP also shows Mowry Avenue as an existing Class II bike lane between the project site and the railroad crossing, although the bike lanes do not appear striped on the road currently (City of Newark 2017).

The General Plan identifies Mowry Avenue as an arterial road and it emphasizes that design of arterial road should adopt the Complete Streets concept, where local thoroughfares are transformed by incorporating sidewalks, crosswalks, space for bicycles and other amenities that consider the needs of all road users (City of Newark 2013a).

Currently, no sidewalks or bike lanes are provided on either side of Mowry Avenue between the project site and the railroad crossing. The project proposes six-foot bike lanes in each direction of Mowry Avenue along the project frontage, through the railroad crossing to connect to the existing bike lanes just north of the railroad crossing. The proposed project would complete the installation of any bicycle crossing improvements at the railroad crossing to connect the new proposed bike lane to the existing bike lanes just north of the railroad crossing. Thus, the proposed project would be consistent with the PBMP and the General Plan.

Based on the discussion above, the proposed project would not conflict with a program, plan, ordinance or policy addressing bicycle parking, access, and on-site circulation.

Pedestrian Access and On-Site Circulation

Pedestrians would access the project site via the two access point on Mowry Avenue, along a 10-foot wide sidewalk/path along the east side of Mowry Avenue. All internal streets within the proposed project would provide five-foot sidewalks on both sides of the streets, except for the courts that would provide a sidewalk only on one side. The site plan shows directional curb ramps at all internal project intersections. Directional curb ramps would provide a more direct path for pedestrians to cross the street. Currently, no sidewalks are provided on either side of Mowry Avenue between the project site and the railroad tracks. The site plan proposes a 10-foot wide sidewalk/path on the east side of Mowry Avenue, along the project's frontage. The sidewalk constructed along the project frontage would connect to the proposed crossing at the UPRR tracks and the existing sidewalk/path just north of the railroad tracks.

The project site plan does not identify any marked crosswalks, either internally or at the two access driveways on Mowry Avenue. The crosswalk guidelines in the PBMP specify that new controlled intersections, which includes intersections with stop signs, should include marked crosswalks on all legs of the intersection that serve a key desire line, and advanced stop bars in advance of each crosswalk. The crosswalk guidelines provide treatment options for uncontrolled crossing locations with 20 or more pedestrians per hour. However, the internal project intersections are not expected to have any locations with 20 or more pedestrians per hour. The proposed project's traffic study includes recommendations regarding specific traffic control measures to apply to the on-site intersections. A midblock pedestrian crosswalk on Mowry Avenue adjacent to the Silliman Activity and Family Aquatic Center was evaluated to determine if a marked pedestrian crosswalk at this location would be warranted based on the City's Crosswalk Policy. In addition, a crosswalk safety enhancement analysis using the Treatment Toolbox provided in the City PBMP and the FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (2018) was conducted to determine if additional crossing enhancements would be needed were the crosswalk to be marked (Fehr & Peers 2021b). A marked crosswalk on Mowry Avenue just south of Station Road, would be warranted per the City's Crosswalk Policy. In addition, the crosswalk concept should include high visibility crosswalk markings, flashing beacons, such as RRFBs, to enhance pedestrian safety, advance pedestrian crossing yield markings, advance pedestrian crossing signage, median refuge, curb extensions and ADA compliant ramps. These features would be consistent with

FHWA Guidelines and the City's Crosswalk Policy. Based on the discussion above, the proposed project would not conflict with a program, plan, ordinance or policy addressing pedestrian access, and on-site circulation.

Transit Access

AC Transit is the bus service provider for Alameda-Contra Costa counties, including the City of Newark. The nearest bus stops to the project site, as of 2019, are:

- About 0.5 miles east of the project site, on the east side of Mowry Avenue, in front of the Silliman Activity and Family Aquatic Center, that serves both directions of travel. This stop serves AC Transit lines 200, 216 and 251 during the weekends only and do not provide any amenities, except for a sign.
- About 0.8 miles east of the project site, on both sides of Cherry Street, just west of Mowry Avenue. These stops serve AC Transit lines 200, 216 and 629 and do not provide any amenities, except for a sign.
- About 0.8 miles east of the project site on both sides of Mowry Avenue. These stops serve AC Transit lines 251 and 269. The southbound stop provides a trash can and a sign, while the northbound stop provides only a sign.

Lines 200 and 216 provide service to both the Fremont and the Union City BART stations, while Line 251 provides service to the Fremont BART station. Line 629 is a school line that operates twice a day to and from Newark Memorial High School.

Pedestrians would travel between the project site and the bus stops by using the sidewalk on the east side of Mowry Avenue, including the segment of new sidewalk to be constructed by the proposed project between the project site to join the existing sidewalk just east of the railroad crossing. The proposed project would not conflict with a program, plan, ordinance or policy addressing transit access.

At-Grade Railroad Crossing

UPRR owns and operates the railroad crossing on Mowry Avenue to transport freight, while Amtrak uses the crossing for passenger transport. The crossing is a public, at-grade crossing with three tracks. Based on FRA data, about 24 trains use the tracks on a typical day, with a maximum speed of 60 mph. The railroad crossing is identified as US DOT crossing inventory number 749946C and has gate controls for vehicular approaches in both directions. The crossing only has sidewalks on the west side of the tracks but provides an even surface for crossing. However, there are no truncated domes or other detectable warning surfaces for pedestrians. Based on the FRA accident/incident reports, no collisions have been reported at the at-grade railroad crossing in the past ten years.

The General Plan includes a policy of replacing some of the at-grade railroad crossings with grade-separated rail overpasses, to enhance safety, reduce travel delays and improve emergency access. According to the General Plan, grade separations are planned either at Mowry Avenue or Stevenson Avenue as part of the Southwest Newark Recreation and Residential Project, which includes the proposed project site (City of Newark 2013a). Although the General Plan states that the at-grade crossings would be replaced with grade-separated rail overpasses, the Newark Areas 3 and 4 Specific

Plan proposes an overpass at the Stevenson Boulevard railroad crossing and no improvements at the Mowry Avenue railroad crossing. According to the Specific Plan, advanced preliminary designs have been completed for the Stevenson Boulevard overpass.

The proposed project would provide crossing improvements at the UPRR crossing, which would be equipped with crossing arms, upgraded roadway panels, signage, striping, and pedestrian path and bicycle crossing improvements to encourage safer access to the proposed project, surrounding development, and recreation facilities. The UPRR crossing would also include any required gate signals, visual, and/or audio equipment, as required by UPRR or the Newark Municipal Code. The proposed project's traffic study includes recommendations regarding specific safety enhancements to the Mowry Avenue at-grade railroad crossing. Any proposed improvements must be coordinated with CPUC and affected railroads and all necessary permits/approvals obtained, including a GO 88-B Request (Authorization to Alter Highway Rail Crossings).

The proposed project would not conflict with a program, plan, ordinance or policy addressing at-grade railroad crossing.

Based on the discussion above, the proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system and impact would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Vehicle Miles Travelled

Impact TRANS-2	**The proposed project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision(b).**

Impact Analysis
According to CEQA Guidelines §15064.3 Subdivision (b)(1), VMT exceeding an applicable threshold of significance may indicate a significant impact. OPR Guidelines recommend evaluating VMT impacts using an efficiency-based metric such as VMT per person. The OPR Guidelines also recommend setting significance thresholds as 15 percent below the citywide or regional average VMT per person. This analysis estimates the VMT per resident for the proposed project and compares it to 15 percent below the citywide average VMT per resident, consistent with the OPR guidelines.

VMT is typically an output from travel demand models and is calculated based on the number of vehicles multiplied by the distance traveled by each vehicle. This analysis uses VMT per resident, as estimated by the Alameda CTC Model. VMT per resident is defined as the total VMT generated by residents with an origin within a geographic area and tracked throughout the regional network on a typical weekday divided by the number of residents in that geographic area.

The Alameda CTC Model, which covers the entire nine county Bay Area, is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes, transit ridership, and VMT using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and expected changes in the transportation network. This analysis uses the latest version of the Alameda CTC Model, which was released in May 2019. The Alameda CTC Model is based on the prior MTC Plan Bay Area 2040 (i.e., Sustainable Communities Strategy) transportation network and land uses for 2020 and 2040.

As a regional planning tool, the Alameda CTC Model was developed through an extensive model validation process and is intended to replicate existing vehicular travel behavior. Therefore, it can provide a reasonable estimate of the VMT generated in various geographic areas on a typical weekday, as well as estimate future VMT that reflects planned local and regional land use and transportation system changes. The Alameda CTC Model was used to estimate VMT per resident generated by the proposed project, as well as average VMT per resident for the City of Newark under 2020 and 2040 conditions.

Table 3.17-2 summarizes the VMT estimates under 2020 and 2040 conditions. 2020 conditions are used to approximate existing conditions. It is estimated that the project residents would have an average VMT of 27.9 miles per resident per day in 2020 and 25.6 miles per resident per day in 2040.

Table 3.17-2: VMT Per Resident Summary

	2020[1]	2040[1]
Proposed Project (TAZ 940)	27.9	25.6
Average, City of Newark	22.8	20.5
Average, City of Newark minus 15% (i.e., threshold of significance)	19.4	17.4
Percent Difference	44%	47%

Notes:
Based on the outputs of the Alameda CTC Countywide Travel Demand Model
Traffic Analysis Zone (TAZ): A traffic analysis zone is a special area delineated by state and/or local transportation officials for tabulating traffic-related data.
Source: Fehr & Peers, 2021a.

Under 2020 and 2040 conditions, the average VMT per resident for the proposed project would be 44 and 47 percent higher, respectively, than the citywide average minus 15 percent, which is the threshold of significance. Therefore, the proposed project would cause a significant impact on VMT because it would exceed existing citywide household VMT per capita minus 15 percent. Mitigation Measure TRANS-1 would be implemented to reduce project-generated VMT. Mitigation Measure TRANS-1 requires the implementation of a Transportation Demand Management (TDM) Plan that would include measures that discourage the use of single-occupant automobiles and encourage the use of other travel modes. TDM Plan describe implementation of strategies to provide incentives that encourage walking, biking, and transit and reduce private automobile trips and parking demand. TDM strategies include, but are not limited to, offering to provide free parking spaces for car share vehicles and offering carpool matching to project residents. However, it is estimated that a TDM Plan would reduce the project-generated VMT by less than one percent which would not be adequate to reduce the project-generated VMT to below the threshold of significance. Therefore, the proposed project would have a significant and unavoidable impact related to VMT and a statement of overriding considerations would be required.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures

MM TRANS-1: Implementation of a Transportation Demand Management (TDM) Plan. The Applicant shall prepare and implement a TDM Plan prior to the start of construction activities. Impacts on VMT can be reduced through implementing a robust TDM program to reduce VMT through measures that discourage the use of single-occupant automobiles and encourage the use of other travel modes. The TDM Plan would reduce VMT, as well as automobile trip generation and parking demand. Due to the project location, type of development, availability of transit service, and other area characteristics, limited TDM measures would be effective for the proposed project. The TDM Plan could include the following strategies:

- Explore the feasibility and, if feasible, coordinate with other nearby developments and/or AC Transit to provide shuttle or bus service between the project site and a BART station and/or other major destinations.
- Offer to provide free parking spaces for at least two car share vehicles (Zipcar, etc.) for residents to utilize to reduce the need for personal vehicle ownership.
- Offer to provide carpool matching to project residents.

Level of Significance After Mitigation
Significant and Unavoidable Impact.

Hazardous Design Feature

Impact TRANS-3 The proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Impact Analysis
The proposed project does not increase hazards due to a geometric design feature or incompatible uses. Development of the project site and site access improvements requires compliance with City development guidelines and code, which follow the General Plan policies and actions that encourage the safe design of arterial roads and streets. Vehicles would enter and exit the project site from the two access points on Mowry Avenue. The project driveways will provide access from Mowry Avenue to the 46-foot private internal street, with a 36-foot curb-to-curb width servicing the residential units. Assuming a prevailing automobile speed of 25 mph or less, all internal project streets would provide adequate sight distance between vehicles traveling in conflicting directions and between vehicles and pedestrians. In addition, the bulb-outs at mid-block and intersection locations proposed through the site would reduce the effective width of the streets and result in lower travel speeds for automobiles.

During construction, traffic management plans will be implemented to ensure the safety of roadway users accessing Mowry Avenue. During construction, the proposed project would generate vehicle traffic through the transport of workers, equipment, and materials to and from the project site. The use of roadways by heavy construction equipment can increase the risk to drivers and cyclists in the vicinity of the project site; however, construction equipment and materials would be stored on-site. The proposed project includes modifications and improvements to existing roadways and may result in partial or complete road closure during construction activities. If road closures or detours are required during construction, the proposed project would be required to prepare and implement a TCP to ensure that it would not result in increased roadway hazards during construction. The proposed project would comply with the City of Newark's TCP Requirements for work area traffic control for work performed in the City's ROWs. Also, there would be no incompatible uses introduced to the project area which could cause vehicle conflicts (e.g., farm equipment). Therefore, impact would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Emergency Access

Impact TRANS-4 The proposed project would not result in inadequate emergency access.

Impact Analysis
The proposed project will not result in inadequate emergency access. Development of the project site will not alter or impede emergency response routes or plans set in place by the City.

Emergency vehicles would access the project site through the same two vehicular access points and use the internal street network. According to the CFC (2016), fire apparatus access roads need to be no less than 20 feet wide and shall always be unobstructed, which the internal project streets meet. The minimum width available for driving or turning movements throughout the project site would be 20 feet. The neighborhood streets would be at least 36 feet wide. The project roadway and neighborhood design would provide adequate turning radii and drive areas for fire trucks and other emergency vehicles. Based on the project site plan, the internal streets and intersection, including the project cul-de-sacs, would accommodate a fire truck. The project site would not be gated and the fire truck would be able to access the project site freely.

The project driveways are designed to comply with turning radius requirements for emergency vehicles and will not cause hazardous driving conditions. The proposed project's detailed design will be completed in compliance with CFC requirements and not impair emergency vehicle access in the vicinity of the project site during construction and in ongoing operation. Compliance with the CFC and CBC will be mandated through the plan check and approval process. This process will also ensure that adequate access for emergency services is provided and the City's emergency response plan will be upheld during construction. Therefore, the proposed project would not result in inadequate emergency access and impacts would be less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

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3.18 TRIBAL CULTURAL RESOURCES

This section discusses impacts to cultural resources directly related to Native American tribal cultures that populated the area where the proposed project is located. The distinction for tribal cultural resources is that they are described as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objected with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. Cultural resources are generally considered as archaeological or paleontological resources that are typically beneath the surface of the ground and are discovered or uncovered through disturbance of the site. The potential tribal cultural resources impacts associated with the proposed project are identified and discussed herein.

Information in this section is based on the Cultural Resources Assessment prepared by Helix Environmental Planning in December 2021, and included as Appendix D. Where general information is applicable to both Section 3.5, Cultural Resources, and this section, the reader will be referred to Section 3.5 for additional detail.

3.18.1 Environmental Setting

Project Setting

The project site is located within an agricultural and industrial area in the southwestern portion of the City. A portion of the project site is developed with an auto parts and scrap metal salvage lot with three structures and a large asphalt parking area and the northern parcel of the project site is undeveloped, open land.

Ethnographic Setting

Prior to Euro-American occupation, the Newark area was occupied by various tribelets who spoke Ohlone (previously called Costanoan). The Ohlone group designates a language family consisting of eight branches of the Ohlone language that are considered too distinct to be dialects, with each being related to its geographically adjacent neighbors. These groups lived in approximately 50 separate and politically autonomous tribelet areas, each with one or more permanent villages, between the North San Francisco Bay and the lower Salinas River. The Ohlone were politically organized into autonomous tribelets that had distinct cultural territories. Individual tribelets contained one or more villages with several camps for resource procurement within the tribelet territory. The tribelet chief could be either male or female, and the position was inherited patrilineally, but approval of the community was required. The tribelet chief and council were essentially advisors to the community and were responsible for feeding visitors, directing hunting and fishing expeditions, ceremonial activities, and warfare on neighboring tribelets.

The various Ohlone tribes subsisted as hunter-gatherers and relied on local terrestrial and marine flora and fauna for subsistence. The predominant plant food source was acorn, but they also exploited a wide range of other plants, including various seeds, buckeye, berries, and roots. Protein sources included grizzly bear, elk, sea lions, antelope, and black-tailed deer as well as smaller mammals such as raccoon, brush rabbit, ground squirrels, and wood rats. Waterfowl, including Canadian geese, mallards, green-winged teal, and American widgeon, were captured in nets using decoys to attract them. Fish also played an important role in the Ohlone diet and included steelhead, salmon, and sturgeon.

The Ohlone constructed watercraft from tule reeds and possessed bow and arrow technology, They fashioned blankets from sea otter pelts, fabricated basketry from twined reeds of various types, and assembled a variety of stone and bone tools in their assemblages. Ohlone villages typically consisted of domed dwelling structures, communal sweathouses, dance enclosures, and assembly houses constructed from thatched tule reeds and a combination of wild grasses, wild alfalfa, and ferns.

The Gold Rush brought disease to the native inhabitants and by the 1850s, nearly all of the Ohlone had adapted in some way or another to economies based on cash income. Hunting and gathering activities continued to decline and were rapidly replaced with economies based on ranching and farming (Helix 2021).

Native American Consultation

Helix Environmental Planning contacted NAHC on April 16, 2018, to request a search of their Sacred Lands File (SLF) for the presence of Native American sacred sites or human remains in the vicinity of the study area. A written response was received from the NAHC on May 23, 2018, which stated that the SLF failed to indicate the presence of Native American cultural resources in the vicinity of the project area. On May 29, 2018, Helix Environmental Consulting sent letters to six Native American tribal representatives named by NAHC as potential sources of information related to cultural resources in the area. The letters advised the tribal representatives of the proposed project and requested information regarding Native American resources in the immediate area, as well as feedback or concerns related to the proposed project. The letters noted that the requested information was not for AB 52 or SB 18 consultation, but merely for informational purposes.

Additionally, the City sent letters on February 8, 2022, to 12 Native American tribal representatives included on the NAHC's tribal consultation list for Alameda County for consultation under AB 52 and SB 18 for the proposed project. The AB 52 and SB 18 notification letters included a description of the proposed project and invited the tribe to consult with the City regarding the proposed project under AB 52 and SB 18. Under PRC Section 21080.3.1, AB 52 consultation process is not required to be initiated unless a tribe that is traditionally and culturally affiliated to the geographic area where a project is located requests, in writing, for consultation. The tribe must respond, in writing, within 30 days of receipt of the formal notification and request consultation. The notifications letters were sent on February 8, 2022 and to date, no responses have been received. Therefore, the timing to request AB 52 consultation has lapsed and AB 52 consultation was not conducted.

3.18.2 Regulatory Setting

Refer to Section 3.5, Cultural Resources, for additional federal and state regulations and local policies applicable to tribal cultural resources.

State

Assembly Bill 52 (PRC Section 21084.2)

AB 52 establishes a formal consultation process for California tribes as part of CEQA and equates significant impacts on “tribal cultural resources” with significant environmental impacts (PRC Section 21084.2). AB 52 defines a “California Native American tribe” as a Native American tribe located in California that is on the contact list maintained by NAHC. AB 52 requires formal consultation with California Native American tribes prior to determining the level of environmental documentation if a tribe has requested to be informed of proposed projects by the lead agency. AB 52 also requires that consultation address project alternatives and mitigation measures for significant effects, if requested by the California Native American tribe, and that consultation be considered concluded when either of the parties agrees to measures to mitigate or avoid a significant effect, or the agency concludes that mutual agreement cannot be reached. Under AB 52, such mitigation or avoidance measures must be recommended for inclusion in the environmental document and adopted mitigation monitoring program if determined to avoid or lessen a significant impact on a tribal cultural resource.

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the HSC, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030). Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered.

Section 7050.5 of the HSC states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment. PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological and Historical Sites, defines any unauthorized disturbance or removal of remains on public land as a misdemeanor.

Senate Bill 18

SB 18 requires cities and counties to consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Places. This allows Native American tribes the opportunity to provide input with respect to the possible preservation of, or the mitigation of impacts on, specified Native American places, features, and objects located within that jurisdiction. This consultation is required prior to amending or adopting any general plan or specific plan or designating land as open space. As noted above, the City contacted NAHC and local tribes in accordance with SB 18 requirements.

Local

City of Newark General Plan

The following lists goals and policies from the City of Newark General Plan pertaining to tribal cultural resources that are applicable to the proposed project.

Goal LU-5: Historic Preservation. Identify, preserve, and maintain historic structures and sites to enhance Newark's sense of place and create living reminders of the city's heritage.

- **Policy LU-5.5: Native American Resources.** Coordinate with local tribal representatives and the Native American Heritage Commission to ensure the protection of Newark's Native American resources ad to follow appropriate mitigation, preservation, and recovery procedures in the event that important resources are identified during development.

3.18.3 Environmental Impacts

This section analyzes the project's potential to result in significant tribal cultural resources impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid that impact.

Methodology for Analysis

The following impact analysis is based on the Cultural Resources Assessment prepared for the proposed project by Helix Environmental Planning in December 2021, which is included as Appendix D. The Cultural Resources Assessment included a records search at the NWIC, literature review, field survey, and search of the SLF from NAHC.

Threshold of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's tribal cultural resources impacts are significant. Would the proposed project:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined by PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k), or

- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Project Impact Analysis and Mitigation Measures

Tribal Cultural Resources

Impact TRIB-1 **The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to California Native American tribe, and that is:**

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Impact Analysis

A search of the NAHC's SLF was conducted as part of the Cultural Resources Assessment prepared for the proposed project for the presence of Native American sacred sites or human remains in the vicinity of the project site. A response received from the NAHC stated that the SLF failed to indicate the presence of Native American cultural resources in the vicinity of the project site and a records search of the NWIC did not identify any resources that have been previously recorded within the project site. Additionally, there is no resource within the project site that is listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k) or a resource determined by the City to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. Therefore, the proposed project is not anticipated to impact any known tribal cultural resources.

However, a records search of the NWIC identified 18 previous cultural resources studies that have been conducted in the area. Results of the NWIC records search identified seven resources that have been recorded within the vicinity of the project site, six of which are identified as prehistoric resources. The prehistoric resources include mounds, habitation debris, and human remains and therefore, the Cultural Resources Assessment identified that the project site has a high potential to contain unknown prehistoric resources which may include tribal cultural resources.

The City initiated AB 52 and SB 18 consultation requirements by sending letters on February 8, 2022, to 12 Native American tribal representatives included on the NAHC's tribal consultation list for Alameda County. Under PRC Section 21080.3.1, AB 52 consultation process is not required to be initiated unless a tribe that is traditionally and culturally affiliated to the geographic area where a project is located requests, in writing, for consultation. The tribe must respond, in writing, within 30 days of receipt of the formal notification and request consultation. The notifications letters were sent on February 8, 2022 and to date, no responses have been received. Therefore, the timing to request AB 52 consultation has lapsed and AB 52 consultation was not initiated.

As the project site is identified as having high potential for unknown prehistoric resources and construction activities required for development of the proposed project would require subsurface work including excavation and earthmoving activities which could potentially damage or destroy previously undiscovered tribal cultural resources, the proposed project would be required to implement mitigation measures to reduce potential impacts. Under Section 21084.3 of the PRC, public agencies shall, when feasible, avoid damaging effects on any tribal cultural resources. To ensure compliance with PRC Section 21084.3, the proposed project would be required to implement Mitigation Measures CUL-1 and CUL-2, identified in Section 3.5, Cultural Resources. Implementation of Mitigation Measure CUL-1 would require the preparation and implementation of a monitoring program which would include, but not limited to, identification of qualified archaeologists, preconstruction briefing for construction personnel on procedures to be followed in the event that unknown resources are encountered during construction, and construction monitoring. Additionally, Mitigation Measure CUL-1 requires consultation with a Native American tribal representative from a tribe that is traditionally and culturally affiliated to the geographic area where the project is located to determine the significance of the discovered resource and ensure proper handling of the resource. In the event of an accidental discovery or recognition of any human remains, the proposed project would be required to implement Mitigation Measure CUL-2 which requires the stoppage of all ground disturbing work so that the County Coroner may determine in the remains are Native American. With the implementation of Mitigation Measures CUL-1 and CUL-2, the proposed project would not cause a substantial adverse change in the significance of tribal cultural resources and impacts would be less than significant.

Level of Significance Before Mitigation
Potentially Significant Impact.

Mitigation Measures
Mitigation Measures CUL-1 and CUL-2 are required.

Level of Significance After Mitigation
Less Than Significant Impact with Mitigation.

3.19 UTILITIES AND SERVICE SYSTEMS

This section describes the environmental and regulatory setting for utilities and service systems. It also describes existing conditions and potential impacts related to utilities and service systems that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.19.1 Environmental Setting

Wastewater Collection/Treatment

The USD provides wastewater collection, treatment, and disposal services to the Cities of Newark, Fremont and Union City. The USD owns and maintains over 783 miles of sanitary sewer pipelines, four lift stations that serve low lying developments, three major pump stations, and 13 miles of dual force mains that transport wastewater to the Alvarado Wastewater Treatment Plan (AWWTP) in Union City (City of Newark 2013b). Wastewater from the City is conveyed to the Newark Pump Station and then to the AWWTP. The USD completed a $11 million expansion project at the Newark Pump Station in 2010 which was upgraded to help accommodate any increases in flow rates for the foreseeable future. The AWWTP has the capacity to treat an average dry weather flow (ADWF) of up to 33 million gallons per day (mgd). Average wastewater treated in 2020 was 23.16 mgd.

Area 3 of the Specific Plan is within the existing USD service area boundaries, but USD has indicated Area 4 would need to be annexed into their jurisdictional boundaries through Alameda County Local Agency Formation Commission.

Stormwater Management

The ACFC&WCD provides stormwater collection system for the City of Newark. The stormwater system in Newark is managed through a joint partnership between the ACFC&WCD and the City of Newark. Stormwater in the City is managed through a system of gutters, storm drains, channels, and culverts that direct runoff to local creeks and the San Francisco Bay without treatment. All of the storm drainage catch basins and storm drain systems in Newark eventually connect to five different flood control channels.

Water Supply

The City is supplied water by the ACWD which supplies water to customers covering approximately 105 square miles, encompassing the Cities of Fremont, Newark and Union City. The ACWD's primary sources of water supply come from the Bay-Delta provided by the State Water Project (SWP), San Francisco Regional Water System (RWS), and local sources including groundwater from the Nile Cone Groundwater Basin and surface water from the Lake Del Valle (ACWD 2021a).

Before being delivered to ACWD customers, the source water supplies are treated to meet all state and federal drinking water standards. The ACWD operates two surface water treatment plant – Mission San Jose Water Treatment Plant (WTP) and WTP No. 2 - that treats SWP and local surface water from Del Valle Reservoir. According to the ACWD's latest UWMP, the Mission San Jose Treatment Plant is currently decommissioned as a cost saving measure due to low demands (ACWD 2021a). The Newark Desalination Facility (NDF) treats brackish groundwater to remove salts and other impurities, and the

Blending Facility blends San Francisco water with local fresh groundwater (with higher hardness) to provide a blended supply with lower overall hardness. Water resources provided by the ACWD are treated at the WTP No. 2, Newark Desalination Facility, and the Blending Facility before it is supplied to the City. In the 2020 to 2021 fiscal year, the ACWD had an average daily production of 40 mgd and maximum day production of 59.7 mgd. The WTP No. 2 has a 28 mgd capacity, NDF has a 12.5 mgd capacity, and the Blending Facility has a 48 mgd capacity (ACWD 2021b).

The 2020 – 2025 UWMP identified that under normal year water supply conditions, ACWD would have sufficient supplies to meet projected water demands and that during these conditions, ACWD would have sufficient supplied available in excess of the projected demands for placing into groundwater storage for later use in the area in dry years (ACWD 2021a). During critically dry and multiple dry years, the ACWD service area may be facing water supply shortages. Because the Areas 3 and 4 Specific Plan's demands are already factored into the UWMP, the development of these 203 homes would not result in increased shortages, during normal and dry years, beyond those which are already factored into ACWD's planning under current and foreseeable conditions (City of Newark 2014).

Solid Waste

Republic Services provides solid waste collection, disposal, recycling, and yard waste services in in the City. Materials collected by Republic Services of Alameda County are transferred to the Fremont Recycling and Transfer Station where materials are sorted for proper disposal. Non-recyclable materials are then taken to the Altamont Landfill for disposal and green waste/plant debris are transported to several composting facilities in the area. The Altamont Landfill site is approximately 2,063 acres and has a maximum permitted throughout of 11,150 tons per day. The landfill has a maximum permitted capacity of 124,400,000 CY and a remaining available capacity of 65,400,000 CY (CalRecycle 2021b).

Electric Power and Telecommunications

The proposed project would be 100 percent electric and electric services at the site would be provided by PG&E. Telecommunication services would be provided by AT&T and Comcast.

Proposed Project Utility Improvements

The proposed project would install new 8 inch sanitary sewer lines throughout the development, totaling approximately 5,950 linear feet, to connect to a proposed new 8 inch sanitary sewer line within Mowry Avenue. The wastewater flow would be directed north towards Mowry Avenue and routed to a proposed sewer pump station on Mowry Avenue, between the UPRR tracks and the project frontage. The flows would then be conveyed to the existing 8 inch sewer main on the north side of the UPRR tracks. The pump station system would provide redundant dual pump facilities, including backup generators, as required by USD for public use installations and would be designed to function independently in case of overload or mechanical failure. The sewer main extension would be constructed through a jack-and-bore operation under the UPRR tracks. The proposed project's wastewater would then be conveyed south to the Boyce Avenue pump station and ultimately to the AWWTP.

A new 8 inch water main, totaling approximately 6,300 linear feet, is proposed to serve the residents on-site and connect to a proposed new 12 inch water main within Mowry Avenue. The new 12 inch water main is proposed to be extended from the terminus of the existing 16 inch water main on the north side of the UPRR tracks within Mowry Avenue toward the project site. The water main extension would be constructed through a jack-and-bore operation under the UPRR tracks, totaling approximately 1,850 linear feet. Fire hydrants are proposed throughout the development and along Mowry Avenue consistent with ACWD, ACFD and CFC standards.

In addition, potable and non-potable water mains would be extended approximately 900 linear feet from the southwest corner of the Sanctuary Development, within the old Addition Road alignment adjacent and parallel to ACFC&WCD Line D channel, to the UPRR ROW. The potable and non-potable water mains would be jack-and-bored, approximately 250 linear feet, under the ACFC&WCD Line D channel and the UPRR ROW. The non-potable water main would be stubbed on the western edge of the UPRR ROW for future connection. The potable water main would extend 2,500 linear feet northwest along the UPRR ROW, within an existing utility easement, to Mowry Avenue and then an additional 500 linear feet down Mowry Avenue to the project entrance at future 'A' Street.

The proposed project would utilize LID techniques which may include directing roof runoff to vegetated areas, storm drain stenciling, and site design that promotes infiltration. The storm drain system for the proposed project would consist of bioretention areas, curbs and gutters along the roadways, and underground storm drain pipes. New storm drain pipes installed throughout the project site would range from 15 to 24 inches in size and would convey stormwater to the two new on-site bioretention areas. The two bioretention would total approximately 24,665 square feet in size with 6 inches of ponding over the treatment areas. The bioretention treatment areas would be planted with water conserving grass species, shrubs, and trees that are adapted to bio-swale conditions. The bioretention treatment areas would discharge flow through the on-site storm drain system, into the adjacent City-owned open space parcel, consistent with the historic drainage path.

The proposed project would also involve off-site stormwater improvements associated with the widening of Mowry Avenue. These improvements would consist of new storm drains ranging from 15 to 24 inches in size within Mowry Avenue, which would collect and convey flow towards the ACFC&WCD Channel Line B at the terminus of Mowry Avenue. Additionally, the proposed roadway improvements would include four new bioretention treatment areas along Mowry Avenue, totaling approximately 3,212 square feet.

3.19.2 Regulatory Setting

Federal

Clean Water Act

Section 304 of the Clean Water Act establishes primary drinking water standards and requires states to ensure that potable water retailed to the public meets these standards. State primary and secondary drinking water standards are promulgated in California Code of Regulations Title 22, Sections 64431–64501. Secondary drinking water standards incorporate non health risk factors including taste, odor, and appearance. The National Pollutant Discharge Elimination System regulates the discharge of drainage to surface waters. Federal NPDES regulations are administered by the State Water Resources Control Board and through the Regional Water Resources Control Boards. Because the proposed project area drains to the San Francisco Bay, it is under the jurisdiction of the San Francisco Bay RWQCB.

State

Porter Cologne Water Quality Control Act

The State of California established the SWRCB, which oversees the nine RWQCBs, through Porter-Cologne. Through the enforcement of Porter Cologne, the SWRCB determines the beneficial uses of the waters (surface and groundwater) of the state, establishes narrative and/or numerical water quality standards, and initiates policies relating to water quality. The SWRCB and, more specifically, the RWQCB, is authorized to prescribe Waste Discharge Requirements for the discharge of waste, which may impact the waters of the State. Furthermore, the development of water quality control plans, or Basin Plans, are required by Porter-Cologne to protect water quality. The SWRCB issues both general construction permits and individual permits under the auspices of the federal NPDES program.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610–10656). The Urban Water Management Planning Act requires that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet per year (AFY) shall prepare and adopt an UWMP. Water suppliers are required to prepare a UWMP within a year of becoming an urban water supplier and update the plan at least once every five years. The Urban Water Management Planning Act also specifies the content that is to be included in an UWMP. It is the intention of the legislature to permit levels of water management planning commensurate with the number of customers served and the volume of water supplied. The Urban Water Management Planning Act states that urban water suppliers should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple-dry years. The Urban Water Management Planning Act also states that the management of urban water demands, and the efficient use of water shall be actively pursued to protect both the people of the state and their water resources. ACWD's 2020 - 2025 UWMP was adopted on May 13, 2021.

California Integrated Waste Management Act (AB 939 and AB 341)

To minimize the amount of solid waste that must be disposed of by transformation (i.e., recycling) and land disposal, the Legislature passed the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990. According to AB 939, all cities and counties are required to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000. Solid waste plans are required to explain how each city's AB 939 plan will be integrated within its respective county plan. They must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal. In 2010, the state legislature passed AB 341 (Chesbro) which set a statewide recycling goal of 75 percent by 2020, which is anticipated to be achieved through source reduction, recycling, and continued diversion of materials such as organic wastes.

Local

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project:

Goal CS-3: Water Resources. Conserve and enhance Newark's water resources.

- **Policy CS-3.1: Protection of Water Resources.** Ensure that land use decisions consider the availability of water for domestic and non-domestic uses, potential impacts on groundwater quality and groundwater recharge capacity, and potential off-site impacts on water quality.
- **Policy CS-3.2: Water Conservation Standards.** Promote water conservation through development standards, building requirements, irrigation requirements, landscape design guidelines, and other applicable City policies and programs.
- **Policy CS-3.3: ACWD Conservation Incentives.** Support Alameda County Water District (ACWD) incentives, which encourage Newark residents and businesses to conserve water.
- **Policy CS-3.7: Wastewater Treatment.** Work with the Union Sanitary District to ensure that sanitary sewer collection and treatment systems are maintained and upgraded to reduce water pollution in San Francisco Bay.

Goal CS-8: Solid Waste Management. Reduce landfill waste through recycling, composting, and source reduction.

- **Policy CS-8.1: Recycling Program.** Actively promote recycling, composting, and waste reduction in order to minimize the amount of waste requiring disposal in landfills. Provide for residential recycling and green waste containers and weekly curbside recycling pickup, to make it as easy and convenient as possible for residents to reduce the volume of trash requiring landfill disposal.

Goal EH-3: Flooding Hazards. Reduce risks to life and property associated with flooding.

- **Policy EH-3.2: Maintaining Drainage Patterns.** Prohibit development, grading, and land modification activities that would adversely affect Newark's drainage system or create unacceptable erosion impacts.
- **Policy EH-3.3: Residential Development in the Flood Plain.** Require that new residential development, including streets and other surface improvements, be constructed above the 100-year flood elevation.
- **Policy EH-3.5: Storm Drain Maintenance.** Manage and maintain the storm drainage system to avoid flooding and reduce the negative effects of stormwater runoff.
- **Policy EH-3.8: Flood Control Improvements.** Work with Alameda County Flood Control and Water Conservation District (ACFC&WCD) on improvements to the storm drain, flood control channel, and levee system which ensure that these systems continue to protect Newark neighborhoods and business districts from flooding.

Goal CSF-5: Infrastructure. Provide safe, reliable, and efficiently operated infrastructure which meets Newark's long-term water, sewer, and stormwater management needs.

- **Policy CSF-5.1: Water Supply.** Work with the Alameda County Water District to ensure a stable supply of clean, safe drinking water for existing and future development in Newark.
- **Policy CSF-5.2: Sanitary Sewer.** Work with the Union Sanitary District to ensure that the sewer system is expanded to serve Newark's new development areas, existing facilities are regularly maintained, sufficient wastewater capacity is provided to meet projected growth, and wastewater effluent is treated to meet all state and federal standards.
- **Policy CSF-5.5: Drainage with New Development.** Ensure that new development provides drainage and flood protection improvements which reduce on-site and downstream hazards such as ponding, flooding, and erosion. New development areas should be designed to minimize impervious surfaces in order to reduce associated site runoff and maximize groundwater recharge.
- **Policy CSF-5.6: Involving Utility Agencies in Development Review.** Engage local water, sewer, and stormwater service providers in the review of new development projects to ensure that infrastructure, including water supply and wastewater treatment capacity, is available or will be made available to meet development-related needs.
- **Policy CSF-5.7: Infrastructure Cost.** Ensure that the cost of infrastructure improvements required for new development is the financial responsibility of that development and is allocated based on each project's expected impacts.
- **Policy CSF-5.8: Visual Impact of Utilities.** Minimize the visual impact of public utilities such as transmission lines and wireless communication facilities. Utility lines along new and redeveloped rights-of-way should be placed underground wherever feasible.

3.19.3 Environmental Impacts

This section analyzes the project's potential to result in significant utilities and service systems impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of documents pertaining to the project site, including the General Plan, the General Plan EIR, UWMP, and Section 2.0, Project Description, of this EIR. The following impact discussions consider the impacts of the proposed project related to utilities and service systems in the City.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's utilities and service system impacts are significant. Would the proposed project:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or other impair the attainment of solid waste reduction goals?
- Comply with federal, state and local management and reduction statues and regulations related to solid waste?

Project Impact Analysis and Mitigation Measures

Relocation or Construction of Utility Facilities

Impact UTIL-1	**The proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.**

Impact Analysis

Wastewater Treatment

The General Plan EIR determined that buildout of the General Plan would result in a projected wastewater generation rate at buildout of approximately 3.78 mgd. Even with the increase at buildout, the AWWTP would be operating at only 74 percent of its capacity and therefore, would not require the expansion of AWWTP (City of Newark 2013b). The General Plan EIR takes into account anticipated demand from existing Specific Plans and development projects within the City when developing or updating a General Plan and its EIR. Therefore, the Areas 3 and 4 Specific Plan's demands were factored into the General Plan EIR and the proposed project's demands would be adequately handled by the AWWTP's existing capacity.

The proposed project would be required to comply with the USD's Capacity Charge Ordinance and Newark Municipal Code Chapter 3.24, Development Impact Fees. The Capacity Charge Ordinance requires all development applicants to pay capacity fees and be subject to development review process. The Newark Municipal Code Chapter 3.24 requires new developments to pay a fee towards construction of facilities that are required by new development. The funds collected through the fee would ensure funding is provided and set aside to allow for future construction or expansion of facilities as needed to accommodate future growth A new sanitary sewer pump station is proposed on Mowry Avenue, between the UPRR tracks and the project frontage by the Areas 3 and 4 Specific Plan. The construction of the new pump station is not proposed as part of the proposed project and the construction of the new pump station was planned as part of the development of the Areas 3 and 4 Specific Plan area and analyzed in the Specific Plan EIR. The pump station system would provide redundant dual pump facilities, including backup generators, as required by USD for public use installations and would be designed to function independently in case of overload or mechanical failure. The proposed pump station would pump water to a new 8 inch sewer main within Mowry Avenue, south of the UPRR tracks, prior to connecting to the existing 8 inch sewer main within Mowry Avenue, north of the UPRR tracks. The sewer main extension would be constructed through a jack-and-bore operation under the UPRR tracks. The proposed project's wastewater would be conveyed south to the Boyce Avenue Pump Station and ultimately to the AWWTP. Construction of the utility infrastructure would include excavation, jack-and-bore under the UPRR tracks, and grading. The construction of the new sewer main and extension of the existing sewer main would be completed in accordance with City engineering requirements for the installation of utilities and construction would comply with applicable air quality and noise reduction regulations to ensure that construction of utility infrastructure would not cause significant impacts to the environment. The proposed project would not require or result in the construction of additional wastewater treatment facilities and impacts would be less than significant.

Water Treatment

The proposed project would connect the new 8 inch main proposed to serve the residents on-site to a proposed 12 inch main within Mowry Avenue. The proposed 12 inch main would be extended from the terminus of the existing 16 inch water main on the north side of the UPRR tracks within Mowry Avenue toward the project site. Additionally, existing potable and non-potable water main would be extended from the southwest corner of the Sanctuary West Development, within the old Addition Road alignment adjacent and parallel to ACFC&WCD Line D channel, to the UPRR ROW. The potable and non-potable water mains would be jack-and-bored under the ACFC&WCD Line D channel and the UPRR ROW. The non-potable water main would be stubbed on the western edge of the UPRR ROW for future connection and the potable water main would extend northwest along the UPRR ROW, within an existing utility easement, to Mowry Avenue and then down Mowry Avenue to the project entrance at future 'A' Street. The construction and extension of water mains would be completed in accordance with City engineering requirements for the installation of utilities and construction would comply with applicable air quality and noise reduction regulations to ensure that construction of utility infrastructure would not cause significant impacts to the environment. As discussed under Impact UTIL-2, the proposed project would not require water supplies in excess of the project demand and the proposed project would not require the construction of or expansion of existing water facilities. Additionally, the proposed project would be required to pay its fair share of cost of infrastructure improvements required for new developments. Therefore, impacts would be less than significant.

Stormwater Drainage

The proposed project would include installation of an storm drain systems consisting of bioretention areas, curbs and gutters along the roadways, and underground storm drain pipes and would utilize LID techniques for the system. Storm drains installed on-site would convey stormwater from the site to the two on-site bioretention treatments areas which would then discharge flows through the on-site storm drain system into the adjacent City-owned open space parcel, consistent with the historic drainage path. Additionally, the proposed project would construct improvements to the off-site stormwater system and storm drains located within Mowry Avenue would collect and convey flow towards the ACFC&WCD Line B channel at the terminus of Mowry Avenue. The construction of improvements would be completed in accordance with the City's engineering standards and construction activities would comply with existing regulations to reduce potential environmental impacts resulting from construction activities. The constructed improvements would not result in changes to the stormwater system that would result in environmental effects. The proposed project developed a Post Construction Stormwater Control Plan which outlines the proposed storm water infrastructure for the proposed project and includes design strategies, measures, and requirements to ensure that the proposed storm water infrastructure is constructed in accordance with City guidelines. As the City's storm water is directed towards local creeks and the bay without off-site treatment, the proposed project would not require the construction of new or expanded stormwater infrastructure. Stormwater infrastructure improvements included in the proposed project would adequately convey stormwater flows on- and off-site and impacts would be less than significant.

Other Infrastructure

The proposed project would be designed and constructed to be 100 percent electric and would not utilize natural gas during operation of the proposed project. PG&E is the electric provider to the City. Although the proposed project would demand additional electricity, electrical connections would be made with existing facilities located on-site. The proposed project would be subject to energy efficiency standards through the California Green Building Code and Title 24. No new expanded facilities would be required for electric facilities that could potentially cause a significant environmental impact.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Water Supply

Impact UTIL-2	**The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.**

Impact Analysis
The Areas 3 and 4 Specific Plan area which includes the project site is served by the ACWD. During the preparation of the Areas 3 and 4 Specific Plan RDEIR, a WSA was prepared by ACWD in November 2008 which indicated that sufficient water supplies exist to meet the ACWD's projected demands as well as the Specific Plan's demands, including the proposed project, under normal year conditions (City of Newark 2015b). Because the demands of the Specific Plan are already factored into the UWMP's demand analysis, the development of the proposed project would not result in increased shortages beyond those already factored into ACWD's planning under current and future conditions. The UWMP forecasts that the ACWD could withstand a repeat of past dry years conditions without any additional shortages.

The Areas 3 and 4 Specific Plan incorporates water efficiency measures recommended by the ACWD and the WSA concluded that there are sufficient supplies to meet the long term demands of the Specific Plan. All residential development located within the Areas 3 and 4 Specific Plan would be developed with water efficient plumbing fixtures and irrigation systems. If future updated ACWD demand forecast determines that there would be future water supply shortages, the ACWD would require the developers of the Specific Plan to provide funding for off-site conservation measures to offset the demand.

The proposed project would develop low density residential units in Sub Area D of Area 4 of the Newark Areas 3 and 4 Specific Plan which was originally proposed to be developed as a golf course. Although the proposed project would not develop the land as it was proposed in the Areas 3 and 4 Specific Plan, the proposed residential units would not result in a substantial increase in water demand for the project site compared to if the project site was developed as a golf course. The WSA prepared for the Areas 3 and 4 Specific Plan identified that with compliance of the requirements provided in the WSA, ACWD would have sufficient water supplies to support the development as part of the Areas 3 and 4 Specific Plan. Additionally, in a letter provided by the ACWD dated January 3, 2022, the ACWD determined that the total water demand for the Specific Plan area has been reduced since the preparation of the WSA in 2008 and therefore, the findings and determination of the WSA that there would be sufficient water supplies available to serve buildout of the Specific Plan area still apply. The WSA prepared for the Specific Plan EIR identified that single-family residential development would have a water demand of 250 gallons per day per unit (City of Newark 2008). Using the water demand factor identified in the WSA, the proposed project's 203 residential units would be anticipated to result in a water demand of 30,450 gallons per day or 34.13 acre feet per year. The golf course development proposed by the Specific Plan for the project site was estimated to result in water demand of 491 acre feet per year. Therefore, the proposed project would demand substantially less water at the site than what was identified in the Specific Plan and there would be sufficient water supplies available to serve the proposed project. Additionally, the WSA identified that total water demand for the buildout of the Specific Plan would be approximately 1,100 acre feet per year (City of Newark 2008). The proposed project's demand would represent approximately three percent of the total demand for buildout of the Specific Plan area. Therefore, the proposed project would not require water in excess of available existing entitlements and resources, and compliance with the requirements provided in the WSA would ensure that the proposed project would not result in insufficient water supplies to serve the proposed project. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Wastewater Treatment

Impact UTIL-3	**The proposed project would not result in a determination by the wastewater treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.**

Impact Analysis

The AWWTP has the capacity to treat an ADWF of up to 33 mgd and average wastewater treated in 2020 was 23.16 mgd (USD 2021). As discussed under Impact UTIL-1, the General Plan EIR determined that the increase in the generation of wastewater at buildout of the General Plan, which includes development under the Areas 3 and 4 Specific Plan, would be adequately handled by the AWWTP's existing capacity. As the proposed project's 203 single-family homes would be within the residential allocation identified for the Areas 3 and 4 Specific Plan, the proposed project's demands would be adequately handled by the AWWTP's existing capacity. The proposed project would be reviewed by USD and the City as required by the USD's Capacity Charge Ordinance. The Capacity Charge Ordinance requires all new development projects to be subject to the development review process to ensure that there is adequate capacity by the wastewater treatment provider to serve the proposed project, during which the Newark Public Works department and USD staff would require the applicant to upgrade or expand the USD's collection system if the USD determines the demand from the proposed project would exceed USD's system capacity. USD's Capacity Charge Ordinance also requires all development applicants to pay capacity fees, similar to the Newark Municipal Code Chapter 3.24 which requires new developments to pay a fee towards the construction of facilities that are required by new development. The proposed project would pay all required fees and would be required to complete the City and USD's development review process prior to the issuance of building permits. Therefore, the proposed project would not result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve the proposed project and impacts would be less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

Solid Waste

Impact UTIL-4	**The proposed project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.**

Impact Analysis

The proposed project would be expected to generate waste during the construction and operation of the proposed project. Construction of the proposed project would involve the demolition of existing structures on-site. The proposed project is estimated to remove approximately 39,000 CY of vegetation, contaminated soil, demolition debris, and other cleared material prior to construction. Construction waste generated would be disposed of by the project contractor in accordance with the City's established programs that facilitate the diversion and disposal of construction waste. The proposed project would be required to comply City's Green Ordinance under Newark Municipal Code Chapter 15.44, Green Building and Construction and Demolition Debris Recycling. All construction projects whose total costs are greater than $100,000, or structure demolition projects whose total costs are greater than $20,000, or pavement demolition projects involving 1,000 square feet of removed pavement are required to divert 100 percent of all Portland cement concrete and asphalt concrete and an average of no less than 50 percent of all remaining construction and/or demolition debris. Additionally, the project Applicant would be required to complete a waste management plan, which would describe the volume of construction/demolition debris that will be recycled, landfilled, or reused, and identification of the receiving facility, and submit the plan to the City prior to the issuance of any building permits.

According to California Department of Resources Recycling and Recovery's (CalRecycle) Disposal Rate Calculator, the City of Newark had a population disposal rate of 4.7 pounds per person per day in 2020 (CalRecycle 2021a). The proposed project is anticipated to generate up to 623 residents and therefore, using the 2020 disposal rate of the City, operation of the proposed project is anticipated to result in approximately 2,928 pounds of waste per day, or 485 tons per year. Solid waste from the proposed project would be disposed of at the Altamont Landfill which has a permitted maximum throughput of 11,150 tons per day and has a remaining capacity of 65,400,000 CY (CalRecycle 2021b). Due to the substantial amount of available capacity remaining at Altamont Landfill, sufficient capacity would be available to accommodate the proposed project's solid waste disposal needs. The proposed project would implement the City's goals, policies, and standards for reducing waste generation such as those under General Plan Goal CS-8. The proposed project would not be expected to generate solid waste in excess of state or local standards and would not impair attainment of solid waste reduction goals. Therefore, a less than significant impact related to solid waste would occur.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Solid Waste Statutes and Regulations

Impact UTIL-5	**The proposed project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.**

Impact Analysis
The proposed project would implement all applicable statutes and regulations related to solid waste that has been adopted or implemented by the City. The proposed project would be served by curbside solid waste and recycling services, which are standard services for residential uses in the City. Solid waste disposal must follow the requirements of the contracted waste hauler and disposal facility, which follows local, state, and federal statutes and regulations related to the collection and disposal of solid waste. There are numerous goals, policies, and actions in the City's General Plan related to reducing waste

generation in the City. The proposed project would implement all goals, policies and actions identified in the General Plan such as policies and actions under General Plan Goal CS-8 which requires compliance with the City's waste reduction program and standards set for construction and demolition debris. The proposed project would comply with all federal, state, and local statues and regulations related to solid waste and impacts would be less than significant.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

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3.20 WILDFIRE

This section describes the environmental and regulatory setting for wildfire. It also describes existing conditions and potential impacts related to wildfire that would result from implementation of the proposed project, and mitigation for potentially significant impacts, where feasible.

3.20.1 Environmental Setting

According to the City's General Plan, Newark is considered to be at low risk for wildfire. CAL FIRE has mapped areas at risks of fires around the state. Based on a review of the Fire Hazard Severity Zone maps developed by CAL FIRE, the project site is not within a state responsibility area and does not contain lands classified as very high fire hazard severity zone (CAL FIRE 2007, 2022). The project site is designated as being within a local responsibility area (LRA) and is not classified as being in a very high fire hazard severity zone (CAL FIRE 2008). The U.S. Forest Service (USFS) also has a Wildfire Hazard Potential map that is available online. The USFS Wildfire Hazard Potential map designates a majority of the project site as water/non-burnable and a small section along the east and northeast side of the project site is designated as having a low wildfire hazard potential (USFS 2020). However, the City's General Plan EIR designates the project site as having a high risk from wildfires (City of Newark 2013b). The General Plan EIR's designation is based on the 2007 CAL FIRE "Draft Fire Hazard Severity Zone in the LRA" map which designates the project site as a locally responsible high fire hazard severity zone. Though the General Plan EIR designates the site as having a high risk for wildfires, the updated 2008 CAL FIRE "Very High Fire Hazard Severity Zones in LRA" map does not identify the project site as being within a very high fire hazard severity zone and therefore, there is no significant risk of wildland fires at the project site (CAL FIRE 2008).

3.20.2 Regulatory Setting

State

California Office of Emergency Services

The California Emergency Management Agency was incorporated into the Governor's Office on January 1, 2009 by AB 38, and merged the duties, powers, purposes, and responsibilities of the Governor's Office of Emergency Services (Cal OES) with those of the Governor's Office of Homeland Security. Cal OES is responsible for the coordination of overall state agency response to major disasters in support of local government. The agency is responsible for ensuring the state's readiness to respond to and recover all hazards – natural, man-made, emergencies, and disaster – and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts. The Cal OES Fire and Rescue Division coordinates statewide response of fire and rescue mutual aid resources to all types of emergencies, including hazardous materials. The Operations Section under the Fire and Rescue Division coordinates the California Fire and Rescue Mutual Aid System, and coordinated response through the Mutual Aid System, includes responses to major fires, earthquakes, tsunamis, hazardous materials and other disasters.

Uniform Building Code

The Uniform Fire Code contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The code contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California HSC and include regulations for building standards (as also set forth in the California Building Standards Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

California Building Code

The state of California provided a minimum standard for building design through the CBC, which is located in Part 2 of Title 24 of the CCR. The 2010 CBC is based on the 1997 Uniform Building Code but has been modified for California conditions. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local city and county building officials for compliance with the CBC. Typical fire safety requirements of the CBC included; the installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

California Fire Code

CCR, Title 24, also known as the California Building Standards Code, contains the CFC, included as Part 9 of that title. Updated every three years, the CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. The ACFD provides fire protection services for the City of Newark and as such, implements and enforces the CFC in the Plan Area.

California Department of Forestry and Fire Protection

CAL FIRE protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. CAL FIRE’s firefighters, fire engines, and aircraft respond to an average of more than 5,600 wildland fires each year.

The Office of the State Fire Marshal supports CAL FIRE’s mission by focusing on fire prevention and provides support through a wide variety of fire safety responsibilities: regulating buildings in which people live, congregate, or are confined; controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death, and destruction by fire; providing statewide direction for fire prevention in wildland areas; regulating hazardous liquid pipelines; reviewing regulations and building standards; and providing training and education in fire protection methods and responsibilities.

Local

City of Newark General Plan

The City of Newark General Plan contains the following goals and policies applicable to the proposed project:

Goal EH-1: Reducing Hazard Exposure. Reduce the potential for injury, harm, property damage, and loss of life resulting from environmental hazards.

- **Policy EH-1.1: Development Regulations and Code Requirements.** Establish and enforce development regulations and building code requirements to protect residents and workers from flooding, liquefaction, earthquakes, fires, and other hazards.

- **Policy EH-1.5: Adequacy of Access.** Require adequate access and clearance for fire equipment, fire suppression personnel, and evacuation of new development.

3.20.3 Environmental Impacts

This section analyzes the project's potential to result in significant wildfire impacts. When an impact is determined to be significant, mitigation measures are identified that would reduce or avoid impacts.

Methodology for Analysis

The following analysis is based on a review of documents pertaining to the project site, including the General Plan, General Plan EIR, and review of CAL FIRE's Fire Hazard Severity Zone Maps and the USFS Wildfire Hazard Potential Map.

Thresholds of Significance

In accordance with the CEQA Guidelines' Appendix G Environmental Checklist, the following questions were analyzed and evaluated to determine whether the proposed project's wildfire impacts are significant. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the proposed project:

- Substantially impair an adopted emergency response plan or emergency evacuation plan?

- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Project Impact Analysis and Mitigation Measures

Emergency Response

Impact WF-1	**The proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan.**

Impact Analysis

The project site is not located within a state responsibility area and does not contain lands classified as being within a very high fire hazard severity zone (CAL FIRE 2007, 2022). The proposed project involves permanent modifications to Mowry Avenue and may include partial or complete road closures during the construction phase. There are no identified evacuation routes that would be potentially impacted by the construction of the proposed project. A TCP would be prepared which would identify all detours, appropriate traffic controls, and ensure adequate circulation and emergency access are provided during the construction phase. Additionally, all roadway improvements and construction would be designed to provide adequate emergency vehicle access to the project site during construction and operation of the proposed project. Therefore, project construction and operation activities would not interfere with an emergency evacuation or response plan, and impacts would be less than significant.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

Exacerbate Wildfire Risk

Impact WF-2	**The proposed project would not, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.**

Impact Analysis

The topography of the project site is flat and is located in an urban area with existing developments and roadways. The area surrounding the project site is similarly flat. The project site is not in a state responsibility area and does not contain lands classified as being within a very high fire hazard severity zone (CAL FIRE 2007, 2022). Furthermore, the risk of wildfire in this portion of the City is classified as low (USFS 2020). Given the characteristics of the project site, the proposed project would not exacerbate fire risk beyond what currently exists in the vicinity of the project site. Additionally, the proposed project would include fire safety measures and would be designed and constructed in accordance with the City’s fire protection requirements and the CFC which would minimize the severity of wildfire impacts on structures and residents if a wildfire was to occur nearby. Development of the proposed project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire, and there would be no impact.

Level of Significance Before Mitigation

No Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
No Impact.

Associated Infrastructure

Impact WF-3	**The proposed project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.**

Impact Analysis
The project site is not located within a state responsibility area and does not contain lands classified as being within a very high fire hazard severity zone (CAL FIRE 2007, 2022). The project site is currently developed as an auto part and scrap metal salvage lot, and the construction of the proposed project would require the installation of associated infrastructure to serve the proposed project. Primary access to the project site would be via Mowry Avenue and on to private streets within the project site. The minimum width available for driving and turning movements through the project site would be 20 feet and the neighborhood streets would be at least 36 feet wide. The project roadway and neighborhood design would provide adequate turning radii and drive areas for fire trucks and other emergency vehicles. All utilities required for the new development would be located underground and the proposed project would include installation of fire hydrants at the project site to mitigate fire hazards. The City's fire flow requirements are based on the standards for fire flow requirements of the CFC and the proposed project's fire hydrants would be constructed to meet these requirements. The NFD would review the project plans to ensure that the proposed project meets the City's fire flow and fire protection requirements. The proposed project would be required to implement General Plan policies along with the implementation of the Uniform Fire Code, CBC and CFC which would reduce effects of development on wildland fire hazard impacts. The proposed project would require the installation of associated infrastructure to support the new development but would not exacerbate fire risk beyond what currently exists in the vicinity of the project site. Compliance with City's policies and applicable building and fire codes would minimize fire risk and there would be a less than significant impact.

Level of Significance Before Mitigation
Less Than Significant Impact.

Mitigation Measures
No mitigation is necessary.

Level of Significance After Mitigation
Less Than Significant Impact.

Expose People or Structures

Impact WF-4	**The proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.**

Impact Analysis

The project site is not in a state responsibility area and does not contain lands classified as being within a very high fire hazard severity zone (CAL FIRE 2007, 2022). The project site and surrounding area is relatively flat and not in an area subject to landslides. Additionally, the project site is located in an area identified as having minimal flood hazards. The proposed project would use fill to elevate the proposed pad grades for the homes above the FEMA 100-year flood plain elevation which would offer flood damage protection, including potential flooding from sea level rise. The lowest proposed pad elevation for the proposed project is 13.0 feet NGVD with the average pad elevation for the proposed project at 14.2 feet NGVD. The proposed pad grades would exceed the City's standards of requiring a minimum elevation of 11.25 feet and would meet BCDC's currently adopted sea level rise guidance which recommends a minimum building pad elevation of 12.2 feet. Additionally, the proposed project's pad elevation would meet the minimum pad elevation requirements of the RPC-SAT projected likely range for sea level rise by the year 2100 of 3.4 feet, As such, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes and there would be a less than significant impact.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less Than Significant Impact.

4.0 CUMULATIVE EFFECTS

4.1 INTRODUCTION

Section 15130(a) of the State CEQA Guidelines requires a discussion of the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3), means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." The State CEQA Guidelines Section 15355 defines a cumulative impact as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

According to the CEQA Guidelines:

> *Cumulative impacts refer to two or more individual effects that, when considered together, are considerable and that compound or increase other environmental impacts.*
>
> a) *The individual effects may be changes resulting from a single project or multiple separate projects.*
>
> b) *"The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probably future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." (CCR, Title 14, Division 6, Chapter 3, Section 15355)*

In addition, as stated in CEQA Guidelines:

> *The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable (CCR, Title 14, Division 6, Chapter 3, Section 15064[T][5]).*

4.2 CUMULATIVE IMPACT SETTING

Cumulative impact discussions for each environmental issue area are provided within each individual impact section. As established in the CEQA Guidelines, related projects consist of "closely related past, present, and reasonably foreseeable probable future projects that would likely result in similar impacts and are located in the same geographic area" (CCR, Title 14, Division 6, Chapter 3, Section 15355).

The State CEQA Guidelines define a cumulative impact as two or more individual impacts that, when considered together, are significant or that compound or increase other significant environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over time (State CEQA Guidelines Section 15355). The incremental impact of a project, although less than significant on its own, may be considerable when viewed in the cumulative context of other closely related past, present, and reasonably foreseeable projects. A considerable contribution is considered significant from the point of view of cumulative impact analysis.

CEQA Guidelines Section 15130 identifies two basic methods for establishing the cumulative environment in which a project is considered: the use of a list of past, present, and probable future projects or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. This cumulative analysis uses a combination of the “list” approach and the “projections” approach to identify the cumulative setting. The plan and projections approach relies on an adopted plan or reliable projection that describes the significant cumulative impact. This Draft EIR combines both the project list and projection approaches to generate the most reliable future projections possible.

4.3 GEOGRAPHIC SCOPE

The geographic area analyzed for cumulative impacts is dependent on the resource being analyzed. The geographic area associated with the proposed project’s environmental impacts defines the boundaries of the area used for compiling the list of past, present, and reasonably foreseeable projects considered in the cumulative impact analysis.

Each section of this Draft EIR considers the specific geographic area that is directly related to the individual topic addressed within that section. For example, the analysis of air quality is based on a regional level because air quality impacts are regional in nature, whereas analysis of aesthetic impacts only considers related projects in the vicinity of the project site because of the localized nature of the impact.

The geographic area that could be affected by implementation of the proposed project in combination with other projects varies depending on the type of environmental resource being considered. Table 4.3-1 provides the geographic area and the method of evaluation utilized in the cumulative analysis for each resource areas.

Table 4.3-1: Geographic Scope of Cumulative Impact and Method of Evaluation

Resource Topic	Geographic Area	Method of Evaluation
Aesthetics	Immediate project vicinity	Projects
Agriculture and Forestry Resources	Region	Projects
Air Quality	Local (toxic air contaminants) air basin (construction-related and mobile sources)	Projects and Projections
Biological Resources	Immediate project vicinity and region	Projects
Cultural and Historical Resources	Project site only (does not contribute to cumulative impacts)	Projects
Energy	Immediate project vicinity and region	Projects and Projections
Geology and Soils	Immediate project vicinity	Projects
Greenhouse Gas Emissions and Climate Change	State	Projections

Resource Topic	Geographic Area	Method of Evaluation
Hazards and Hazardous Materials	Project site only (does not contribute to cumulative impacts)	Projects
Hydrology and Water Quality	Immediate project vicinity and region	Projects
Land Use and Planning	Immediate project vicinity	Projects
Mineral Resources	Immediate project vicinity and region	Projects
Noise and Vibration	Immediate project vicinity (effects are highly localized)	Projects
Population and Housing	Region	Projects and Projections
Public Services	Immediate project vicinity	Projects and Projections
Recreation	Immediate project vicinity	Projects
Transportation	Immediate project vicinity	Projects and Projections
Tribal Cultural Resources	Project site only (does not contribute to cumulative impacts)	Projects
Utilities and Service Systems	Local	Projects
Wildfire	Immediate project vicinity	Projects

Notes:
Projects = the use of a list of past, present, and reasonably foreseeable projects
Projections = the use of projections contained in relevant planning documents

For those environmental resources that were evaluated based on the projections approach, the projections take into consideration future projects that are not included in the below list of related plans and projects.

4.4 LIST OF RELATED PLANS AND PROJECTS

The list of past, present, and probable future projects used for this cumulative analysis is restricted to those projects that have occurred or are planned to occur (i.e., pending applications at the time of the NOP release) within the vicinity of the project site. For the purposes of this discussion, these projects that may have a cumulative effect on the resources of the project area will be referred to as the "related projects." These related projects are described in Table 4.4-1 and shown in Figure 4-1.

CEQA defines "probable future projects" as those with an active application at the time the NOP was released for a project (in this case, November 19, 2021). The list of projects in Table 4.4-1 was used in the development and analysis of the cumulative settings and impacts for each resource topic. Past and current projects in the project vicinity were also considered as part of the cumulative setting as they contribute to the existing conditions upon which the project and each probable future project's environmental effects are compared.

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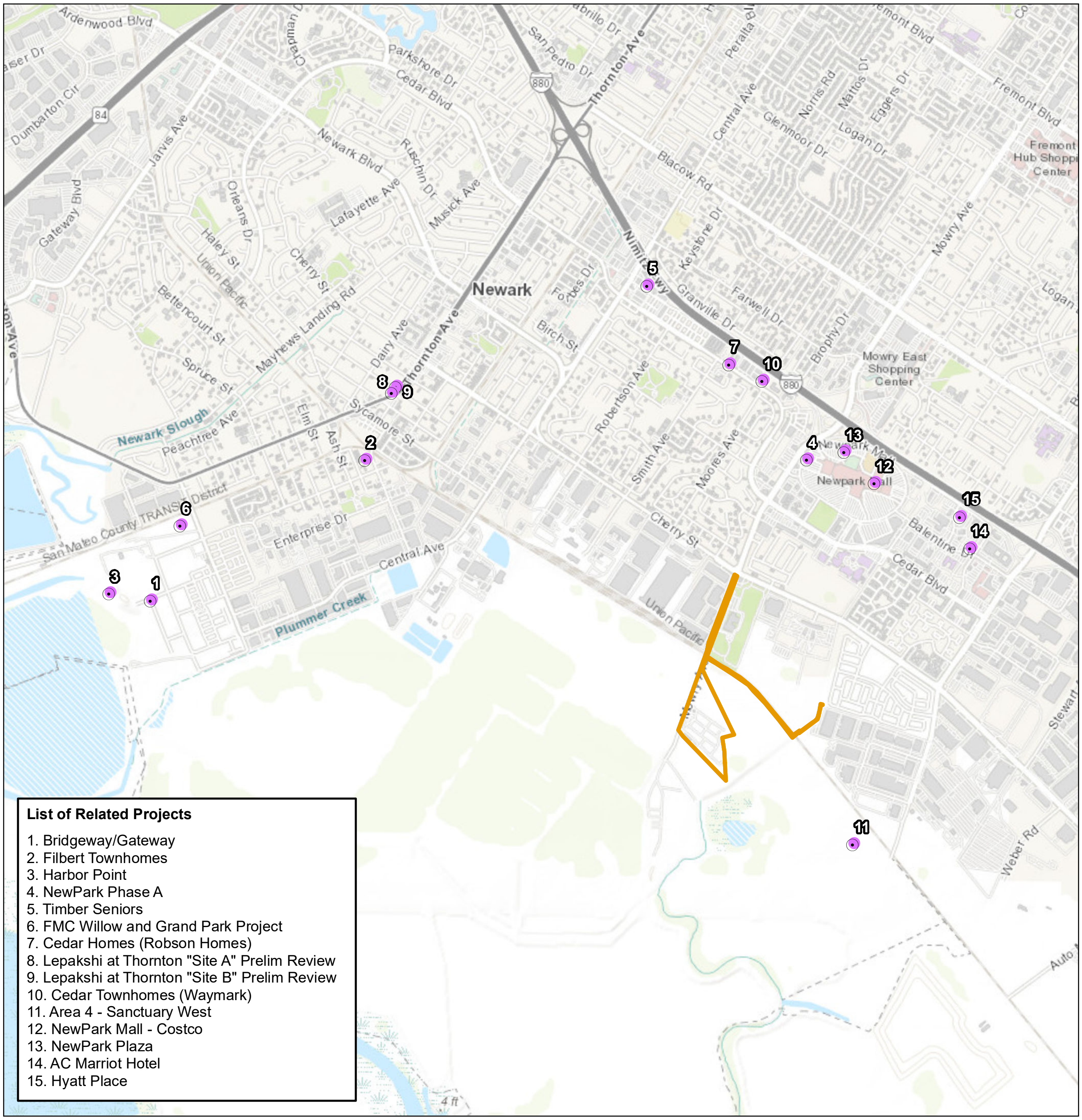
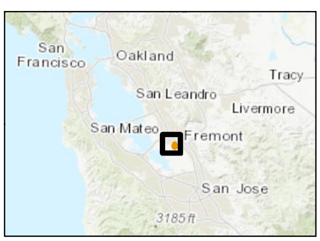


List of Related Projects

1. Bridgeway/Gateway
2. Filbert Townhomes
3. Harbor Point
4. NewPark Phase A
5. Timber Seniors
6. FMC Willow and Grand Park Project
7. Cedar Homes (Robson Homes)
8. Lepakshi at Thornton "Site A" Prelim Review
9. Lepakshi at Thornton "Site B" Prelim Review
10. Cedar Townhomes (Waymark)
11. Area 4 - Sanctuary West
12. NewPark Mall - Costco
13. NewPark Plaza
14. AC Marriot Hotel
15. Hyatt Place



Legend

Related Projects

Project Site (includes boundaries of proposed roadway and utility improvements)

0 0.25 0.5 Miles
(At original document size of 8.5x11)
1:40,000

N

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
4-1

Title
Related Projects

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

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Unless otherwise specified, significance criteria are the same for cumulative impacts as they are for project impacts for each environmental topic area. When considered in relation to other reasonably foreseeable projects, cumulative impacts to some resources would be significant and more severe than those caused by the project alone.

Table 4.4-1: List of Related Projects

No.	Lead Agency	Project Name	Project Address	Distance from Project Site	Project Description	Status
1	City of Newark	Bridgeway/Gateway	GW9W+9G Newark, CA 37682 Bay Breeze St	2.25 miles	580 single-family units	Under construction
2	City of Newark	Filbert Townhomes	37243 Filbert Street	1.75 miles	Project involves development of 16 new 3-story townhomes and includes group open space, landscaping and street improvements.	Approved
3	City of Newark	Harbor Point	GW9V+G7 Newark, CA	2.45 miles	192 residential units	Under construction
4	City of Newark	NewPark Phase A	Newpark Mall	1.15 miles	Residential/retail mixed-use building with a total of 319 dwelling units, approximately 3,700 sf of ground floor retail, approximately 12,900 sf of amenities, a pool courtyard, and enclosed parking including 506 parking stalls on a 3.99 acre site.	Approved

No.	Lead Agency	Project Name	Project Address	Distance from Project Site	Project Description	Status
5	City of Newark	Timber Seniors	37660 Timber Street	1.80 miles	Senior affordable housing development with 79 rental units with resident services and amenities on a 0.99 acre site	Approved
6	City of Newark	FMC Willow and Grand Park Project	GWFX+59 Newark, CA; GWCX+P6J Newark, CA	2.25 miles	Project involves redevelopment of a 22.1 acre site with 279-unit multifamily community along with a mixed-use area of 4,000 sf of retail and 90 multifamily affordable units, and a 1,485 square foot community building, along with approximately 1.8 acres set aside for a future transit station	Approved
7	City of Newark	Cedar Homes (Robson Homes)	38370 Cedar Boulevard	1.50 miles	130 residential units consisting of single-family homes and duplexes	Approved
8	City of Newark	Lepakshi at Thornton “Site A” Prelim Review	6781 Thornton Avenue	1.80 miles	59 residential units	Proposed
9	City of Newark	Lepakshi at Thornton “Site B” Prelim Review	6825 Thornton Avenue	1.80 miles	22 residential units	Proposed
10	City of Newark	Cedar Townhomes (Waymark)	38600 Cedar Boulevard	1.40 miles	76 three-story attached townhomes	Proposed

No.	Lead Agency	Project Name	Project Address	Distance from Project Site	Project Description	Status
11	City of Newark	Area 4 – Sanctuary West	Area 4, Stevenson Boulevard	0.40 mile	469 residential units	Approved
12	City of Newark	NewPark Mall – Costco	NewPark Mall	1.20 miles	161,000 square foot Costco	Under Construction
13	City of Newark	NewPark Plaza	NewPark Mall	1.25 miles	811 residential units, 72,000 square feet commercial	Proposed
14	City of Newark	AC Marriot Hotel	39888 Balentine Drive	1.30 miles	132 hotel rooms	Approved
15	City of Newark	Hyatt Place	5600 John Muir Drive	1.22 miles	113 hotel rooms	Constructed

Source: City of Newark

4.5 CUMULATIVE IMPACT ANALYSIS

For purposes of this EIR, the proposed project would result in a significant cumulative effect if:

- the cumulative effects of related projects (past, current, and probable future projects) are not significant, and the incremental impact of implementing the proposed project is substantial enough when added to the cumulative effects of related projects to result in a new cumulatively significant impact; or
- the cumulative effects of related projects (past, current, and probable future projects) are already significant, and implementation of the proposed project makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance.

This cumulative analysis assumes that all mitigation measures identified in Sections 3.1 through 3.20 to mitigate project impacts are adopted. The analysis herein analyzes whether, after adoption of project-specific mitigation, the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing and anticipated (without the project) cumulatively significant effects. Where the project would so contribute, additional mitigation is recommended where feasible.

4.5.1 Aesthetics

The geographic scope of the cumulative aesthetics analysis is the area surrounding the project site. This is the area within the view of the project; therefore, the area most likely to experience changes in visual character or experience light and glare impacts. The project site is located in an urbanized area that is developed with agricultural and industrial uses and the majority of the project site is developed with existing uses; however, there are no substantial light and glare sources that exist on the site or along adjacent lands.

The project site would be developed with 203 two-story single-family detached homes. Although the proposed buildings would be taller than the existing structures on-site, they would be within the maximum building heights allowed by zoning regulations for the proposed RS-6000 zoning designation. While the proposed project would change the built environment on-site, the overall view of the project site in the context of views available would not be substantially different due to the amount of separation between the project site and the available views. Additionally, there are no officially designated scenic vistas or view corridors near the project site or within the City.

The proposed project would increase the number and intensity of lighting at the project site with the development of the single-family homes as it would provide exterior lighting throughout the site to illuminate the main entrances of the homes, private streets, sidewalks, common space areas, and driveways for security and safety purposes. Additional lighting would be installed along the project frontage on Mowry Avenue. The proposed project would design and construct lighting in accordance with the City's lighting standards and requirements and would include shielding to ensure light spillage does not occur.

All related projects listed in Table 4.4-1 are located more than one mile away from the project site, except for the Area 4 – Sanctuary West Project which is located approximately 0.4 mile east of the project site. Based on the distance of these related projects (except for the Area 4 – Sanctuary West Project) from the project site, they would not be associated with the visual character of the project area. However, the Area 4 – Sanctuary West Project identified a significant and unavoidable impact related to changes in visual character associated with the development of the project. The significant and unavoidable impact to visual resources for the Area 4 – Sanctuary West Project is due to the project seeking coverage under the existing Areas 3 and 4 Specific Plan which identified a significant and unavoidable aesthetic impact as it would result in development of approximately 850 acres of undeveloped area with urbanized uses and would change the existing character of the area. Most of the project site is developed as an auto part and scrap metal salvage lot, known as "Pick-n-Pull," that includes a 13,000 square foot warehouse, 1,500 square foot sales office, 3,000 square foot workshop, and a large parking area for storing vehicles.. Further, the Area 4 - Sanctuary West Project is already approved and would build 469 two-story single-family homes before the proposed project and therefore, the lands surrounding and in the vicinity of the project site would already be developed with urbanized uses and the proposed project would not result in changes to the visual character that would result in a significant cumulatively considerable aesthetics impact.

Similar to the proposed project, the related projects would be required to comply with the development standards of the City and would be subject to review by the City to ensure proposed buildings are compatible with surrounding development and to mitigate potential aesthetic impacts. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on aesthetics.**

4.5.2 Agricultural and Forestry Resources

The proposed project would result in no impacts to agricultural and forestry resources. The project site is not designated for agricultural and forestry uses and no agricultural or forestry uses currently exist on-site. Other developments in the project vicinity would be required to demonstrate that development of the related project would not result in significant impacts to agricultural and forestry resources. Related projects identified in Table 4.4-1 are located in urbanized areas and would not result in the conversion of agricultural or forestry land to urban uses. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on agricultural and forestry resources.**

4.5.3 Air Quality

The cumulative setting for air quality is the SFBAAB, which is under the jurisdiction of the BAAQMD. Air pollution is largely a cumulative impact by its very nature. No single project is sufficient in its overall emissions, in isolation, to result in nonattainment of ambient air quality standards. A project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. Related projects in the vicinity of the proposed project and throughout the SFBAAB would also generate emissions that could contribute to air quality impacts. Generally, if a project is proposed in a city or county with a General Plan that is consistent with the Clean Air Plan, and the project is consistent with that General Plan (i.e., does not require a general plan amendment), then the project would not have a significant cumulative impact (provided, of course, that the project does not individually have any significant impacts).

The BAAQMD significance thresholds are intended to analyze whether a project's contribution to the cumulative impact is considerable. If a project exceeds the identified significance thresholds, its emissions would also be considered cumulatively considerable, resulting in a significant adverse air quality impact to the region's existing air quality conditions. As discussed in Section 3.3, Air Quality, the proposed project would be consistent with the Clean Air Plan with the implementation of Mitigation Measure AIR-1. Mitigation Measure AIR-1 requires the implementation of basic constriction mitigation measures recommended by the BAAQMD to reduce fugitive dust emissions. Additionally, as the proposed project's unmitigated remediation and construction emissions would exceed BAAQMD thresholds, the proposed project is required to implement Mitigation Measure AIR-2 which requires project construction to utilize Tier 4 certified construction equipment. Implementation of Mitigation Measure AIR-1 and AIR-2 would reduce project construction emissions and ensure emissions would not exceed BAAQMD thresholds. In addition to Mitigation Measures AIR-1 and AIR-2, the proposed project would be required to implement Mitigation Measure HAZ-1 to ensure that asbestos surveys are conducted for the existing structures on-site prior to demolition to ensure that demolition does not result in NOA pollutant concentrations to sensitive receptors nearby. Project operational emissions would be below the BAAQMD daily and annual significance thresholds.

The closest related project, the Area 4 – Sanctuary West Project, is located approximately 0.4 mile east of the project site and the analysis prepared for the Area 4 – Sanctuary West Project did not identify significant air quality impacts. All other related projects are located more than one mile away from the project site located at the existing Pick-n-Pull site. There are no related projects located near the project site that would result in construction activities during the same construction period as the proposed project. Related projects would be required to implement similar mitigation measures as the proposed project to reduce construction related emissions and ensure that construction related air quality impacts are less than significant. Additionally, related projects would require project specific air quality analysis be conducted to analyze impacts and determine project specific mitigation measures to reduce potential impacts. Therefore, the proposed project's impacts would not result in a cumulatively considerable impact. Operation of the proposed project would not expose future residents of the project site to substantial pollutant concentration that may cause harmful effects as the risk would be below the threshold of significance. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on air quality.**

4.5.4 Biological Resources

The project site, which consists of three parcels totaling 29 acres is located in an area with agricultural and industrial uses in the southwestern portion of the City. Of the 29 acres, 19 acres are currently disturbed and developed with the existing auto parts and scrap metal salvage lot and is primarily covered by existing structure and pavement. The approximately 10 acre northern parcel is undeveloped ruderal/disturbed habitat. Additionally, the proposed project's construction would extend outside of the 29 acre project site to include off-site utility and circulation improvements along Mowry Avenue. Vegetation communities/land covers for the project area consist of developed land, ruderal/disturbed habitat, stormwater detention basins. Project site portions identified as developed land generally lacks significant habitat value for plants and wildlife and wildlife within developed areas is comprised of species that can tolerate regular human disturbance. The ruderal/disturbed area is comprised of vegetation dominated by naturalized or invasive non-native species and ruderal native annuals and provide marginal nesting and foraging habitat for bird species in the region as well as habitat for disturbance-tolerant wildlife. The Stormwater detention basins support patches of rapidly colonizing wetland plants.

The proposed project would implement Mitigation Measures BIO-1 through BIO-9 to reduce potential impacts during construction and operation of the proposed project to wildlife species and City protected trees to a less than significant level and would be consistent with the City's biological policies and tree ordinance. Other related projects in the project vicinity and region would be required to implement similar mitigation to reduce potential impacts to special status species and comply with local biological policies and ordinances. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on biological resources.**

4.5.5 Cultural Resources

The geographic scope of the cumulative cultural resources analysis is the project site. The project site does not contain any historical resources and is not located within an identified historic district and therefore, would not result in the destruction of historical resources and there would be no impact. The project site does not contain any recorded archaeological or paleontological resources or burial sites. However, as discussed in Section 3.5, Cultural Resources, there is the possibility that previously undiscovered resources could be encountered by construction activities. Therefore, mitigation measure CUL-1 and CUL-2 were identified to reduce potential impacts to a less than significant level. Implementation of identified mitigation measures would ensure that undiscovered cultural resources are not adversely affected by project-related construction activities, which would prevent the destruction or degradation of potentially significant undiscovered cultural resources in the area and would reduce potential impacts to a less than significant level. Related projects would be required to identify and implement similar mitigation measures to protect undiscovered cultural resources during construction. The Area 4 – Sanctuary West Project identified significant and unavoidable impacts to cultural resources; however, the geographic scope of impacts for cultural resources is the project site and does not contribute to cumulative impacts. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on cultural resources.**

4.5.6 Energy

The proposed project would be 100 percent electric and the proposed project's structures would be designed and constructed in accordance with CALGreen and Title 24 standards to increase energy efficiency and reduce energy demand. These standards include minimum energy efficiency requirements related to building envelope, mechanical systems (heating, ventilation, air conditioning, and water heating systems), indoor and outdoor lighting, and illuminated signs. Other planned projects in the vicinity and region would similarly be designed to meet existing CALGreen and Title 24 standards and would require compliance with applicable building code standards related to energy efficiency. This would ensure that the project would not result in the inefficient, unnecessary, or wasteful consumption of energy. **Thus, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on energy.**

4.5.7 Geology and Soils

The proposed project would result in significant impacts related to geology and soils if it would result in substantial adverse effects involving rupture of earthquake faults and seismic ground shaking, seismic related ground failure, expansive or unstable soils, erosion impacts, or destruction of a unique paleontological resource. The proposed project would not result in substantial geology and soils impacts; however, the proposed project would implement mitigation measures to reduce potential impacts from seismic related ground failure, expansive or unstable soils, erosion impacts and impacts to paleontological resources to a less than significant level. The proposed project would not result in any impacts from rupture of an earthquake fault as there are no identified fault lines passing through or near the project site. Mitigation Measures GEO-1 through GEO-4 requiring implementation of design recommendations identified in the preliminary and design level geotechnical reports prepared for the proposed project, as well as requiring preparation of dewatering and shoring plans, and outlining procedures for instances where paleontological resources are discovered during construction, would be implemented to reduce all potential geology and soils impacts to a less than significant level. Additionally, Mitigation Measure HYD-1 would be implemented to ensure the proposed project's construction would not result in substantial soil erosion impacts. Other related projects would be required to implement similar mitigation to reduce impacts related to geology and soils if investigations determine that they were necessary for the related project. Other related projects would be reviewed for impacts related to geology and soils and would be required to address any potential impacts with mitigation. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact related to geology and soils.**

4.5.8 Greenhouse Gas Emissions and Climate Change

GHG impacts are a cumulative impact. On their own, GHG emissions from one project cannot result in changes in climate conditions; therefore, the emissions from one project must be considered in the context of their contribution to cumulative global emissions. As discussed in Section 3.8, Greenhouse Gases, the proposed project would not have a significant impact with regard to GHG emissions and would be consistent with the City's CAP and State plans for achieving GHG reductions and meeting established targets. Additionally, GHG emissions resulting from operation of the proposed project would not exceed the BAAQMD adjusted significance thresholds. The proposed project would be consistent with best practices for reducing GHGs through the incorporation of greater energy efficiency by developing the proposed project's structures to be 100 percent electric. Other projects in the region and the State would also have to show consistency with local and State GHG reduction plans and comply with the Title 24 and CALGreen requirements. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact related to GHG emissions.**

4.5.9 Hazards and Hazardous Materials

The proposed project would not result in the use of substantial quantities of hazardous materials or the creation of new hazards. However, there is the potential for hazardous materials, including contaminated soil and water at the site, to be released into the environment resulting from construction activities. Mitigation Measures HAZ-1 and HYD-1 requiring preconstruction surveys to identify existing hazardous conditions on-site, remediation of on-site soils and water identified as being contaminated from previous site uses, and requiring the preparation and implementation of a SWPPP, would be incorporated into the proposed project to reduce potential impacts to a less than significant level. It is reasonable to assume that other related projects would be required to implement similar mitigation to reduce impacts from hazardous materials if investigations determine that they were necessary for the related project. Other related projects would be reviewed for impacts related to hazards and hazardous materials and would be required to address any potential impacts with mitigation. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact related to hazards and hazardous materials.**

4.5.10 Hydrology and Water Quality

The proposed project would not result in substantial degradation to water quality or result in substantial hydrology impacts. However, there is potential for construction related impacts to water quality and increased polluted runoff from the project site. Mitigation Measures HYD-1 and GEO-3 requiring preparation and implementation of a SWPPP and requiring implementation of design recommendations identified in the preliminary and design level geotechnical reports prepared for the proposed project, would be incorporated into the proposed project to reduce potential impacts to a less than significant level. It is reasonable to assume that related projects would be required to implement similar mitigation to reduce impacts related to hydrology and water quality if it were determined that they were necessary for the related project. Related projects would be reviewed for impacts related to hydrology and water quality and would be required to address any potential impacts with mitigation. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact related to hydrology and water quality.**

4.5.11 Land Use and Planning

The land use analysis in Section 3.11, Land Use and Planning, found the proposed project to be consistent with applicable goals and policies of the City's General Plan and the General Plan land use designation of Low Density Residential. Additionally, the proposed project is located within the Areas 3 and 4 Specific Plan area which has been identified by the City as an area for future growth, including residential developments. Though the proposed project is not consistent with the existing zoning designation of the project site and designated use identified in the Areas 3 and 4 Specific Plan, the proposed project is requesting a rezoning and Specific Plan Amendment to better align the project site with the proposed use and existing General Plan land use designation and allow for the development of additional residential units above the maximum allowed number of residential units identified in the Areas 3 and 4 Specific Plan for the area. The proposed project would be consistent with the requirements of the Specific Plan residential single-family use and PD-RS-6000 zoning district with the approval of a Specific Plan Amendment and rezoning. Other development in the project vicinity would be required to demonstrate consistency with the General Plan and development standards through project design or the implementation of mitigation measures. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on land use.**

4.5.12 Mineral Resources

The proposed project would have no impact on mineral resources as the project site and its vicinity does not contain any known mineral resources of value and no mineral extraction activities exist within City limits. Other developments in the City would be required to demonstrate that development of the related project would not result in significant impacts to mineral resources. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on mineral resources.**

4.5.13 Noise and Vibration

The geographic scope of the cumulative noise analysis is the immediate project vicinity. Construction activities associated with the proposed project would be temporary. As discussed under Impact NOI-1 in Section 3.13, Noise, construction noise and vibration from the proposed project would increase noise levels. However, construction noise and vibration would be temporary and limited to the restrictions set by the Areas 3 and 4 Specific Plan RDEIR, as required by Mitigation Measure NOI-3. Operation of the proposed project would also be required to implement Mitigation Measure NOI-1, which includes compliance with City requirements to reduce interior noise levels within the buildings. Additionally, the proposed project would implement Mitigation Measure NOI-2 which requires compliance with requirements in Section 17.24.100, Paragraph A.2.a in the City of Newark Municipal Code and preparation of a noise analysis and incorporation of design measures as needed, such as shielding, barriers, and/or attenuators to reduce noise levels that may affect nearby properties.

Cumulative impacts from construction generated noise could result if other future planned construction activities take place near the project site and/or along the off-site improvements and cumulatively combine with construction noise from the project. The nearest related project to the project site is the Area 4 – Sanctuary West Project which is located approximately 0.4 mile east of the project site located at the existing Pick-n-Pull site. Similar to the proposed project, the Area 4 – Sanctuary West Project would be required to implement mitigation measure and comply with the City’s construction noise requirements to limit construction-related noise impacts such as restricting construction hours and implementing measures such as shielding to reduce noise from construction equipment and activities. Additionally, the Area 4 – Sanctuary West Project would conduct a project-specific acoustical analysis and incorporate operational noise reduction measures to ensure that development does not result in operational noise impacts or contribute to a cumulative noise impact in the vicinity of the project, similar to the proposed project. The Area 4 – Sanctuary West Project's environmental analysis identified that there would be no significant environmental effects related to noise from development of the Area 4 – Sanctuary West Project and that impacts would be less than significant with incorporation of mitigation measures. All other related projects listed in Table 4.4-1 are located more than one mile away from the project site and given the distance between the other related projects and the project site, short-term construction noise and vibration generated by the proposed project would not combine with any other related construction project. Furthermore, the construction and operation of the related projects would be required to comply with the same City noise requirements and implement mitigation to reduce noise level and vibration. **Therefore, the proposed project, in conjunction with related project, would not have a cumulatively considerable impact on noise.**

4.5.14 Population and Housing

The geographic area for cumulative population and housing impacts aligns with the City boundaries and can be extended further to Alameda County and the San Francisco Bay region. The proposed project, in conjunction with the future development in the City, is within the planned growth projections provided by the City's General Plan. Additionally, the number of residential units proposed under the proposed project would be within the City's projected growth under the General Plan and would contribute to providing a housing quantity closer to the intended housing unit allocation envisioned within the General Plan. The proposed project would not have a significant impact on housing and job balance and would help the City meet its RHNA. Other related projects would be required to demonstrate consistency with the growth projections identified in the City's General Plan. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on population and housing.**

4.5.15 Public Services

Police

The proposed project would increase service demands for police protection. Similar to the proposed project, related projects in the City would be required to pay a Development Impact Fee as required by Chapter 3.24 of the Newark Municipal Code to offset the cost of police protection demands associated with development of a new project. According to the NPD website, the NPD serves approximately 49,149 residents and the department includes a staff of 59 sworn officers which results in an approximate ratio of 1.2 officers per thousand residents (City of Newark 2021). The NPD does not identify a specific officer per resident ratio that is used as a standard to determine appropriate staffing levels. Though implementation of the proposed project would result in increased demand on police services, it is not anticipated to exacerbate any staffing issues by increasing the service population. Additionally, the General Plan EIR identified that continued implementation of required fees and General Plan policies related to the police department, including requiring police department review of major new development plans, would ensure that the NPD is actively involved in planning to accommodate future growth in the City and that funds are set aside to allow for construction of new facilities as needed to accommodate future growth (City of Newark 2013b). The proposed project is not anticipated to have a cumulative impact on police protection such that it would necessitate the construction of new or expanded police facilities the construction of which would have adverse environmental impacts. The General Plan EIR identified that though growth anticipated in the City would require a new building or further expansion of existing facilities in the future, associated impacts would be reduced to a less than significant level through the implementation of General Plan policies and collection of required fees from development (City of Newark 2013b). Other related projects would be reviewed for impacts on police protection and would be required to address any potential impacts with mitigation. Similar to the proposed project, related projects would be required to comply with General Plan policies and would pay required fees to offset the cost of increased demand from development of the related project. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on law enforcement.**

Fire and Emergency

The proposed project would increase service demands for fire and emergency services. Similar to the proposed project, related projects in the City would be required to pay a Development Impact Fee as required by Chapter 3.24 of the Newark Municipal Code to offset the cost of fire protection demands associated with development of a new project. Additionally, the proposed project and related projects would be required to be designed and constructed in accordance with the City's fire protection requirements and the CBC. The proposed project is not anticipated to have a cumulative impact on fire and emergency services such that it would necessitate the construction of new or expanded fire and/or emergency facilities, the construction of which could have adverse environmental impacts. Other related projects would be reviewed for impacts on fire and emergency services and would be required to address any potential impacts with mitigation. **Therefore, the proposed project, in conjunction with other related projects, would not have a cumulatively considerable impact on fire and emergency services.**

Schools

The proposed project would result in an increase in demand for school facilities and services. The proposed project would be required to pay school impact fees collected by NUSD which would offset school facility costs associated with serving new students that result from new residential developments. Under SB 50, payment of school impact fees is considered to fully mitigate impacts to schools from new development for the purposes of CEQA. Other related projects that would result in the development of new residential units would also be required to pay fees to offset their impacts. The proposed project is not anticipated to have a cumulative impact on schools such that it would necessitate the construction of new or expanded school facilities, the construction of which could have adverse environmental impacts. Other related projects would be reviewed for impacts on schools and would be required to address any potential impacts with mitigation. Similar to the proposed project, related projects would be required to pay school impact fees to offset the increased demand from new development. Under SB 50, payment of school impact fees is considered to mitigate impacts to schools from new development for the purposes of CEQA. As such, related projects are not anticipated to result in significant impacts to schools. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on schools.**

Parks

The proposed project would result in an increase in the demand for nearby parks; however, the proposed project would provide 4.89 acres of on-site open space, with the majority of on-site open space being provided through private open space, provided as a rear yard for each home. The proposed project would provide 0.94 acres of common open space through the construction of an on-site recreational area, landscaping, and bioretention areas. In addition, the proposed project would pay a parks impact fee. The proposed project is not anticipated to have a cumulative impact on parks such that it would necessitate the construction of new or expanded park facilities the construction of which would have adverse environmental impacts. Other related projects would be reviewed for impacts on parks and would be required to address any potential impacts with mitigation. Other related projects would be required to either dedicate land, or pay a fee in-lieu thereof, or both, at the option of the City as required for all new development within the City. The dedication of land and payment of fees would offset potential impacts from increased demand for park facilities. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on parks.**

4.5.16 Recreation

As discussed above under Section 4.5.15, the proposed project would result in an increase in demand for parks and recreational facilities but would have a less than significant impact on parks as the proposed project would develop on-site open space, including a new recreational area, and would pay the required parks impact fees. Related projects in the area would have the potential to result in a cumulative impact associated with increased demand for parks, resulting in deterioration of existing parks or requiring construction or expansion of recreational facilities. Related projects would be required to either dedicate land, or pay a fee in-lieu thereof, or both, at the option of the City as required for all new development within the City. The Area 4 – Sanctuary West Project would provide three parks and four boardwalk overlooks that would result in a combined park area of approximately 4.70 acres that would be available for public use, including for use by the proposed project's residents. Related projects would be reviewed for impacts on parks and would be required to address any potential impacts with mitigation. **As such, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on recreation.**

4.5.17 Transportation

According to OPR's Technical Advisory for *Evaluating Transportation Impacts in CEQA*, a project's cumulative impacts are based on an assessment of whether the "incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The related projects listed in Table 4.4-1 would not have a bearing on the VMT analysis since the cumulative condition VMT data would come from the regional traffic model's 2040 horizon. A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plants would have no cumulative impact distinct from the project impact.

As discussed in Section 3.17, Transportation, the proposed project would not conflict with the City's General Plan Circulation Element, any program, plan, ordinance or policy addressing the circulation system. However, the proposed project would exceed the Countywide VMT threshold and result in a significant and unavoidable impact. Mitigation Measure TRANS-1, which requires the preparation and implementation of a TDM Plan, was identified to reduce VMT impacts. However, even with the implementation of Mitigation Measure TRANS-1, implementation of the TDM Plan would reduce project-generated VMT by less than one percent which would not be adequate to reduce the project-generated

VMT to below the threshold of significance. **Therefore, the proposed project would have a cumulatively considerable impact with respect to VMT and result in a significant and unavoidable cumulative impact.**

4.5.18 Tribal Cultural Resources

The geographic scope of the cumulative tribal cultural resources analysis is the project site. According to CEQA, the importance of tribal cultural resources is the value of the resource to California Native American tribes culturally affiliated with the project area. Therefore, the issue that must be explored in a cumulative analysis is the loss of tribal cultural resources. For tribal cultural resources that are avoided or preserved through dedication within open space, no impacts would occur. However, if avoidance or dedication of open space to preserve tribal cultural resources is infeasible, those impacts must be considered in combination with tribal cultural resources that would be impacted for other projects included in the cumulative project list.

Related projects located in the region would have the potential to result in a cumulative impact associated with the loss of tribal resources through development activities that could cause a substantial adverse change in the significance of a tribal cultural resource. Any related projects that involve ground disturbing activities would have the potential to result in significant impacts to tribal cultural resources. All projects would be regulated by applicable federal, state, and local regulations to avoid the destruction of tribal cultural resources. As discussed in Section 3.18, Tribal Cultural Resources, no tribal cultural resources have been identified within the project site during the cultural evaluation. In the event that tribal cultural resources are inadvertently discovered during construction, mitigation measures identified in Section 3.5, Cultural Resources, would be implemented to reduce potentially significant impacts to a less than significant level. As such, impacts to tribal cultural resources would be unlikely to occur with implementation of the project. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on tribal cultural resources.**

4.5.19 Utilities and Service Systems

The proposed project would generate an increased demand for water and wastewater treatment, stormwater drainage, and solid waste services, and would increase demand for water supplies. However, the proposed project's increased demand would be adequately handled by existing systems and would not result in significant impacts to utilities and service systems. Additionally, a WSA prepared for the Areas 3 and 4 Specific Plan found that there were sufficient water supplies available to serve the developments proposed under the Specific Plan. Similar to the proposed project, other related projects would be required to demonstrate that existing systems have the capacity to handle the increase in water, wastewater, stormwater and solid waste generated from the project and that there would be sufficient water supplies to serve the increased demand during normal, dry, and multiple dry year scenarios. Other related projects would be reviewed for impacts on utilities and service systems and would be required to address any potential impacts with mitigation. **Therefore, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on utilities and service systems.**

4.5.20 Wildfire

The proposed project would have no significant impacts related to wildfire as the project site is not located in an area identified as a very high fire hazard severity zone. Similar to the proposed project, all other related projects would be required to implement General Plan policies identified to reduce wildfire risk along with the Uniform Building Code, CBC, and the CFC which would reduce effects of development on wildfire hazard impacts. Other related projects would be reviewed for impacts on wildfire risk and would be required to address any potential impacts with mitigation. **As such, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on wildfires.**

5.0 ALTERNATIVES TO THE PROPOSED PROJECT

5.1 INTRODUCTION

The purpose of an alternatives analysis pursuant to CEQA is to identify feasible options that would attain most of the basic objectives of a proposed project while reducing its significant effects. Provisions of CEQA Guidelines (Section 15126.6) that address the number of project alternatives required in an EIR state the following:

> *The range of alternatives required in an EIR is governed by a "rule of reason;" the EIR must evaluate only those alternatives necessary to permit a reasonable choice. The alternatives shall be limited to those that would avoid or substantially lessen any of the significant effects of a proposed project while meeting most of the underlying project objectives.*

5.2 REQUIREMENTS FOR THE CONSIDERATION OF ALTERNATIVES

An important aspect of EIR preparation is the identification and assessment of alternatives to the proposed project that have the potential to avoid or substantially lessen potentially significant impacts. In addition to mandating consideration of the no project alternative, CEQA Guidelines (Section 15126.6(e)) emphasize the selection of a reasonable range of feasible alternatives and adequate assessment, which allows decision-makers to use a comparative analysis. CEQA Guidelines (Section 15126.6(a)) states:

> *An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.*

In accordance with CEQA Guidelines 15126.6, this EIR contains a comparative impact assessment of alternatives to the proposed project. The primary purpose of this assessment is to provide decision-makers and the public with a reasonable number of feasible project alternatives that could attain most of the basic project objectives while avoiding or reducing any of the project's significant adverse environmental effects. Important considerations for these alternatives' analyses are provided below:

- An EIR need not consider every conceivable alternative to a project;
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process;
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives
  - Infeasibility

- Inability to avoid significant environmental effects

5.2.1 No Project Alternative

CEQA Guidelines require that the alternatives be compared to the project's environmental impacts and that the "no project" alternative be considered (CEQA Guidelines Section 15126.6(d)(e)). Section 15126.6(d)(e)(1) states:

> *The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline.*

The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.

5.2.2 Consistency with Project Objectives

A project's statement of objectives describes the purpose of the project and the reasons for undertaking the project. To be considered for detailed analysis in the EIR, an alternative must meet most of the project objectives. Among the suite of project objectives identified by the applicants, the City as lead agency has identified the basic objectives for purposes of screening potential alternatives to the proposed project. The primary objective of the proposed project is to provide low density residential housing that incorporates multi-modal transportation for the future residents of Newark. Specific project objectives include the following:

- Implement the City's General Plan by developing the site with low-density residential;
- Support the City in meeting its RHNA target assigned by the ABAG;
- Provide high quality residential development including a mix of lot sizes;
- Minimize environmental impacts associated with residential development by siting the project on developed and disturbed lands;
- Remediate contaminated soil on-site to levels suitable for residential development;
- Create a residential development that integrates multi-modal transportation (pedestrian, bicycle, automobile) and connects the development to existing, nearby bus transit stops and active centers by improving Mowry Avenue and upgrading the at-grade vehicular and pedestrian crossing along Mowry Avenue at the UPRR railroad tracks to increase safety.

5.2.3 Feasibility

According to CEQA Guidelines (Section 15126.6(f)(1):

> *Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.*

Based on CEQA Guidelines, “feasible” is defined as, “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors” (CEQA Guidelines Section 15364). CEQA does not require that an EIR determine the ultimate feasibility of a selected alternative, but rather that an alternative be potentially feasible.

For the screening analysis, the potential feasibility of potential alternatives was assessed using the following considerations:

Technological Feasibility: Is the alternative feasible from a technical perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?

Legal Feasibility: For example, do legal protections on lands or financing strategies preclude or substantially limit the feasibility of constructing the alternative?

Economic Feasibility: Is the alternative so costly that its costs would prohibit its implementation?

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project’s significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, an EIR must contain a discussion of “potentially feasible” alternatives, the ultimate determination whether an alternative is feasible or infeasible is made by the lead agency’s decision-making body (See PRC Section 21081[a][3]).

5.2.4 Potential to Avoid or Lessen Significant Environmental Effects

CEQA requires that alternatives to a proposed project have the potential to avoid or substantially lessen one or more significant effects of the project (CEQA Guidelines Section 15126.6). At the project and/or cumulative level, the Draft EIR has identified the following environmental issues that may result in significant impacts. This list only includes those impacts that were determined to be significant and unavoidable.

Transportation

- The proposed project would conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

5.3 METHODOLOGY AND SCREENING CRITERIA

A range of potential alternatives was developed and subjected to the screening criteria. Several representative alternatives were considered. There was no attempt to include every conceivable alternative. The following criteria were used to screen potential alternatives:

- Does the alternative meet most of the project objectives?
- Is the alternative potentially feasible?
- Would the alternative substantially reduce one or more of the significant impacts associated with the project?

5.4 ALTERNATIVES CONSIDERED AND REJECTED FROM FURTHER CONSIDERATION

As described above, State CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in an EIR. (In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings (2008) 43 Cal.4th 1143, 1165-1167.)

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-makers. (See PRC, § 21081(a)(3).) At the time of action on the project, the decision-makers may consider evidence beyond that found in this EIR in addressing such determinations. The decision-makers, for example, may conclude that a particular alternative is infeasible (i.e., undesirable) from a policy standpoint, and may reject an alternative on that basis provided that the decision-makers adopt a finding, supported by substantial evidence, to that effect, and provided that such a finding reflects a reasonable balancing of the relevant economic, environmental, social, and other considerations supported by substantial evidence. (City of Del Mar v. City of San Diego [1982] 133 Cal.App.3d 401, 417; California Native Plant Society v. City of Santa Cruz [2009] 177 Cal.App.4th 957, 998.)

The EIR should also identify any alternatives that were considered by the lead agency but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination. The following alternatives were considered by the City but are not evaluated further in this Draft EIR for the reasons discussed below.

5.4.1 Alternative Location Alternative

In accordance with CEQA Guidelines Section 15126.6(f)(2), an alternative project site location should be considered if development of another site is feasible, and if development of another site would avoid or substantially lessen significant impacts of the proposed project. Such alternatives are especially appropriate where a project would put a site to uses different than those contemplated in the governing general plan or zoning district, which presumably reflect land use policies reached after much deliberation and public involvement, and also in instances where there is an ample supply of similarly situated land that could be developed for a project. Factors that may be considered when identifying an alternative site location include the size of the site, its location, the General Plan or Community Plan land use designations, and availability of infrastructure.

The Applicant and the City considered the residential development of alternative site locations within the City limits that are located closer to transit hubs to reduce project generated VMT. Undeveloped lots within City limits were assessed by size and proximity to a transit hub. There are no undeveloped sites within City limits that are large enough to accommodate a project of similar size and scale to the proposed project and in proximity to a transit hub. Therefore, the Alternative Location Alternative was determined to be infeasible and was rejected from further consideration.

5.4.2 Restoration Alternative

A joint letter was received from Citizens Committee to Complete the Refuge, Greenbelt Alliance, Sierra Club, Center for Biological Diversity, San Francisco Baykeeper, Alameda Creek Alliance, Santa Clara Valley Audubon Society, Ohlone Audubon Society, and Mission Peak Conservancy on December 13, 2021, during the NOP comment period. The letter proposed a Restoration Alternative to remediate and reposition the project site for development as an alternate use, such as a park, open space, or recreational use.

Under this alternative, the project site would be remediated and repositioned for development of an alternative use, such as a park, open space, or recreational use. Under the Restoration Alternative, the project site would not be developed with 203 single-family homes and would instead be developed as a site providing a park, open space, or recreational uses. While this alternative would reduce potentially significant VMT impacts, it would not meet any of the proposed project's objectives. Additionally, currently, no known funding sources are available to provide financial assistance to acquire the property, demolish the existing uses, remediate groundwater and soils on-site, and restore the site for park, open space, or recreational uses. Therefore, the Restoration Alternative was determined to be infeasible and was rejected from further consideration.

5.4.3 Small Project Alternative

Under this alternative, the proposed project would be reduced to the maximum number of residential units that would result in a less than significant impact on transportation, specifically on VMT. OPR's screening threshold for Small Projects states that projects generating less than 110 trips per day may be assumed to have a less than significant impact on transportation. For the proposed project to generate less than 110 trips per day, the proposed project would be constructed with a maximum of seven detached single-family units or 16 low-rise multi-family residential units. The development of the project site with seven detached single-family units or 16 low-rise multi-family units would result in a generation of less than 110 trips per day and would meet the screening threshold for small projects. While this alternative would reduce potentially significant VMT impacts, it would not meet the proposed project's objectives to provide a mix of lot sizes, support the City in meeting its RHNA target, remediating contaminated soils on-site, or creating a residential development that integrates multi-modal transportation. Additionally, the development of seven single-family units or 16 multi-family units on an approximately 29 acre project site would result in a density of less than one unit per acre and would underutilize the land. Therefore, the Small Project Alternative was determined to be infeasible and was rejected from further consideration.

5.5 ALTERNATIVES CONSIDERED

Section 15126 of CEQA Guidelines requires an EIR to identify and discuss a no project alternative, as well as a reasonable range of alternatives to the proposed project that would feasibly attain most of the basic objectives of the proposed project and would avoid or substantially lessen any of the significant environmental impacts.

Alternatives to the proposed project considered for analysis in this EIR are:

- No Project Alternative
- Multi-family Residential Alternative
- Reduced Density Alternative
- 100 Percent Affordable Housing Alternative

5.5.1 No Project Alternative

CEQA Guidelines Section 15126.6(e)(1) requires that the No Project Alternative be described and analyzed, "to allow decision-makers to compare the impacts of approving the project with the impacts of not approving the project." The no project analysis is required to discuss, "the existing conditions at the time the Notice of Preparation is published . . . as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (Section 15126.6(e)(2)).

The No Project Alternative assumes that no additional development would occur on the project site. Under this alternative, the project site would remain developed with the existing structures for commercial uses. The existing structures and surface lot would continue to be used as an auto part and scrap metal salvage lot. The northern parcel of the project site would continue to be undeveloped land.

While the no project alternative would avoid the significant and unavoidable impact to VMT, it would not meet any of the proposed project's objectives.

Impact Analysis

Aesthetics

Under the No Project Alternative, the existing structures would remain and there would be no change to the project site's visual character. Therefore, the No Project Alternative would have no impact related to aesthetics.

Agricultural and Forestry Resources

Under the No Project Alternative, the project site would continue to be used for existing purposes and would not result in changes to the land use designations or zoning. Therefore, the No Project Alternative would have no impact related to agricultural and forestry resources.

Air Quality

Under the No Project Alternative, the existing uses would continue to operate on the project site, and there would be no change in air emissions. As discussed in Section 3.3, Air Quality, remediation and construction of project site required for the development of the proposed project would result in construction generated pollutant emissions that would be potentially significant. However, with the implementation of mitigation measures, no significant air quality impacts would occur during construction of the proposed project. The No Project Alternative would not involve demolition, remediation, or construction activities. Therefore, no impacts related to air quality due to construction or increased operational emissions would occur. This would be similar to the proposed project, which would not result in any significant air quality impacts with mitigation incorporated; however, air quality impacts would be lessened due the elimination of construction emissions and fewer operational emissions when compared to the proposed project.

Biological Resources

Under the No Project Alternative, the proposed project would not be constructed and operated, and the existing uses would continue to operate on the project site. Existing trees on the project site would not be removed and there would be no impacts to biological resources. Therefore, the No Project Alternative would lessen impacts to biological resources compared to the proposed project.

Cultural Resources

Under the No Project Alternative, the project would continue to have no impact to historical resources as there are no identified historical resources on-site. However, under the No Project Alternative, the project would not result in construction activities and there would be no subsurface ground disturbance activities that could impact undiscovered cultural resources. Therefore, the No Project Alternative would have no impact on cultural resources.

Energy

Under the No Project Alternative, the existing uses would continue to operate on the project site, and there would be no demolition and construction of more energy efficient buildings. As discussed in Section 3.6, Energy, though the proposed project would result in increased electricity demand from existing conditions, the electricity would be consumed more efficiently and compliance with future building code standards would result in increased energy efficiency. The No Project Alternative would not help build energy efficient buildings to serve growth and development and therefore, energy impacts may be greater than the proposed project.

Geology and Soils

Under the No Project Alternative, the existing commercial uses would continue to operate on the project site and new structures would not be constructed. The proposed project includes the implementation of geotechnical design recommendations and includes mitigation for unstable soil and liquefaction induced impacts. These recommendations and mitigations may not occur under the No Project Alternative. Therefore, impacts related to geology and soils under the No Project Alternative may be greater compared to the proposed project.

Greenhouse Gas Emissions

Under the No Project Alternative, the existing uses would continue to operate on the project site, and there would be no change in GHG emissions. However, the No Project Alternative would not develop new housing near transit, would not construct more energy efficient structures, or construct pedestrian and bicycle improvements and therefore, would not help to reduce future GHG emissions. Accordingly, long-term impacts to GHG emissions may be greater than the proposed project.

Hazards and Hazardous Materials

If the No Project Alternative is implemented, the proposed project would not be constructed or operated, and the existing uses would continue on-site. The proposed project includes the implementation of mitigation and remediation for existing on-site contamination and other hazardous materials at the site, which may not occur under the No Project Alternative. Therefore, impacts related to hazards or hazardous materials under the No Project Alternative may be greater compared to the proposed project.

Hydrology and Water Quality

Under the No Project Alternative, the existing commercial uses would continue to occur on-site and would not result in changes to the existing drainage pattern, groundwater, or water quality at and near the project site. Under the No Project Alternative, the proposed improvements to off-site and on-site stormwater systems and the construction of bioretention treatment areas would not occur. Additionally, the existing structures would continue to be located below the FEMA 100 year flood plain elevation and would not construct flood damage protection. Therefore, hydrology and water quality impacts may be greater under the No Project Alternative.

Land Use and Planning

Under the No Project Alternative, the existing uses would continue to occur on-site; however, increased density and housing as envisioned by the City's General Plan and Specific Plan would not occur. The No Project Alternative would not meet the City and the proposed project's objective and goal to provide high quality housing within the City and to support the City meet its RHNA target. Land use and planning impacts may be greater under the No Project Alternative.

Mineral Resources

Under the No Project Alternative, the existing commercial uses would continue to operate on the project site and would not result in any ground disturbance activities. Section 3.12 of this EIR identified that the project site is not a delineated mineral resource recovery site or is in area containing mineral resources. Therefore, there would be no impacts to mineral resources under the No Project Alternative.

Noise

Under the No Project Alternative, the existing uses would continue to operate on the project site, and there would be no change to the existing noise or vibration levels from construction or operation. While the proposed project would have some increase in noise and vibration during construction, the increases would be temporary and addressed through implementation of mitigation measures. Operationally, the proposed project would shield noise through building construction and mitigation by incorporating recommendations included in the required noise study. The inclusion of recommendations and design features included in the noise study which may include shielding, barriers, and attenuators to reduce noise levels would not occur under the No Project Alternative and noise impacts may be greater compared to the proposed project.

Population and Housing

Under the No Project Alternative, the project site would continue to be used for commercial purposes and would not construct residential developments that would result in an increase in the population. The No Project Alternative would not construct new infrastructure at or near the project site that could lead to indirect population growth. Therefore, there would be no impacts to population and housing under the No Project Alternative.

Public Services

The No Project Alternative would continue existing operations on the site. As discussed in Section 3.15, Public Service, demands for schools, parks, and service of police, fire and emergency services would increase with the development of the proposed project but would not increase demand to a substantial level. The No Project Alternative would not construct the proposed 203 single-family homes and would not result in increased calls for service. Therefore, there would be no impacts to public services under the No Project Alternative.

Recreation

The No Project Alternative would continue existing operation at the site and would not construct the 203 single-family homes and associated infrastructure and improvements. The No Project Alternative would not construct any new open space or parks. The proposed project included the development of new open spaces and park on-site which would have contributed to the City's parks and recreational opportunities; however, the No Project Alternative would not result in an increased demand for parks and recreational opportunities and would not result in the need for development of additional parks and recreational opportunities. Therefore, there would be no impacts to recreation under the No Project Alternative.

Transportation

Under the No Project Alternative, the existing uses would continue to operate on the project site. Under the No Project Alternative, traffic conditions at the site and in the vicinity of the project site would not change and would not generate additional traffic. Therefore, impacts to transportation would be less under the No Project Alternative.

Tribal Cultural Resources

Under the No Project Alternative, there would be no subsurface ground disturbance activities that could impact undiscovered tribal cultural resources. The No Project Alternative would not have an impact on tribal cultural resources.

Utilities and Service Systems

Under the No Project Alternative, the existing uses would continue to operate on the project site and would not construct the proposed residential development and associated infrastructures. Under the No Project Alternative, the demand for water, wastewater, stormwater, solid waste, and other utility services would remain the same as existing conditions and would not result in increased demand. Therefore, the No Project Alternative would not have any impacts on utilities and service systems.

Wildfire

If the No Project Alternative is adopted, the existing commercial uses at the site would continue to operate and the project site would remain the same as existing conditions. The adoption of the No Project Alternative would not exacerbate the risk of wildfires beyond what currently existing in the vicinity of the project site. Therefore, there would be no impacts to wildfire under the No Project Alternative.

Conclusion and Relationship to Project Objectives

The No Project Alternative would reduce the significant and unavoidable impact to VMT, but it would have greater impacts to energy, geology and soils, GHGs, hazards and hazardous materials, hydrology and water quality, land use and planning, and noise. The No Project Alternative would not achieve any of the project objectives shown below:

- Implement the City's General Plan by developing the site with low-density residential;
- Support the City in meeting its Regional Housing Needs Allocation (RHNA) target assigned by the Association of Bay Area Governments (ABAG);
- Provide high quality residential development including a mix of lot sizes;
- Minimize environmental impacts associated with residential development by siting the project on developed and disturbed lands;
- Remediate contaminated soil on-site to levels suitable for residential development;
- Create a residential development that integrates multi-modal transportation (pedestrian, bicycle, automobile) and connects the development to existing, nearby bus transit stops and active centers by improving Mowry Avenue and upgrading the at-grade vehicular and pedestrian crossing along Mowry Avenue at the UPRR railroad tracks to increase safety.

5.5.2 Alternative 2 – Multi-family Residential Alternative

Under the Multi-family Residential Alternative, the project would include the demolition of existing uses and remediation of existing contaminants on-site, same as the proposed project. However, under this alternative, the project would develop 405 multi-family residential units. Under the Multi-family Residential Alternative, the project would construct 405 multi-family residential units on 29 acres, resulting in a density of approximately 14 units per acre and therefore, would require a General Plan Amendment from Low Density Residential to Medium Density Residential to allow for the increased density. This alternative would provide multi-family residential units that range from garden apartments and condominiums to townhomes and row houses that would have a maximum building height of 60 feet, in accordance with the development standards of the Areas 3 and 4 Specific Plan.

Impact Analysis

Aesthetics

Under the Multi-family Residential Alternative, the heights of the proposed buildings would be increased and the site would be developed with a higher density. The analysis in Section 3.1, Aesthetics, identified that the proposed project would not result in significant impacts to scenic resources given the amount of separation between the project site and scenic views. Though this alternative would increase building heights and change the character of the site, the distance between the project and scenic views would remain the same and impacts to aesthetics would be equivalent to the proposed project.

Agricultural and Forestry Resources

Under the Multi-family Residential Alternative, the project site would be developed with residential uses, similar to the proposed project. The alternative would be located within the same project site footprint as the proposed project and would not develop any agricultural and forestry uses. Therefore, the Multi-family Residential Alternative would have no impact related to agricultural and forestry resources and impacts would be equivalent to the proposed project.

Air Quality

Under the Multi-family Residential Alternative, construction of the project may require a longer construction period due to the increased number of residential units and may result in greater construction related air quality impacts. However, construction related emissions would be mitigated with the implementation of the same mitigation measures required for construction of the proposed project. Additionally, operational emissions under the Multi-family Residential Alternative would be greater when compared to the proposed project resulting from the increased number of residential units and the generation of more residents at the site. The net operational emissions under the proposed project were determined to be well below the BAAQMD project level threshold and it is not anticipated that implementation of the Multi-family Residential Alternative would not result in operational emissions that exceed the identified threshold. Though the Multi-family Residential Alternative would not substantially increase short-term construction or longer-term operational emissions, emissions would be increased from the proposed project and impact to air quality would be greater when compared to the proposed project.

Biological Resources

Under the Multi-family Residential Alternative, the entirety of the project site would continue to be developed with residential uses and the project would continue to require removal of existing trees on-site. Additionally, development of the Multi-family Residential Alternative would result in the same biological resources impacts as the proposed project as it would be located within the same project footprint. Therefore, this alternative would require implementation of the same mitigation measures identified for the proposed project and impacts resulting from the Multi-family Residential Alternative would be equivalent to the proposed project.

Cultural Resources

The Multi-family Residential Alternative would continue involve subsurface ground disturbance activities which could result in the inadvertent discovery of unknown archeological resources at the project site. The amount of ground disturbance required would be similar to the proposed project as this alternative would include development of the same project site footprint as the proposed project. Potential impacts would be reduced to a less than significant level with the incorporation of the same mitigation measures identified for the proposed project to address the unanticipated discovery of cultural resources. Like the proposed project, the Multi-family Residential Alternative would continue to have no impact on historical resources. Therefore, impacts to cultural resources would be equivalent to the proposed project.

Energy

Under the Multi-family Residential Alternative, the project site would be developed with a higher density residential use than compared to the proposed project which could increase energy use at the site. However, the buildings constructed under this alternative would implement the same energy efficiency measures as the proposed project. Additionally, this alternative would be designed to comply with all energy efficiency requirements and would comply with future building code standards to increase energy efficiency, similar to the proposed project. Though this alternative would include energy efficiency measures and would increase energy efficiency at the site, the alternative would result in an increase in energy use from the proposed project and therefore, impacts to energy would be greater when compared to the proposed project.

Geology and Soils

Under this alternative, the project site would continue to be developed with residential uses and would result in the same level of impact as the proposed project. The Multi-family Residential Alternative would require implementation of the same mitigation measures identified for the proposed project in Section 3.7, Geology and Soils of this EIR and would continue to be required to comply with CBC and City guidelines related to seismic and geologic safety. This alternative would be required to implement geotechnical design recommendations and would include mitigation for unstable soil and liquefaction induced impacts, similar to the proposed project. Therefore, the impacts to geology and soils under this alternative would be equivalent to the proposed project.

Greenhouse Gas Emissions

Under the Multi-family Residential Alternative, the project site would be developed with a higher density residential development which could result in increased GHG emissions. However, the Multi-family Residential Alternative would develop new housing near transit, would construct more energy efficient structures, and construct pedestrian and bicycle improvements and therefore, would help to reduce future GHG emissions. Though this alternative would help to reduce future GHG emissions similar to the proposed project, this alternative would generate more vehicle trips than the proposed project and therefore, would increase impacts to GHG from the proposed project. As such, long-term impacts to GHG emissions under this alternative would be greater when compared to the proposed project.

Hazards and Hazardous Materials

If the Multi-family Residential Alternative is implemented, the project would still require remediation of the project site to ensure that existing soil, soil gas, groundwater, and surface water contamination is mitigated. The increase in the number of units and density at the project site would not result in increased impacts to hazards and hazardous materials. The Multi-family Residential Alternative would require the same mitigation measures identified in Section 3.9, Hazards and Hazardous Materials for the proposed project to ensure that impacts are less than significant. Therefore, under this alternative, impacts to hazards and hazardous materials would be equivalent to the proposed project.

Hydrology and Water Quality

The Multi-family Residential Alternative is not anticipated to increase impacts to hydrology and water quality. New stormwater infrastructure constructed for the project would be required to be designed and constructed in accordance with City and C.3 requirements, similar to the proposed project. Additionally, this alternative would require the same mitigation measures identified in Section 3.10, Hydrology and Water Quality of this EIR for the proposed project to ensure that hydrologic and water quality impacts remain less than significant. Therefore, impacts to hydrology and water quality would be equivalent to the proposed project.

Land Use and Planning

Similar to the proposed project, the Multi-family Residential Alternative would provide residential uses at the project site. However, under this alternative, the residential units proposed would be multi-family and would increase the amount of units and density at the site. Similar to the proposed project, the Multi-family Residential Alternative would require rezoning of the site and a Specific Plan Amendment to allow the construction of 405 residential units that would be above the maximum allowable residential units for the Specific Plan area. In addition to the proposed rezoning and Specific Plan Amendment that is part of the proposed project, the Multi-family Residential Alternative would require a General Plan Amendment to increase the allowable density at the site. With the approval of the General Plan Amendment, this alternative would be consistent with the General Plan and land use and planning impacts under this alternative would be similar to the proposed project. Therefore, this alternative result in land use and planning impacts that are equivalent to the proposed project.

Mineral Resources

As discussed in Section 3.12, Mineral Resources of this EIR, the project site is not located in an area containing important mineral resources and the site is not a delineated mineral resource recovery site. Therefore, there would be no impacts to mineral resources under the Multi-family Residential Alternative and impacts would be equivalent compared to the proposed project.

Noise

Under the Multi-family Residential Alternative, the project site would be developed with more residential units and the proposed density would be increased. Therefore, the construction period required for the alternative may be longer than the construction of the proposed project. However, construction noise and vibration levels would be similar to the proposed project and would be temporary. As with the proposed project, this alternative would be required to implement mitigation measures to reduce construction related noise. As discussed in Section 3.13, Noise of this EIR, the proposed project was determined to result in essentially no change in traffic noise along streets in the vicinity of the project site. This alternative would increase traffic along adjacent streets due to the increase in residents and would increase noise levels. As with the proposed project, this alternative would be required to prepare an noise analysis and incorporate the recommendations and design features included in the noise analysis to shield noise. As the increase in residential units and anticipated residents would increase noise levels at the site, it would result in more impacts than what was identified for the proposed project. Therefore, impacts to noise under the Multi-family Residential Alternative would be greater compared to the proposed project.

Population and Housing

Implementation of the Multi-family Residential Alternative would result in an increase in the number of residents generated by the project. This alternative proposes the construction of 405 multi-family units and would generate approximately 1,345 residents, which is an increase from the anticipated 674 residents that would be generated by the proposed project. The Areas 3 and 4 Specific Plan planned for a maximum residential unit allocation of 1,260 units within the Specific Plan area. Currently, all 1,260 units are constructed and/or approved to be constructed within the Specific Plan area and therefore, implementation of this alternative would result in development of residential units above the maximum residential unit allocation of 1,260 units. Though the increase in the number of residential units and anticipated population generated by this alternative would be greater than what was planned in the Areas 3 and 4 Specific Plan, it would not result in unplanned population growth as the proposed number of units and anticipated population would be within the planned number of units within the General Plan and would be within the population and residential unit growth anticipated under the General Plan. Therefore, impacts to population and housing under this alternative would be equivalent to the proposed project.

Public Services

The Multi-family Residential Alternative would result in increased demand for public services above what is anticipated for the proposed project as it would increase the number of residential units and residents at the site. This alternative would require the payment of development impact fees and parks impact fees similar to the proposed project to reduce the increased demand on public services. However, since the alternative would result in more demand for public services compared to the proposed project, impacts to public services would be greater than the proposed project.

Recreation

The Multi-family Residential Alternative would result in greater impacts to parks and recreational facilities when compared to the proposed project. The alternative would result in the generation of more residents than the proposed project and therefore, would increase the demand on existing parks and recreational facilities. The project under this alternative would be required to provide more park space or funding to reduce impacts, similar to the proposed project. Impacts to recreation would be greater under this alternative compared to the proposed project.

Transportation

Under the Multi-family Residential Alternative, the project would result in an increased number of residential units and residents generated compared to the proposed project. The increase in the number of residents anticipated would result in increased vehicle trips above what was identified for the proposed project.

The VMT for this alternative is calculated using California Air Pollution Control Officers Association's (CAPCOA) Strategy T-1, which correlates VMT with residential density. Since the alternative would have a density of 14 units per acre, it would generate 12 percent less VMT than the proposed project according to CAPCOA. Under this alternative, the project would have an average VMT per resident of 24.6, which is above the threshold of significance of 19.4 (i.e., 15 percent below citywide average). Though this alternative would reduce VMT by 12 percent from the proposed project's identified VMT of 27.9 to this alternative's identified VMT of 24.6, VMT under this alternative would continue to be above the threshold and would continue to have a significant impact. Therefore, this alternative would continue to have a significant and unavoidable impact on VMT and impacts to transportation would be equivalent compared to the proposed project.

Tribal Cultural Resources

The Multi-family Residential Alternative would continue to require subsurface ground disturbance activities which could result in the inadvertent discovery of unknown tribal cultural resources at the project site. The amount of ground disturbance required would be similar to the proposed project as this alternative would include development of the same project site footprint as the proposed project. Potential impacts would be reduced to a less than significant level with the incorporation of the same mitigation measures identified for the proposed project to address the unanticipated discovery of tribal cultural resources. Therefore, impacts to tribal cultural resources would be equivalent to the proposed project.

Utilities and Service Systems

The Multi-family Residential Alternative would increase demand for water, wastewater, and solid waste services and would require greater supplies to serve the proposed 405 unit multi-family residential development. However, the proposed number of units would be within the residential allocation identified in the Areas 3 and 4 Specific Plan and the WSA prepared for the Specific Plan identified that with compliance with requirements provided in the WSA, there would be sufficient water supplies to support the residential allocation identified in the Specific Plan. Though there would be sufficient supplies to serve this alternative, the increase in number of residential units under this alternative would place greater demand on water, wastewater, and solid waste service providers and therefore, impacts to utilities and service systems would be greater compared to the proposed project.

Wildfire

The Multi-family Residential Alternative would continue to construct residential uses at the site and would not result in construction in areas outside of the project site footprint that may be identified as having a higher potential fire hazard than the project site. The alternative would not introduce other uses that could increase wildfire hazard and therefore, impacts to wildfire would be equivalent to the proposed project.

Conclusion and Relationship to Project Objectives

The Multi-family Residential Alternative would not eliminate or reduce the significant and unavoidable impact to VMT. This alternative would have equivalent impacts compared to the proposed project on aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, population and housing, tribal cultural resources, and wildfire. The Multi-family Residential Alternative would result in greater impacts to air quality, energy, GHG, noise public services, recreation, and utilities and service systems. The Multi-family Residential Alternative would not achieve the project objective shown below:

- Implement the City's General Plan by developing the site with low-density residential.

All other project objectives would be achieved under this alternative. This alternative would require modification of the site layout and conversion from single-family residential units to multi-family residential units. This alternative would result in a density of 14 units per acre and would require a General Plan Amendment to designate the site as medium density residential. As such, this alternative would not meet the project objective to provide low density residential uses at the site.

5.5.3 Alternative 3 – Reduced Density Alternative

Under the Reduced Density Alternative, the project site would be developed with 64 single-family detached residential homes on the 29 acre project site. The Reduced Density Alternative would have a resulting density of approximately 2.2 dwelling units per acre which is within the allowable density of 8.7 dwelling units per acre for the Low Density Residential General Plan land use designation. The Reduced Density Alternative would continue to involve the demolition of existing uses and structures at the project site, remediation of the project site, and would involve additional on- and off-site improvements, similar to the proposed project. Though the Reduced Density Alternative's density of 2.2 dwelling units per acre would be within the allowable density for Low Density Residential General Plan land use designation, it would underutilize the allowable density of the designation of the project site.

Impact Analysis

Aesthetics

Under the Reduced Density Alternative, the heights of the proposed buildings would be similar to the proposed project as the site would be developed with single-family homes. The analysis in Section 3.1, Aesthetics, identified that the proposed project would not result in significant impacts to scenic resources given the amount of separation between the project site and scenic views. Though this alternative would increase building heights from current conditions and change the character of the site, the distance between the project and scenic views would remain the same and impacts to aesthetics would be equivalent to the proposed project.

Agricultural and Forestry Resources

Under the Reduced Density Alternative, the project site would be developed with low density residential uses, similar to the proposed project. The alternative would be located within the same project site footprint as the proposed project and would not develop any agricultural and forestry uses. Therefore, the Reduced Density Alternative would have no impact related to agricultural and forestry resources and impacts would be equivalent to the proposed project.

Air Quality

Under the Reduced Density Alternative, the amount and duration of construction required for development would be reduced from the proposed project as this alternative would only construct 64 single-family homes, compared to the 203 single-family homes proposed for the proposed project. Therefore, construction related air quality impacts would be reduced compared to the proposed project though the project would still be required to continue to implement construction mitigation measures identified in Section 3.3, Air Quality of this EIR. Additionally, operational emissions under the Reduced Density Alternative would be reduced when compared to the proposed project resulting from the decreased number of residential units and the generation of less residents at the site. The net operational emissions under the proposed project were determined to be well below the BAAQMD project level threshold and therefore, operational emissions would be further reduced below the BAAQMD threshold under this alternative. Therefore, air quality impacts under the Reduced Density Alternative would be less compared to the proposed project.

Biological Resources

Under the Reduced Density Alternative, the entirety of the project site would continue to be developed with residential uses and the project would continue to require removal of existing trees on-site. Additionally, development of the Reduced Density Alternative would result in the same biological resources impacts as the proposed project as it would be located within the same project footprint. Therefore, this alternative would require implementation of the same mitigation measures identified for the proposed project and impacts resulting from the Reduced Density Alternative would be equivalent to the proposed project.

Cultural Resources

The Reduced Density Alternative would continue to require subsurface ground disturbance activities which could result in the inadvertent discovery of unknown archeological resources at the project site. The amount of ground disturbance required would be similar to the proposed project as this alternative would include development of the same project site footprint as the proposed project. Potential impacts would be reduced to a less than significant level with the incorporation of the same mitigation measures identified for the proposed project to address the unanticipated discovery of cultural resources. Like the proposed project, the Reduced Density Alternative would continue to have no impact on historical resources. Therefore, impacts to cultural resources would be equivalent to the proposed project.

Energy

Under the Reduced Density Alternative, the project site would be developed with a lower density residential use than the proposed project which would reduce energy use at the site. The buildings constructed under this alternative would implement the same energy efficiency measures as the proposed project. Additionally, this alternative would be designed to comply with all energy efficiency requirements and would comply with future building code standards to increase energy efficiency, similar to the proposed project. As this alternative would result in reduced energy use at the site from the proposed project, impacts to energy would be less when compared to the proposed project.

Geology and Soils

Under the Reduced Density Alternative, the project site would continue to be developed with residential uses and would result in the same level of impact as the proposed project. The Reduced Density Alternative would require implementation of the same mitigation measures identified for the proposed project in Section 3.7, Geology and Soils of this EIR and would continue to be required to comply with CBC and City guidelines related to seismic and geologic safety. Accordingly, the impacts to geology and soils under this alternative would be equivalent to the proposed project.

Greenhouse Gas Emissions

Under the Reduced Density Alternative, the project site would be developed with a lower density residential development which would result in less GHG emissions than the proposed project. The Reduced Density Alternative would develop new housing near transit, would construct more energy efficient structures, and construct pedestrian and bicycle improvements and therefore, would help to reduce future GHG emissions. This alternative would generate less vehicle trips than the proposed project as the alternative project would only develop 64 residential units compared to the proposed project's 203 residential units and therefore, would decrease impacts to GHG from the proposed project. As such, long-term impacts to GHG emissions under this alternative would be less when compared to the proposed project.

Hazards and Hazardous Materials

Under the Reduced Density Alternative, the project would still require remediation of the project site to ensure that existing soil, soil gas, groundwater, and surface water contamination is mitigated. The decrease in the number of units and density at the project site would not result in a change in the level of impacts to hazards and hazardous materials. The Reduced Density Alternative would require the same mitigation measures identified in Section 3.9, Hazards and Hazardous Materials for the proposed project to ensure that impacts are less than significant. Therefore, under this alternative, impacts to hazards and hazardous materials would be equivalent to the proposed project.

Hydrology and Water Quality

The Reduced Density Alternative is not anticipated to increase impacts to hydrology and water quality. This alternative would require construction of new stormwater infrastructure to serve the project and new stormwater infrastructure constructed for the project would be required to be designed and constructed in accordance with City and C.3 requirements, similar to the proposed project. Additionally, this alternative would require the same mitigation measures identified in Section 3.10, Hydrology and Water Quality of this EIR for the proposed project to ensure that hydrologic and water quality impacts remain less than significant. Therefore, impacts to hydrology and water quality would be equivalent to the proposed project.

Land Use and Planning

Under the Reduced Density Alternative, the project site would continue to be developed with low density uses and this alternative would be consistent with the site's Low Density Residential General Plan land use designation. Though this alternative would contribute to increasing housing quantity within the City to support it in meeting its RHNA target and the Reduced Density Alternative's density of two units per acre would be within the allowable density for Low Density Residential General Plan land use designation, it would underutilize the allowable density of the designation of the project site. This alternative would comply with the General Plan land use designation of Low Density Residential as the designation required less than 8.7 units per acre. However, the Areas 3 and 4 Specific Plan did not envision lot sizes for residential developments with a two unit per acre density. This alternative would require the same rezoning and Specific Plan Amendment that is part of the proposed project and would not require any additional approvals. Therefore, this alternative would be equally consistent with the City's General Plan and Zoning Code compared to the proposed project and would not result in increased land use and planning impacts. Impacts to land use and planning would be equivalent to the proposed project.

Mineral Resources

As discussed in Section 3.12, Mineral Resources of this EIR, the project site is not located in an area containing important mineral resources and the site is not a delineated mineral resource recovery site. Therefore, there would be no impacts to mineral resources under the Reduced Density Alternative and impacts would be equivalent to the proposed project.

Noise

Under the Reduced Density Alternative, the project site would be developed with less residential units and the proposed density would be reduced. Therefore, the construction period required for the alternative may be shorter than the construction period required for the proposed project. Though the construction period may be shorter, construction noise and vibrations levels would be similar to the proposed project and would be temporary. As with the proposed project, this alternative would be required to implement mitigation measures to reduce construction related noise level. Operation of this alternative would result in less vehicle trips on surrounding roadways as it would generate less residents and traffic noise would be reduced. As with the proposed project, this alternative would be required to prepare a noise analysis and incorporate the recommendations and design features included in the noise analysis to shield noise. As the decrease in residential units and anticipated residents would decrease noise levels at the site, it would result in less impacts than what was identified for the proposed project. Therefore, impacts to noise under the Reduced Density Alternative would be less than the proposed project.

Population and Housing

Implementation of the Reduced Density Alternative would result in a decrease in the number of residents generated by the project. This alternative proposes the construction of 64 single-family units and would generate approximately 212 residents, which is a decrease from the anticipated 674 residents that would be generated by the proposed project. Similar to the proposed project, this alternative would require rezoning of the site and a Specific Plan Amendment to allow for the development of 64 residential units above the maximum allowed residential unit allocation of 1,260 units within the Specific Plan. Though the Reduced Density Alternative would not be within the number of residential units and anticipated population that was planned in the Areas 3 and 4 Specific Plan, the number of residential units proposed under this alternative and its anticipated population would not result in unplanned population growth as the proposed number of units would be within the planned number of units within the General Plan and would be within the population and residential unit growth anticipated under the General Plan. Therefore, impacts to population and housing under this alternative would be equivalent to the proposed project.

Public Services

The Reduced Density Alternative would result in decreased demand for public services from what is anticipated for the proposed project as it would decrease the number of residential units and residents at the site. This alternative would require the payment of development impact fees and parks impact fees similar to the proposed project to reduce the increased demand on public services from current conditions. However, since the alternative would result in less demand for public services compared to the proposed project, impacts to public services would be less than the proposed project.

Recreation

The Reduced Density Alternative would result in less impacts to parks and recreational facilities when compared to the proposed project. The alternative would result in the generation of less residents than the proposed project and therefore, would decrease the demand on existing parks and recreational facilities. The project under this alternative would be required to provide park space or funding to reduce impacts similar to the proposed project. Impacts to recreation would be less under this alternative compared to the proposed project.

Transportation

Under the Reduced Density Alternative, there would be less vehicle trips generated compared to the proposed project as this alternative would reduce the number of residential units and residents from what is proposed under the proposed project. VMT generated by the development of this alternative would not result in a net new increase in VMT in comparison to the existing VMT generated by the existing uses.

Existing daily VMT generated by the existing Pick-n-Pull uses on-site is identified to be 6,023. With a project daily VMT per person of 27.9 and household size of 3.36 used by Fehr & Peers for the preparation of the Transportation Impact Analysis for the proposed project, this alternative would result in a project daily VMT of 6,023. Therefore, this alternative would not result in net new VMT from current conditions. However, the daily VMT per person of 27.9 anticipated for the project would be above the threshold of significant of 19.4 (i.e., 15 percent below citywide average). Therefore, this alternative would continue to have a significant and unavoidable impact to VMT and impacts to transportation would be equivalent to the proposed project.

Tribal Cultural Resources

The Reduced Density Alternative would continue to require subsurface ground disturbance activities which could result in the inadvertent discovery of unknown tribal cultural resources at the project site. The amount of ground disturbance required fort his alternative would be similar to the proposed project as this alternative proposed development of the entire 29 acre project site would include development of the same project site footprint as the proposed project. Potential impacts would be reduced to a less than significant level with the implementation of the same mitigation measures identified for the proposed project to address inadvertent discovery of tribal cultural resources. Therefore, impacts to tribal cultural resources under this alternative would be equivalent to the proposed project.

Utilities and Service Systems

The Reduced Density Alternative would decrease demand for water, wastewater, and solid waste services and would require less supplies to serve the proposed 64 single-family residential development. The proposed number of units would be within the residential allocation identified in the Areas 3 and 4 Specific Plan and the WSA prepared for the Specific Plan identified that with compliance with requirements provided in the WSA, there would be sufficient water supplies to support the residential allocation identified in the Specific Plan. There would be sufficient supplies to serve this alternative and the decrease in number of residential units under this alternative would place less demand on water, wastewater, and solid waste service providers and therefore, impacts to utilities and service systems would be less compared to the proposed project.

Wildfire

The Reduced Density Alternative would continue to construct residential uses at the site and would not result in construction in areas outside of the project site footprint that may be identified as having a higher potential fire hazard than the project site. The alternative would not introduce other uses that could increase wildfire hazard and therefore, impacts to wildfire would be equivalent to the proposed project.

Conclusion and Relationship to Project Objectives

Though the Reduced Density Alternative would not result in a net increase in VMT above existing conditions, VMT generated by this alternative would be above the threshold of significance and therefore, this alternative would not eliminate the significant and unavoidable impact to VMT. This alternative would have equivalent impacts compared to the proposed project on aesthetics, agriculture and forestry resources, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, transportation, tribal cultural resources, and wildfire. The Reduced Density Alternative would have less impacts compared to the proposed project on air quality, energy, GHG, noise, public services, recreation, and utilities and service systems. The Reduced Density Alternative would achieve all of the project objectives.

Though the Reduced Density Alternative's density of two units per acre would be within the allowable density for Low Density Residential General Plan land use designation, it would underutilize the allowable density of the designation of the project site. Additionally, the Areas 3 and 4 Specific Plan did not envision lot sizes for residential developments with a two unit per acre density. The demolition of the existing uses, remediation of the project site, and construction of single-family homes within the project site would be extensive and costly and the high costs the Applicant would incur from development of this alternative would be greater than the revenue generated by development of this alternative.

5.5.4 Alternative 4 – 100 Percent Affordable Housing Alternative

Under the 100 Percent Affordable Housing Alternative, the project would include the demolition of existing uses and remediation of existing contaminants on-site, same as the proposed project. This alternative is similar to the Multi-family Residential Alternative; however, under this alternative, the project would develop 405 multi-family residential units that are 100 percent affordable. Under the 100 Percent Affordable Housing Alternative, the project would construct 405 affordable multi-family residential units on 29 acres, resulting in a density of approximately 14 units per acre and therefore, would require a General Plan Amendment from Low Density Residential to Medium Density Residential to allow for the increased density. This alternative assumed that no density bonus law would be applied. This alternative would provide multi-family residential units that range from garden apartments and condominiums to townhomes and row houses that would have a maximum building height of 60 feet, in accordance with the development standards of the Areas 3 and 4 Specific Plan.

Impact Analysis

Aesthetics

Under the 100 Percent Affordable Housing Alternative, the heights of the proposed buildings would be increased and the site would be developed with a higher density. The analysis in Section 3.1, Aesthetics, identified that the proposed project would not result in significant impacts to scenic resources given the amount of separation between the project site and scenic views. Though this alternative would increase building heights and change the character of the site, the distance between the project and scenic views would remain the same and impacts to aesthetics would be equivalent to the proposed project.

Agricultural and Forestry Resources

Under the 100 Percent Affordable Housing Alternative, the project site would be developed with residential uses, similar to the proposed project. The alternative would be located within the same project site footprint as the proposed project and would not develop any agricultural and forestry uses. Therefore, the Multi-family Residential Alternative would have no impact related to agricultural and forestry resources and impacts would be equivalent to the proposed project.

Air Quality

Under the 100 Percent Affordable Housing Alternative, construction of the project may require a longer construction period due to the increased number of residential units and may result in greater construction related air quality impacts. However, construction related emissions would be mitigated with the implementation of the same mitigation measures required for construction of the proposed project.

Additionally, operational emissions under the 100 Percent Affordable Housing Alternative would be greater when compared to the proposed project resulting from the increased number of residential units and the generation of more residents at the site. The net operational emissions under the proposed project were determined to be well below the BAAQMD project level threshold and it is not anticipated that implementation of the 100 Percent Affordable Housing Alternative would not result in operational emissions that exceed the identified threshold. Though the 100 Percent Affordable Housing Alternative would not substantially increase short-term construction or longer-term operational emissions, emissions would be increased from what was identified for the proposed project and impact to air quality would be greater when compared to the proposed project.

Biological Resources

Under the 100 Percent Affordable Housing Alternative, the entirety of the project site would continue to be developed with residential uses and the project would continue to require removal of existing trees on-site. Additionally, development of the 100 Percent Affordable Housing Alternative would result in the same biological resources impacts as the proposed project as it would be located within the same project footprint. Therefore, this alternative would require implementation of the same mitigation measures identified for the proposed project and impacts resulting from the 100 Percent Affordable Housing Alternative would be equivalent to the proposed project.

Cultural Resources

The 100 Percent Affordable Housing Alternative would continue to require and involve subsurface ground disturbance activities which could result in the inadvertent discovery of unknown archeological resources at the project site. The amount of ground disturbance required would be similar to the proposed project as this alternative would include development of the same 29 acre project site as the proposed project. Potential impacts would be reduced to a less than significant level with the incorporation of the same mitigation measures identified for the proposed project to address the unanticipated discovery of cultural resources. Like the proposed project, the 100 Percent Affordable Housing Alternative would continue to have no impact on historical resources. Therefore, impacts to cultural resources would be equivalent to the proposed project.

Energy

Under the 100 Percent Affordable Housing Alternative, the project site would be developed with a higher density residential use than compared to the proposed project which could increase energy use at the site. However, the buildings constructed under this alternative would implement the same energy efficiency measures as the proposed project. Additionally, this alternative would be designed to comply with all energy efficiency requirements and would comply with future building code standards to increase energy efficiency, similar to the proposed project. Though the 100 Percent Affordable Housing Alternative would include energy efficiency measures and would increase energy efficiency at the site, the alternative would result in an increase in energy use from the proposed project and therefore, impacts to energy would be greater when compared to the proposed project.

Geology and Soils

Under the 100 Percent Affordable Housing Alternative, the project site would be developed with 405 multi-family affordable housing units but would result in the same level of impact as the proposed project. The 100 Percent Affordable Housing Alternative would require implementation of the same mitigation measures identified for the proposed project in Section 3.7, Geology and Soils of this EIR and would continue to be required to comply with CBC and City guidelines related to seismic and geologic safety. The proposed project includes the implementation of geotechnical design recommendations and includes mitigation for unstable soil and liquefaction induced impacts and this alternative would be required to implement the same measures to ensure a less than significant level of impact. Therefore, the impacts to geology and soils under the 100 Percent Affordable Housing Alternative would be equivalent to the proposed project.

Greenhouse Gas Emissions

Under the 100 Percent Affordable Housing Alternative, the project site would be developed with a higher density residential development with 405 multi-family units which could result in increased GHG emissions. The 100 Percent Affordable Housing Alternative would develop new housing near transit, would construct more energy efficient structures, and construct pedestrian and bicycle improvements and therefore, would help to reduce future GHG emissions. Though this alternative would help to reduce future GHG emissions similar to the proposed project the 100 Percent Affordable Housing Alternative would generate more vehicle trips than the proposed project and therefore, would increase impacts to GHG from what was identified for the proposed project. As such, long-term impacts to GHG emissions under the 100 Percent Affordable Housing Alternative would be greater when compared to the proposed project.

Hazards and Hazardous Materials

Under the 100 Percent Affordable Housing Alternative, the project would continue to require remediation of the project site to ensure that existing soil, soil gas. groundwater, and surface water contamination is mitigated. The increase in the number of units and density at the project site would not result in increased impacts to hazards and hazardous materials. The 100 Percent Affordable Housing Alternative would require the same mitigation measures identified in Section 3.9, Hazards and Hazardous Materials for the proposed project to ensure that impacts are less than significant. Therefore, under the 100 Percent Affordable Housing Alternative, impacts to hazards and hazardous materials would be equivalent to the proposed project.

Hydrology and Water Quality

The 100 Percent Affordable Housing Alternative is not anticipated to increase impacts to hydrology and water quality. Under the 100 Percent Affordable Housing Alternative, the project would construct new stormwater infrastructure that would be required to be designed and constructed in accordance with City and C.3 requirements, similar to the proposed project. Additionally, this alternative would require the same mitigation measures identified in Section 3.10, Hydrology and Water Quality of this EIR for the proposed project to ensure that hydrologic and water quality impacts remain less than significant. Therefore, impacts to hydrology and water quality would be equivalent to the proposed project.

Land Use and Planning

The 100 Percent Affordable Housing Alternative would provide residential uses at the project site, similar to the proposed project. However, under the 100 Percent Affordable Housing Alternative, the residential units proposed would be multi-family and would increase the amount of units and density at the site. Additionally, the multi-family units would be 100 percent affordable. Similar to the proposed project, the 100 Percent Affordable Housing Alternative would require rezoning of the site and A Specific Plan Amendment to allow the construction of 405 residential units that would be above the maximum allowable residential units for the Areas 3 and 4 Specific Plan Area. In addition to the proposed rezoning and Specific Plan Amendment that is part of the proposed project, the 100 Percent Affordable Housing Alternative would require a General Plan Amendment to increase the allowable density at the site. With the approval of the General Plan Amendment, this alternative would be consistent with the General Plan and land use and planning impacts under this alternative would be similar to the proposed project. Therefore, the 100 Percent Affordable Housing Alternative would result in land use and planning impacts that are equivalent to the proposed project.

Mineral Resources

As discussed in Section 3.12, Mineral Resources of this EIR, the project site is not located in an area containing important mineral resources and the site is not a delineated mineral resource recovery site. Therefore, there would be no impacts to mineral resources under the 100 Percent Affordable Housing Alternative and impacts would be equivalent compared to the proposed project.

Noise

Under the 100 Percent Affordable Housing Alternative, the project site would be developed with 405 multi-family residential units and the proposed density would be increased. Due to the increase in number of units, the construction period required for the alternative may be longer than the construction of the proposed project. However, construction noise and vibration levels would be similar to the proposed project and would be temporary. Under the 100 Percent Affordable Housing Alternative, the project would be required to implement mitigation measures to reduce construction related noise, similar to the proposed project. As discussed in Section 3.13, Noise of this EIR, the proposed project was determined to result in essentially no change in traffic noise along streets in the vicinity of the project site. This alternative would increase traffic along adjacent streets due to the increase in residents and would increase noise levels. As with the proposed project, this alternative would be required to prepare a noise analysis and incorporate the recommendations and design features included in the noise analysis to shield noise. The increase in residential units and anticipated residents would increase noise levels at the site which would result in more impacts than what was identified for the proposed project. Therefore, impacts to noise under the 100 Percent Affordable Housing Alternative would be greater compared to the proposed project.

Population and Housing

Implementation of the 100 Percent Affordable Housing Alternative would result in an increase in the number of residents generated by the project as the project would develop 405 residential units. This alternative proposes the construction of 405 multi-family units and would generate approximately 1,345 residents, which is an increase from the anticipated 674 residents that would be generated by the proposed project. The Areas 3 and 4 Specific Plan planned for a maximum residential unit allocation of 1,260 units within the Specific Plan area. Currently, all 1,260 units are constructed and/or approved to be constructed within the Specific Plan area and therefore, implementation of this alternative would result in development of residential units above the maximum residential unit allocation of 1,260 units. Though the increase in the number of residential units and anticipated population generated by this alternative would be greater than what was planned in the Areas 3 and 4 Specific Plan, it would not result in unplanned population growth as the proposed number of units and anticipated population would be within the planned number of units within the General Plan and would be within the population and residential unit growth anticipated under the General Plan. Therefore, impacts to population and housing under the 100 Percent Affordable Housing Alternative would be equivalent to the proposed project.

Public Services

The 100 Percent Affordable Housing Alternative would result in increased demand for public services above what is anticipated for the proposed project as it would increase the number of residential units and residents at the site. This alternative would require the payment of development impact fees and parks impact fees to reduce the increased demand on public services, similar to the proposed project. As the alternative would result in more demand for public services compared to the proposed project, impacts to public services under the 100 Percent Affordable Housing Alternative would be greater than the proposed project.

Recreation

The 100 Percent Affordable Housing Alternative would result in a larger resident population than the proposed project and therefore, would result in increased demand and greater impacts to parks and recreational facilities when compared to the proposed project. The project under the 100 Percent Affordable Housing Alternative would be required to provide more park space or funding to reduce impacts, similar to the proposed project. Accordingly, impacts to recreation would be greater under the 100 Percent Affordable Housing Alternative when compared to the proposed project.

Transportation

Under the 100 Percent Affordable Housing Alternative, the project would result in increased number of residential units and residents generated compared to the proposed project. The increase in the number of residents anticipated would result in increased vehicle trips above what was identified for the proposed project.

Though the 100 Percent Affordable Housing Alternative is similar to the Multi-family Residential Alternative as it would provide the same number of multi-family residential units, VMT is calculated differently as this alternative include 100 percent affordable housing. The VMT for this alternative is calculated using CAPCOA’s Strategy T-2c, which correlates VMT with affordability. Assuming the 100 percent of units are below market rate, CAPCOA estimates a maximum 1.2 percent reduction in VMT compared to market rate units. Therefore, this alternative would result in a 1.2 percent reduction in VMT from the Multi-family Residential Alternative. Under this alternative, the project would have an average VMT per resident of 24.3, which is above the threshold of significance of 19.4 (i.e., 15 percent below citywide average). Though this alternative would reduce VMT by 13 percent from the proposed project’s identified VMT of 27.9 to this alternative’s identified VMT of 24.3, VMT under this alternative would continue to be above the threshold and would continue to have a significant impact. Therefore, this alternative would continue to have a significant and unavoidable impact on VMT and impacts to transportation would be equivalent compared to the proposed project.

Tribal Cultural Resources

Under the 100 Percent Affordable Housing Alternative, the project would continue to require subsurface ground disturbance activities which could result in the inadvertent discovery of unknown tribal cultural resources at the project site. The amount of ground disturbance required would be similar to the proposed project as this alternative would include development of the same project site footprint as the proposed project. Potential impacts to tribal cultural resources under this alternative would be reduced to a less than significant level with the incorporation of the same mitigation measures identified for the proposed project to address the unanticipated discovery of tribal cultural resources. Therefore, impacts to tribal cultural resources would be equivalent to the proposed project.

Utilities and Service Systems

The 100 Percent Affordable Housing Alternative would increase demand for water, wastewater, and solid waste services and would require greater supplies to serve the proposed 405 multi-family residential development. However, the proposed number of units would be within the residential allocation identified in the Areas 3 and 4 Specific Plan and the WSA prepared for the Specific Plan identified that with compliance with requirements provided in the WSA, there would be sufficient water supplies to support the residential allocation identified in the Specific Plan. Though there would be sufficient supplies to serve the 100 Percent Affordable Housing Alternative, the increase in number of residential units under this alternative would place greater demand on water, wastewater, and solid waste service providers and therefore, impacts to utilities and service systems would be greater compared to the proposed project.

Wildfire

The 100 Percent Affordable Housing Alternative would continue to construct residential uses at the site and would not result in construction in areas outside of the project site footprint that may be identified as having a higher potential fire hazard than the project site. The 100 Percent Affordable Housing Alternative would not introduce other uses that could increase wildfire hazard and therefore, impacts to wildfire would be equivalent to the proposed project.

Conclusion and Relationship to Project Objectives

Under this alternative, the project site would be constructed with 405 multi-family residential units with 100 percent of the units being allocated for affordable housing. The 100 Percent Affordable Housing Alternative would not eliminate or significantly reduce the significant and unavoidable impact to VMT. Under this alternative, the project would have equivalent impacts compared to the proposed project on aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, population and housing, tribal cultural resources, and wildfire. The 100 Percent Affordable Housing Alternative would result in greater impacts to air quality, energy, GHG, noise, public services, recreation, and utilities and service systems. The 100 Percent Affordable Housing Alternative would not achieve the project objective shown below:

- Implement the City's General Plan by developing the site with low-density residential.

All other project objectives would be met under this alternative. This alternative would require modifications to the site layout and conversion of units from single-family residential units to multi-family residential units. This alternative would result in a density of 14 units per acre and would require a General Plan Amendment to designate the site as medium density residential. As such, this alternative would not meet the project objective to provide low density residential uses at the site.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126.6(e)(2) requires an EIR to identify an "environmentally superior alternative." The qualitative environmental effects of each alternative in relation to the proposed project are summarized in Table 5.6-1. To quantitatively identify an environmentally superior alternative a value has been applied to each environmental effect. Additionally, Table 5.6-2 provides a comparison of the alternatives with the project objectives. Accordingly, the alternative with the fewest amounts of impacts and the ability to achieve the most project objectives is the environmentally superior alternative.

The Reduced Density Alternative is the environmentally superior alternative. Though the Reduced Density Alternative would not eliminate or reduce the significant and unavoidable impact to VMT, all other resource areas would be less than significant or less than significant with mitigation. Additionally, the Reduced Density Alternative would not result in greater impacts than the proposed project to any resource areas and would meet all project objectives.

Table 5.6-1: Project Alternative Impacts Comparison

Environmental Resource Area	Proposed Project	No Project (Alternative 1)	Multi-family Residential (Alternative 2)	Reduced Density (Alternative 3)	100 Percent Affordable (Alternative 4)
Aesthetics	LTS	<	=	=	=
Agriculture and Forestry Resources	NI	=	=	=	=
Air Quality	LTS/M	<	>	<	>
Biological Resources	LTS/M	<	=	=	=
Cultural Resources	LTS/M	<	=	=	=
Energy	LTS	>	>	<	>
Geology and Soils	LTS/M	>	=	=	=
Greenhouse Gases	LTS	>	>	<	>
Hazards and Hazardous Materials	LTS/M	>	=	=	=
Hydrology and Water Quality	LTS/M	>	=	=	=
Land Use and Planning	LTS	>	=	=	=
Mineral Resources	NI	=	=	=	=
Noise	LTS/M	>	>	<	>

Population and Housing	LTS	<	=	=	=
Public Services	LTS	<	>	<	>
Recreation	LTS	<	>	<	>
Transportation and Traffic	SU	<	=	=	=
Tribal Cultural Resources	LTS/M	<	=	=	=
Utilities and Service Systems	LTS	<	>	<	>
Wildfire	LTS	<	=	=	=

Notes:
NI = No Impact
LTS = Less than Significant Impact
LTS/M = Less than Significant Impact with Mitigation
SU = Significant and Unavoidable
< = Less impact than the proposed project
= = Equivalent impact to the proposed project
> = Greater impact than the proposed project

Table 5.6-2: Project Alternatives Comparison to Project Objectives

Project Objectives	Proposed Project	Multi-family Residential (Alternative 2)	Reduced Density (Alternative 3)	100 Percent Affordable (Alternative 4)
Implement the City's General Plan by developing the site with low-density residential.	X		X	
Support the City in meeting its RHNA target assigned by the ABAG.	X	X	X	X
Provide high quality residential uses including a mix of lot sizes.	X	X	X	X
Minimize environmental impacts associated with residential development by siting the project on developed and disturbed lands	X	X	X	X
Remediate contaminated soil on-site to levels suitable for residential development;	X	X	X	X
Create a residential development that integrates multi-modal transportation (pedestrian, bicycle, automobile) and connects the development to existing, nearby bus transit stops and active centers by improving Mowry Avenue and upgrading the at-grade vehicular and pedestrian crossing along Mowry Avenue at the UPRR railroad tracks to increase safety.	X	X	X	X

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6.0 OTHER CEQA CONSIDERATIONS

This section describes the other statutorily required topics including growth inducing impacts, significant and unavoidable impacts, significant irreversible environmental changes, and mandatory findings of significance. It also provides a discussion of energy conservation as required by Section 15126.4 of the CEQA Guidelines.

6.1 GROWTH-INDUCING IMPACTS

Section 15126.2(d) of the CEQA Guidelines requires that an EIR evaluate the growth-inducing impacts of a proposed action:

> *Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether a project would foster additional growth. Therefore, for purposes of this EIR, to reach the conclusion that a project is growth-inducing as defined by CEQA, the EIR must find that it would foster (i.e., promote, encourage, or allow) additional growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not determine that induced growth is beneficial or detrimental, consistent with Section 15126.2(d) of the State CEQA Guidelines. If the analysis conducted for the EIR results in a determination that a project is growth-inducing, the next question is whether that growth may cause adverse effects on the environment. Environmental effects resulting from induced growth (i.e., growth-induced effects) fit the CEQA definition of "indirect" effects in Section 15358(a)(2) of the State CEQA Guidelines. These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Growth-inducing impacts can occur when development of a project imposes new burdens on a community by directly inducing population growth, or by leading to the construction of additional development in the project area. Also included in this category are projects that would remove physical obstacles to population growth, such as the construction of a new roadway into an undeveloped area or a wastewater treatment plant with excess capacity to serve additional new development. Construction of these types of infrastructure projects cannot be considered isolated from the immediate development that they facilitate and serve. Projects that physically remove obstacles to growth or projects that indirectly induce growth are those that may provide a catalyst for future unrelated development in the area (such as a new residential community that requires additional commercial uses to support residents). The growth-inducing potential of a project could also be considered significant if it fosters growth in excess of what is assumed in the local master plans and land use plans, or in projections made by regional planning agencies.

6.1.1 Population Growth

The decision to allow/approve projects that result from induced growth (e.g., new commercial areas, new housing) is the subject of separate discretionary processes by individual lead agency (or agencies) responsible for considering such projects, in this case, the City Planning Commission or, on appeal, the City Council. Projects resulting from induced growth would themselves be discretionary and subject to CEQA. Therefore, the following discussion is intended to disclose the potential for environmental effects that could occur more generally because of the project rather than the site-specific impacts of induced growth. Its purpose is to inform the City decision-making body that additional environmental effects may be a possibility if growth-inducing projects are approved. However, the decision of whether projects are approved and the impacts associated with them still rests with the City decision-making body at such times as complete applications for development are submitted.

The proposed project would cause direct population growth by constructing 203 single-family residential units as part of Mowry Village. These dwelling units would directly generate population growth through an estimated 674 new residents to the City's population. The project is an in-fill development on existing developed but underutilized land and would not induce development in the area beyond that which has already been planned for as part of the General Plan and the Areas 3 and 4 Specific Plan. The proposed project does not include any employment components and would not result in an increase of jobs in the area. Therefore, the proposed project would not substantially induce population growth through the provision of new housing units or employment.

6.1.2 Removal of Barrier to Growth

The proposed project would construct improvements and install new water and wastewater lines at the project site which would connect to existing utilities in the project area. The proposed project would result in the extension of water and sanitary sewer infrastructure down Mowry Avenue from the terminus of the existing water and sanitary sewer main located on the north side of the UPRR tracks. Additionally, the proposed project would extend the existing potable and non-potable water mains from the southwest corner of the Sanctuary West Development. The proposed project would result in the extension of urban infrastructure; however, the extension of the water and sanitary sewer mains would not result in a removal of barrier of growth as the project site is located near the terminus of Mowry Avenue and vacant developable lands near the project site are limited. Due to the project site's close proximity to Mowry Slough and the use of nearby lands as salt production ponds, available developable lands near the project site are extremely limited and the developable land located to the east of the project site is already planned for development through the Area 4 – Sanctuary West Project which would construct its own utility infrastructure expansion and would not rely on mains located along Mowry Avenue. Therefore, the extension of utility infrastructure for the proposed project would not cause other property owners to develop adjacent or nearby properties. Additionally, the off-site roadway improvements to Mowry Avenue would not result in a removal of barrier of growth as the proposed project would not extension of Mowry Avenue from its current terminus.. The additional demand for utilities and public services generated by operation of the proposed project would be met with existing facilities. The proposed project would be constructed within the City's Urban Growth Boundary. Therefore, the proposed project would not result in significant growth-inducing impacts.

6.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

CEQA Guidelines Section 15126(b) requires an EIR to "describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described."

Section 3.0, Environmental Impact Analysis, provides a description of the potential environmental impacts of the proposed project and recommends mitigation measures to reduce impacts to a less than significant level, where possible. Section 4.0, Cumulative Impacts, determines whether the incremental effects of this project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. After implementation of the recommended mitigation measures, the following resource area would have significant unavoidable impacts:

6.2.1 Transportation

VMT

- The proposed project would conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
- The proposed project would result in a cumulatively considerable transportation impact related to VMT.

6.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

As mandated by the CEQA Guidelines, the EIR must address any significant irreversible environmental change that would result from implementation of the proposed project. Specifically, pursuant to the CEQA Guidelines (Section 15126.2(c)), such an impact would occur if:

- The project would involve a large commitment of nonrenewable resources;
- Land area committed to new project facilities;
- Irreversible damage can result from environmental accidents associated with the project; and
- The proposed consumption of resources is not justified (e.g., the project results in the wasteful use of energy).

The proposed project involves the construction of 203 single-family detached homes on an approximately 29 acre project site. The proposed project would also include the demolition of existing structures on-site and remediation of the site. Additional improvements would include on-street parking, drive aisles, underground utilities, LID drainage and water quality treatment areas, lighting, sidewalks, and landscaping. The proposed project would be consistent with the Low Density Residential General Plan land use designation by providing a density of 7 units per acre. The proposed project site is zoned Park and would require rezoning to the RS-6000 zoning designation.

As discussed in Section 3.6, Energy, project construction would require electricity, gasoline, and diesel fuels primarily for on-road and off-road equipment. However, equipment operation would comply with BAAQMD basic construction measures recommended for all projects that are aimed at reducing air pollution, such as minimizing idling of construction off-road equipment and maintaining all equipment in accordance with manufacturer standards. Such measures would also minimize the wasteful consumption of energy resources during construction.

The proposed project would be designed and constructed to be 100 percent electric. Operation of the proposed project would be required to comply with energy efficiency standards set forth by Title 24 of the California Administrative Code and the Applicable Efficiency Regulations. Title 24 requires that the proposed project meet a number of conservation standards, including installation of water-efficient fixtures and energy-efficient appliances. Title 24 also regulated energy consumption for the heating, cooling, ventilation, and lighting of residential and nonresidential buildings, and in enforced by the City. Compliance with Title 24 would ensure reduction in the use of fuel, water, and energy by the proposed project. Additionally, the proposed project would comply with CALGreen and the Newark Municipal Code requirements related to energy and water conservation. Therefore, the proposed project would not result in wasteful or unnecessary consumption of energy.

The proposed project would not result in irreversible damage from environmental accidents, such as an accidental spill of a hazardous material. As further discussed in Section 3.9, Hazards and Hazardous Materials, the proposed project would involve demolition and construction activities that could potentially release hazardous materials into the environment. As part of the City's NPDES Construction General Permit, the proposed project would be required to prepare and implement a SWPPP that would include BMPs to prevent accidental spills of hazardous materials during construction, as required by Mitigation Measure HYD-1 identified under Section 3.10, Hydrology and Water Quality, of this EIR. The proposed project would also implement Mitigation Measure HAZ-1, which would require remediation of existing hazardous materials contamination such as contaminated soil, soil gas, groundwater, and surface water found at the project site. Additionally, Mitigation Measure HAZ-1 also includes the requirement for an asbestos survey to be completed prior to the demolition of existing buildings on-site to determine if asbestos remediation is required. If ACBMs are determined to be present by the survey, the ACBMs will be removed prior to the demolition of buildings in accordance with NESHAP guidelines. The proposed project would comply with all applicable federal, state, and local laws related to the transport, use, or disposal of hazardous materials, as overseen by the Cal EPA and DTSC.

During operation of the proposed project, the use of hazardous materials would be limited to those commonly found at residential facilities such as solvents, cleaners, paints, and pesticides for landscape maintenance activities. These common household hazardous materials would be used in limited quantities and would not create a substantial hazard to the public or the environment. As such, the proposed project would not have the potential to cause serious environmental accidents.

6.4 MANDATORY FINDINGS OF SIGNIFICANCE

PRC Section 21083 requires lead agencies to make a finding of a “significant effect on the environment” if one or more of the following conditions exist:

1. A proposed project has the potential to degrade the quality of environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare, or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

2. The possible effects of a project are individually limited but cumulatively considerable.

3. The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

Finding No. 1: The proposed project would not have the potential to significantly affect biological, cultural, or tribal cultural resources.

As discussed in Section 3.4, Biological Resources, all project-related impacts on biological resources can be mitigated to a level of less than significant with the implementation of Mitigation Measures BIO-1 through BIO-9. This pertains to potential impacts on sensitive bird species including nesting native residents and migratory birds, special status bat species, invasive plant species, and potential conflicts with the City’s tree ordinance. With the implementation of mitigation measures identified in the EIR, the proposed project would not have the potential to significantly affect biological resources. Additionally, as discussed in Section 3.5, Cultural Resource and Section 3.18, Tribal Cultural Resources, though the presence of cultural or tribal cultural resources on-site are low, ground disturbing activities may result in the excavation of previously undiscovered resources. With implementation of Mitigation Measures CUL-1 and CUL-2 which outlines requirements and procedures in the event that resources are discovered during construction, all project-related impacts to cultural and tribal cultural resources were mitigated to a level of less than significant. Therefore, with the implementation of mitigation measures identified in the EIR, the proposed project would not have the potential to significantly affect cultural or tribal cultural resources.

Finding No. 2: The proposed project would have cumulatively considerable impacts.

Projects considered in the cumulative analysis are located within the City and are described in Section 4.0, Cumulative Effects and are listed in Table 4.4-1. As discussed in Section 4.0, the proposed project, in conjunction with related projects, would not have a cumulatively considerable impact on any resource topics analyzed in this EIR with the exception of transportation. The proposed project would have cumulatively considerable impacts to VMT. Since the proposed project would exceed the Countywide VMT threshold and result in a significant and unavoidable impact, the proposed project would have a cumulatively considerable impact with respect to VMT and result in a significant and unavoidable impact. All other cumulative impacts resulting from resource topics analyzed in this EIR would be less than significant or the proposed project would result in a les than cumulatively considerable contribution to cumulative impacts.

Finding No. 3: The proposed project would not cause substantial adverse effects on human beings.

The proposed project would not directly or indirectly cause substantial adverse effects in human beings. As identified in Table ES-1, impacts related to air quality, geology and soils, GHG, hazards and hazardous materials, hydrology and water quality, and noise would be reduced to a less than significant level with the implementation of applicable mitigation measures.

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Section 5.0: Alternatives to the Proposed Project

None.

Section 6.0: Other CEQA Considerations

None.

Appendix A
Notice of Preparation and Written Comments

City of Newark

Community Development Department - Planning
37101 Newark Boulevard
Newark, CA 94560

NOTICE OF PREPARATION and NOTICE OF PUBLIC SCOPING MEETING

DATE:	**November 30, 2021**
TO:	**Reviewing Agencies, Interested Parties, and Organizations**
FROM:	**City of Newark, Lead Agency**
APPLICANT:	**Mowry Project Owner, LLC**
SUBJECT:	**Notice of Preparation and Scoping Meeting for a Draft Environmental Impact Report for the Mowry Village Project**

Purpose of this Notice of Preparation: In accordance with the California Environmental Quality Act (CEQA), California Code of Regulations (CCR) Section 15082, the City of Newark has prepared this Notice of Preparation (NOP) to inform agencies and interested parties that an Environmental Impact Report (EIR) will be prepared for the referenced proposed project. The purpose of an NOP is to provide sufficient information about the proposed project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed.

In compliance with CEQA, the City of Newark will be the Lead Agency in preparation of the EIR. The project description, location maps, and scope of the potential environmental issues to be addressed in the EIR are attached. The City is requesting comments and guidance on the scope and content of the EIR from responsible trustee agencies, interested public agencies, organizations, and the general public in accordance with CEQA Guidelines 15082. The Notice of Preparation is available for review online at: https://www.newark.org/departments/community-development/planning-division/projects-under-environmental-review

NOP Comment Period: The NOP review and comment period begins on **November 30, 2021** and ends on **January 3, 2022**. Comments may be sent anytime during the 30-day NOP comment period. All comments must be received during the comment period and no later than 5:00 PM on **January 3, 2022.**

The City of Newark encourages the electronic submission of comments. Please provide a contact name, phone number, and email address with your comments, and include Mowry Village Project in the subject line. All written and electronic comments must be sent to:

Art Interiano, Deputy Community Development Director
City of Newark
37101 Newark Boulevard, Newark, CA 94560
(510) 578-4330 | ART.INTERIANO@newark.org

Public Scoping Meeting: Pursuant to CEQA Guidelines Section 15082(c) (Notice of Preparation and Determination of Scope of EIR) and Section 15083 (Early Public Consultation), the City of Newark will also conduct a scoping meeting for the proposed project. **The scoping meeting will be held in-person on December 14, 2021 at 7:30 PM in the City Hall Council Chambers, 37101 Newark Boulevard, and available virtually via Zoom at:** https://us06web.zoom.us/j/82769486629?pwd=UDA4ZXloU05iczgzbURjMThueDk1dz09

Art Interiano, Deputy Community Development Director — 11/30/21
Date

Project Description

Project Title: Mowry Village Project

Project Applicant: Mowry Project Owner, LLC

Project Location: The project site is located in the City of Newark (City) in southwestern Alameda County, California, southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks, west of Cherry Street. The project site consists of three parcels identified as Assessor's Parcel Numbers 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00. The regional location and project site are shown in Figures 1 and 2.

General Plan Land Use and Zoning: The project site is designated Low Density Residential and zoned Park. The project is proposing to rezone the project site from Park to RS-6000: Residential Single-Family with Planned Unit Development Overlay.

Site History

The project site is within the Newark Areas 3 and 4 Specific Plan which was adopted by the City Council in 2010. The Newark Areas 3 and 4 Specific Plan consists of approximately 856 acres of land on the western edge of Newark. Area 3 is approximately 296 acres and encompasses land bounded by Mowry Avenue, Stevenson Boulevard, Cherry Street, and UPRR. Area 4 is approximately 560 acres and encompasses the land west of UPRR extending to Mowry Slough. The Newark Areas 3 and 4 Specific Plan calls for the development of up to 1,260 housing units, a major recreational facility such as a golf course, and a new school and neighborhood park.

The proposed project is within Sub Area D of Area 4 and is zoned Park with intention for a golf course or other recreational uses. To allow residential uses in Sub Area D of Area 4, the proposed project would require a Specific Plan Amendment to change the zoning from Park to RS-6000: Residential Single-Family.

Description of Project

The project site consists of a 29-acre site within the Newark Areas 3 and 4 Specific Plan that is currently developed as an auto part and scrap metal salvage lot, known as "Pick-n-Pull." The Applicant is proposing to demolish the existing onsite structures and remediate the site to construct 203 single-family detached homes (Figure 3). The proposed single-family homes would be located on three typical lot sizes that are 3,375 square feet (sf), 3,600 sf, or 4,000 sf. Each home would be two stories tall and feature various floor plans with four to five bedrooms, a two car garage, and a rear yard. The various lot sizes would feature New Traditional Mediterranean, Contemporary Spanish, or Farmhouse architectural styles.

The proposed project would provide approximately 4.89 acres of onsite open space. The onsite open space would include 0.94 acres of common open space consisting of landscaping, bioretention areas, and a pocket park. The pocket park would be located in the center of the project site and would include amenities such as a lawn, pedestrian path, and picnic tables. The proposed project would also provide a rear yard for each home, resulting in a total of 3.95 acres of private open space. Additional improvements would include on-street parking, drive aisles, underground utilities, Low Impact Development drainage and water quality treatment areas, lighting, sidewalks, and landscaping.

The proposed project would also include improvements and widening of Mowry Avenue. The proposed project would widen the right-of-way of Mowry Avenue, south of the UPRR tracks, from 49.5 feet to 54 feet to accommodate one 12-foot vehicle lane in the southbound direction, one 12-foot vehicle lane in the northbound direction, a 12-foot-wide median and left turn pocket to access the project site. A six-foot bicycle lane with 3-foot buffer would also be provided in each direction of travel. A 5-foot parkway strip, 5-foot sidewalk, and 3-foot landscape strip on the northbound side would be provided with a 4-foot landscape strip and a minimum 10-foot setback from face of curb to the top of bank of the Alameda County Flood Control's Line B channel on the southbound side.

The proposed project would provide a crosswalk at the UPRR crossing, which would be equipped with a crossing arm, upgraded roadway panels, signage, striping, and pedestrian path improvements to encourage safer access to the project site, surrounding development, and recreation facilities. The UPRR crossing would also include any required gate signals, visual, and/or audio equipment, as required by UPRR or the City's Municipal Code. Additionally, existing Mowry Avenue north of the UPRR railroad tracks and extending to Cherry Street would be re-striped. Re-striping the road would eliminate one travel lane in the southbound direction to accommodate a single 14-foot vehicle travel lane, a 3-foot bike buffer, a 6-foot bike lane and a 10-foot parking lane matching the northbound side of Mowry Avenue.

Required Approvals

The proposed project requires the following approvals from the City listed below:

- Rezone from Park to RS-6000: Residential Single-Family with Planned Unit Development Overlay
- Planned Unit Development
- Specific Plan Amendment
- Vesting Tentative Map
- Design Review
- Grading, Building, and Encroachment Permits

EIR Process

The City has determined an EIR is required for this project. The purpose of an EIR is to inform decision makers and the general public of the potential physical environmental impacts of a proposed project that an agency (in this case, City of Newark) may implement or approve. The EIR process is intended to: (1) provide information sufficient to evaluate a project and its potential for significant impacts on the environment, (2) examine methods for avoiding or reducing significant impacts which may include project-specific mitigations or uniformly applied development regulations; and (3) consider reasonable alternatives to the proposed project.

Following the close of the NOP comment period, a Draft EIR will be prepared that will consider all NOP comments. In accordance with CEQA Guidelines Section 15105(a), the Draft EIR will be released for public review and comment for a required 45-day review period. Following the close of the 45-day public review period, the City will prepare a final EIR, which will include responses to all substantive comments received on the draft focused EIR. The draft focused EIR and final EIR will be considered by the Planning Commission and City Council in making the decision to certify the EIR and approve or deny the project.

EIR Scope

As allowed under Section 15063(a) of the CEQA Guidelines, the City has not prepared an Initial Study and will instead begin work directly on the EIR, as allowed under CEQA Guidelines Section 15081. The EIR will evaluate the potentially significant and significant effects of the proposed project and will document the reasons for concluding that other effects will be less than significant. The EIR will also identify potential cumulative impacts that consider impacts of the proposed project in combination with impacts of other past, present, and reasonably foreseeable future projects. The topics listed below will be further analyzed in the EIR.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Alternatives

Based on the significance conclusions determined in the EIR, alternatives to the proposed project will be analyzed to reduce identified impacts. Section 15126.6(e) of the CEQA Guidelines requires the evaluation of a No Project Alternative. Other alternatives may be considered during preparation of the EIR and will comply with the CEQA Guidelines, which call for a "range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

Legend
Project Site
City Boundary

0 1 2 Miles
(At original document size of 8.5x11)
1:150,000

N

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
1

Title
Regional Location

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

V:\1857\Active\185705508\mxd\fig_1_regional_location.mxd Revised: 2021-11-05 By: KAEJOHNSON

Legend

Project Site

Union Pacific Railroad

0 400 800
Feet
(At original document size of 8.5x11)
1:3,000,000

N

Stantec

Project Location
Newark, California

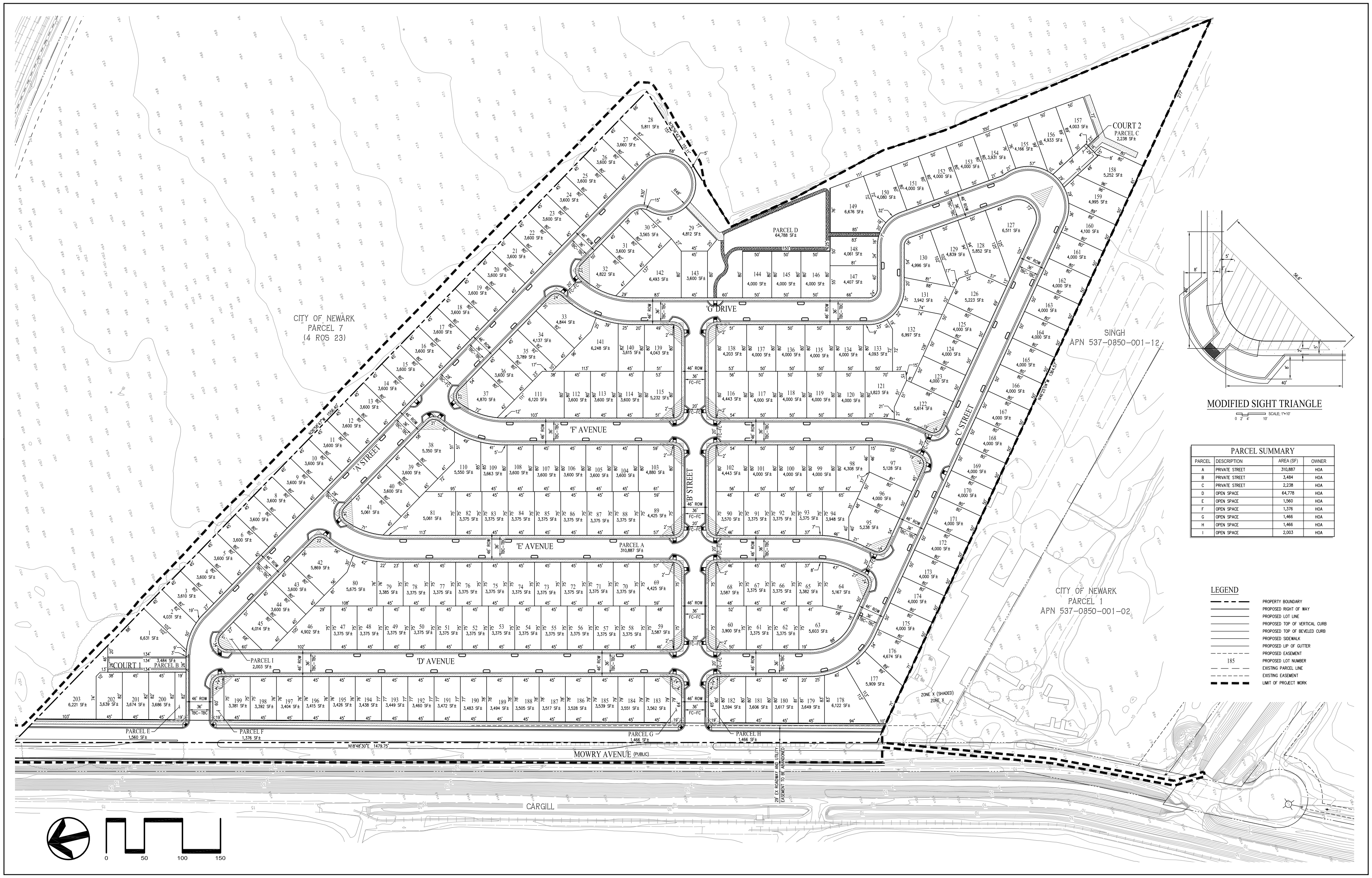
Client/Project
City of Newark
Mowry Village Project

Figure No.
2

Title
Project Site

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment

V:\1857\Active\185705508\mxd\fig_2_project_location.mxd Revised: 2021-11-05 By: KAEJOHNSON



PARCEL SUMMARY

PARCEL	DESCRIPTION	AREA (SF)	OWNER
A	PRIVATE STREET	310,887	HOA
B	PRIVATE STREET	3,484	HOA
C	PRIVATE STREET	2,238	HOA
D	OPEN SPACE	64,778	HOA
E	OPEN SPACE	1,560	HOA
F	OPEN SPACE	1,376	HOA
G	OPEN SPACE	1,466	HOA
H	OPEN SPACE	1,466	HOA
I	OPEN SPACE	2,003	HOA

Source: CBG, September 2021

Project Location

Newark, California

Client/Project

City of Newark
Mowry Village Project

Figure No.

3

Title

Preliminary Lotting Plan

Stantec

WRITTEN COMMENTS RECEIVED AS PART OF NOP PUBLIC SCOPING PROCESS

From:	ART INTERIANO
To:	Radonich, Anna; Macenski, Trevor; Johnson, Kaela
Cc:	STEVEN TURNER
Subject:	FW: Comment on Notice of Preparation: domino effect of sea level rise on Sanctuary developments in Area 4 and proposed Mowry Village in Area 3
Date:	Wednesday, December 15, 2021 1:59:01 PM
Attachments:	image001.png image002.png image003.emz image004.png

I received this information. Not really a comment but sent related to Mowry Village Scoping.

NEWARK california

Art Interiano
Deputy Community Development Director | Community Development Department
City of Newark | 37101 Newark Boulevard | Newark, CA | 94560
Office: 510-578-4330 | **Direct:** 510-578-4331
www.newark.org | www.facebook.com/cityofnewarkca | Art.interiano@newark.org

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From: Kelly <abrfar-eb@yahoo.com>
Sent: Wednesday, December 15, 2021 1:53 PM
To: ART INTERIANO <ART.INTERIANO@newark.org>
Cc: JOHN BECKER <JOHN.BECKER@newark.org>; bill.fitts@newark.org; JEFF AGUILAR <JEFFA@newark.org>; KAREN BRIDGES <KARENB@newark.org>; Debbie.Otterstetterrg@newark.org; PLANNING @ NEWARK <PLANNING@newark.org>
Subject: Comment on Notice of Preparation: domino effect of sea level rise on Sanctuary developments in Area 4 and proposed Mowry Village in Area 3

July 12, 2021
By Sarah Cafasso
Economic impacts of combating sea-level rise | Stanford News

Economic impacts of combating sea-level rise | Stanford News

Stanford University

By 2100, sea levels are expected to rise by almost seven feet in the Bay Area. New research shows how traditiona...

New research shows how traditional approaches to combating sea-level rise can create a domino effect of environmental and economic impacts for nearby communities.

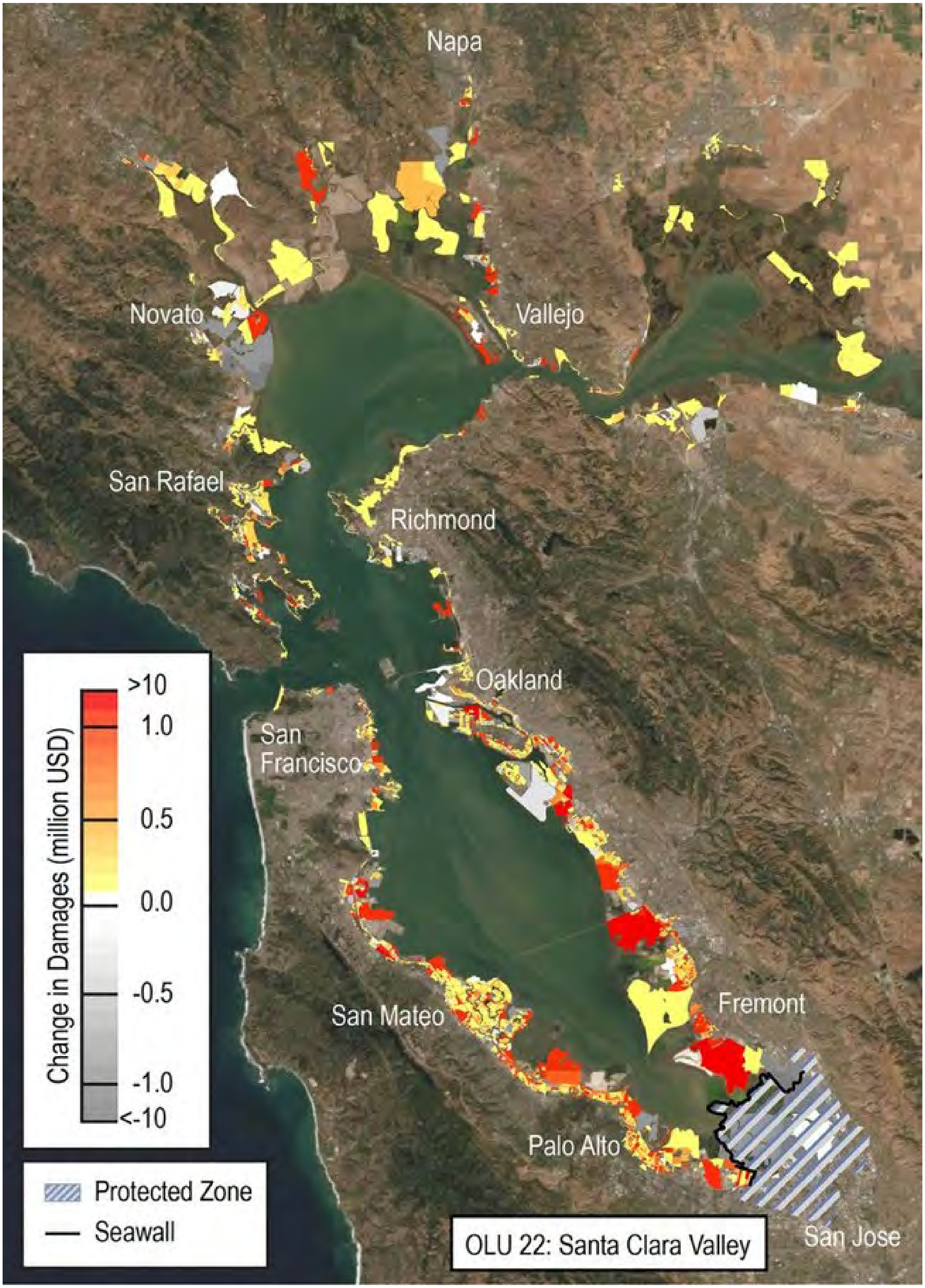
Stanford Natural Capital Project

Communities trying to fight sea-level rise could inadvertently make flooding worse for their neighbors, according to a new study from the Stanford Natural Capital Project.

The research, published in *Proceedings of the National Academy of Sciences*, shows how seawalls constructed along the San Francisco Bay shoreline could increase flooding and incur hundreds of millions of dollars in damages for communities throughout the region. The researchers emphasize how non-traditional approaches, like choosing to flood certain areas of land rather than build walls, are smarter, more sustainable solutions for the Bay Area and similar coastal bay communities.

“It’s not practical to keep building taller and taller seawalls to hold back the ocean,” said Anne Guerry, chief strategy officer and lead scientist at the Stanford Natural Capital Project and senior author on the paper. “Our goal was to show how the threat of sea-level rise is interconnected with the whole social-ecological system of the Bay Area. Communities need to coordinate their approaches to sea-level rise adaptation so we can find solutions that are best for the whole bay.”

By 2100, sea levels are projected to rise by almost seven feet in the Bay Area. Millions of people live and work in buildings that are collectively worth hundreds of billions of dollars within the Bay Area’s projected sea-level rise zone. As water levels increase, governments are looking for ways to protect their communities and economies.



The researchers modeled what would happen if a seawall were to be built along different parts of the San Francisco Bay shoreline. This map shows the increase in economic damages due to flooding that would result throughout the Bay Area if a seawall were built in the San Jose region. (Image credit: Michelle Hummel et al.)

Following the flow

The researchers used complex mathematical models to map how floodwaters – and the economic damages related to floods – would flow depending on where new seawalls were built. They found that blocking certain areas of the bay's shoreline would be particularly damaging to communities throughout the region. For instance, if a seawall were built along the San Jose shoreline, communities throughout the bay, from Redwood City to Napa and Solano counties, would face an additional $723 million in flood damage costs after just one high tide, according to the models.

Damages to buildings and homes aren't the only losses that could result from walling shorelines – it also can cut off habitat for important bird and fish species, limit the natural area available to store carbon and create water quality issues by destroying wetlands that naturally provide water treatment.

"You may be protecting your immediate community, but you may be creating serious costs and damages for your neighbors," said Robert Griffin, an economist at the Natural Capital Project and co-author on the paper. "When it comes to current sea-level rise planning, there's some incomplete cost-benefit accounting going on."

Guiding the flood

The researchers identified places where Bay Area communities could strategically choose to guide floodwaters, rather than holding them back with walls. These strategic flood areas would act as overflow zones, absorbing the increased water and avoiding damage to communities.

One example is along the Napa-Sonoma shoreline, where Highway 37 is under threat of impending sea-level rise. Decision-makers are trying to decide how to adapt the road to prevent flooding in the future: either by building a taller embankment to raise the road or by rebuilding it as a causeway that allows water to flow between the bay and marshlands on the other side. The researchers modeled what would happen if the Napa-Sonoma shoreline were blocked by a concrete embankment and found that it would worsen flooding for almost all the Bay Area communities studied, from Martinez to San Jose. Building a causeway, on the other hand, would provide a natural absorption area for extra water to flow.

A Bay-wide strategy

"It's critical to consider the regional impacts of local actions," said Michelle Hummel, assistant professor at the University of Texas at Arlington and lead author on the paper. "Studies like ours can identify actions that will have large impacts, either positive or negative, on the rest of the bay and help to inform decisions about how to manage the shoreline."

Not every city or county has a landscape suitable for strategic flooding, which requires wide plains or valleys where water will naturally flow. Therefore, the researchers say, it's crucial that Bay Area communities work together to identify the places where nature-based solutions like flooding make the most sense.

The researchers also looked at demographic information in their models to better understand who would be affected by possible strategic flooding plans. They say avoiding adaptation plans that add more pressure to poor or otherwise overburdened communities – by forcing them to move or creating increased economic stress – is key.

To understand the broader impacts of climate resilience decisions, including investments in nature, the researchers plan to model how sea-level rise adaptation strategies are connected with infrastructure, employment, community dynamics and more.

"Our plans should be as interconnected as our ecosystems," said Guerry.

From:	ART INTERIANO
To:	Radonich, Anna
Cc:	Macenski, Trevor; Johnson, Kaela; STEVEN TURNER
Subject:	FW: KQED | Science sub-heading: "Studies warn of extreme flooding and the danger of poor planning"
Date:	Thursday, December 16, 2021 11:18:56 AM
Attachments:	image001.png

Here is another email relating to project but doesn't mention the NOP in the title. Sent to our City Council member.

NEWARK california

Art Interiano
Deputy Community Development Director | Community Development Department
City of Newark | 37101 Newark Boulevard | Newark, CA | 94560
Office: 510-578-4330 | Direct: 510-578-4331

www.newark.org | www.facebook.com/cityofnewarkca | Art.interiano@newark.org

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From: Kelly <abrfar-eb@yahoo.com>
Sent: Wednesday, December 15, 2021 6:39 PM
To: LUIS FREITAS <luis.freitas@newark.org>
Cc: ART INTERIANO <ART.INTERIANO@newark.org>
Subject: KQED | Science sub-heading: "Studies warn of extreme flooding and the danger of poor planning"

It is said in Portugal that, "*é melhor prevenir do que remediar*,"

which leads to only one conclusion, "*aqui se faz, aqui se paga.*"

----- Forwarded Message -----
From: Kelly <abrfar-eb@yahoo.com>
To: art.interiano@newark.org <art.interiano@newark.org>; John.Becker@newark.org <john.becker@newark.org>; "john.becker@newark.org" <john.becker@newark.org>; bill.fitts@newark.org <bill.fitts@newark.org>; Jeff.Aguilar@newark.org <jeff.aguilar@newark.org>; "jeff.aguilar@newark.org" <jeff.aguilar@newark.org>; karen.bridges@newark.org <karen.bridges@newark.org>; debbie.otterstetterrg@newark.org <debbie.otterstetterrg@newark.org>; planning@newark.org <planning@newark.org>
Sent: Wednesday, December 15, 2021, 06:16:23 PM PST
Subject: Comment on Notice of Preparation: KQED examines the fragile developments near Newark bayfront (published December 13, 2021)

KQED Inform. Inspire. Involve.

News Politics Science Education Housing

KQED | Science

[The Bay Is Rising. Newark Residents Wonder Why The City Plans to Develop Its Shoreline | KQED]

by Ezra David Romero
December 13, 2021
[The Bay Is Rising. Newark Residents Wonder Why The City Plans to Develop Its Shoreline | KQED]

The Bay Is Rising. Newark Residents Wonder Why The City Plans to Develop...

The city of Newark is clashing with environmentalists over a housing plan that would develop along its wetlands,...

https://www.kqed.org/science/1977890/the-bay-is-rising-newark-residents-wonder-why-the-city-plans-to-develop-its-shoreline
Three minutes of audio: click play at top of webpage

Newark Vice Mayor Mike Bucci sat behind a wood-paneled council dais, a sinking feeling growing in his gut as he scribbled notes.

The council was discussing Sanctuary West, a nearly three-decade-old plan from Mountain View-based The Sobrato Organization to bring badly needed housing to the city.

Newark — a Bay Area enclave of fewer than 50,000 people — is located on the east side of the Dumbarton Bridge near Fremont in Alameda County, a place that has struggled mightily to build new housing even as costs have skyrocketed.

Sanctuary West could help by adding hundreds of new tract homes, but the project is controversial because they would be built within a federal flood zone along fragile wetlands on the city's western shore. Climate models show this area underwater in just a few decades as warming temperatures push bay water higher.

Bucci supported the project in the past, but at this City Council meeting late in 2019, dozens of residents pressed him to reconsider, saying the land should be preserved.

“I have concerns about houses being out there and what may happen to them thirty, forty or fifty years down the road,” Bucci said in a recent interview with KQED.

Scientists project seas could rise by at least 1 foot by 2030 and as much as 7 feet by 2100 because global emissions are still increasing — the higher level could overwhelm the homes with water.

“You have a unique opportunity here to become a beacon, a shining light to show how local planning can adapt to the new, very real, and very dangerous threat of global warming,” longtime resident Mari Miller said during the standing-room-only winter public meeting.

At the gathering, Bucci urged the city to further examine the new climate projections (his fellow council members argued the issue had already been reviewed and litigated, and the city approved the project).

'There's nothing that we could do'

Usually, the state oversees development along the San Francisco Bay shoreline. But Larry Goldzband, executive director of the Bay Conservation and Development Commission, or BCDC, says the developers found a loophole to avoid these regulations, strategically moving the project outside the agency’s purview: 100 feet from the water’s edge.

“The developer looked at BCDC and said, ‘I'm going to move the project out of your jurisdiction.’ There's nothing that [we] can do with regard to that development project,” he said.

After the city approved the project, the Citizens Committee to Complete the Refuge and other environmentalists sued, arguing the sea level rise protections weren't strong enough; the lawsuit created the latest wrinkle in the circuitous planning process.

“You build here now, and I’m not sure you'll have a house to leave to your kids,” said Jana Sokale, a committee member. “I'm not sure you'll be able to get flood insurance because it's going to be the frontline property at risk.”

California’s 1st District Court of Appeal heard arguments on Dec. 7 and will make a determination within the next 90 days.

Newark's plan

If built, Sanctuary West will add 469 single-family market-rate homes on four elevated peninsulas adjacent to a wetland near the Don Edwards San Francisco Bay National Wildlife Refuge. Each house would range between 3,600 to 5,000 square feet.

Developers plan to drive in around 100,000 truckloads of dirt to raise the homes above potential stormwaters. Then line the banks with rocks to protect houses from waves, said Tim Steele, senior vice president for real estate for The Sobrato Organization.

Sanctuary West will be "higher than a lot of homes that are currently built in the city" and "not be the first ones that will be impacted by any kind of sea level rise," he said.

The city declined an interview on the proposal because of the active lawsuit. In an emailed statement, Newark Mayor Alan L. Nagy said the city is committed to protecting its shoreline from sea level rise. Their planning documents consider a 50-year life for Sanctuary West, and say it will have “sufficient protection from 100-year flood events” within that time frame.

Sanctuary West “will not be adversely impacted by predicted global climate change and sea level rise,” Nagy said.

City staff examined the project several times. A 2014 draft environmental review shows the entire development flooding with a foot of water in high sea level rise scenarios that assume global emissions continue increasing. Another review in 2015 mined multiple state and global climate modeling surveys.

In 2019, the city reexamined the project again, running it through a state checklist to considered flooding and a range of sea level rise projections.

After all that, the city settled on what its documents describe as a "low risk aversion" and "adaptive" strategy to protect the homes from rising tides. Newark assumes emissions will continue climbing and the bay will rise up to 1.9 feet by the year 2070 and plans to elevate the homes above this level.

The city will wait and see how to protect the homes beyond then, or if bay waters rise higher, faster — while statistically less likely, model scenarios show sea level rise could be more than twice as much by then.

Its documents do suggest punting the protective work onto the region, noting that an “earthen levee or structural floodwall” could be “more appropriate” as part of a “area-wide” solution, although it doesn't say who'd pay for this.

Steele, with the developer, says he’s confident in a plan that raises the homes up — protecting them for now — and that leaves a door open to future engineering work.

“I'm not suggesting sea level rise is not going to happen, or it's not going to impact the way we live,” he said.

Studies warn of extreme flooding and the danger of poor planning

California’s Legislative Analyst’s Office’s 2020 analysis of sea level rise studies explained that cities like Newark need to consider storms, king tides, or El Niño events pushing water levels even higher than rising tides alone.

In the most recent United Nations climate report published last summer, scientists noted that low-lying cities like Newark will see "more frequent and severe flooding.” Plus, bad storms that used to occur occasionally could happen every year.

Model studies show a more extreme scenario: ice sheets collapsing at the poles. That could mean “the California coast could experience over 10 feet of SLR by 2100,” according to the state’s analysis. These extreme scenarios are uncertain, but scientists say they are possible.

“This goes beyond the scope of what we've thought about in planning horizons in terms of the magnitude of change that we'd be facing as a region,” said Mark Stacey, a UC Berkeley environmental engineer. He says such a large increase would require a “complete rethinking” of life along the San Francisco Bay.

Sanctuary West could help fill in the gap for much-needed housing in the Bay Area, but scientists like Mark Lubell, who studies sea level rise and governance at UC Davis, say the proposed site “is a terrible place to put a development.”

“I think we should definitely be looking at alternative locations for regional economic development that are not in hazard areas, wetland areas or watersheds,” he said.

Marshes aren’t static

Sanctuary West could harm one of the only natural flood protections left in the Bay Area: wetlands.

Only about 10% of the original marsh area remains in San Francisco Bay. Laura Feinstein, sustainability and resilience policy director for the urban think tank SPUR, says upland areas are even more rare. That's because cities like Newark have built right up to the border of sensitive marsh ecosystems.

Feinstein says cities should preserve upland areas because these spaces will become the wetlands of the future.

“If we let marshes do their thing, and they have the right conditions and enough sediment available, as sea level rises, they will gradually move uphill,” she said.

In a recent study, her group concluded that by maximizing infill, converting homes into duplexes, triplexes and adding accessory dwelling units, the Bay Area could address the housing crisis without building in areas vulnerable to flooding.

“There is room in Newark and other adjacent cities to add new housing, it's just that it should be put in the existing urban footprint,” she said.

A regulatory marsh

The first avenue for people who have reservations about projects like Sanctuary West is to contest projects publicly at City Council meetings and public hearings. Since public outreach by environmental groups hasn't had the desired effect in Newark, residents and advocates can sue.

But if lawsuits prove futile in preventing Sanctuary West from becoming a reality, advocates against the housing development will have to trust the permitting process.

While BCDC no longer has jurisdiction over Sanctuary West, officials at the San Francisco Bay Regional Water Quality Control Board say they will make it difficult for developers to build on the wetlands in Newark.

In a letter to the developer from May 2020, the board said the 1.6 million cubic yards of dirt needed to raise the potential homes out of the floodplain will impact the wetlands and “alter the existing wetland hydrology.”

The board is also concerned over “repeated claims the project does not have the potential to impact water quality or to result in discharges” of everything from fill to heavy metals to oil, and says the city used “out of date or inadequate information to minimize” Sanctuary West's environmental impact. In the letter to the developer, board officials said the project would have direct and indirect water impacts. They said the project would disrupt endangered species, recreation and wildlife habitat.

Even though the agency has significant concerns over how the project will alter the ecosystem, it can't altogether reject it, said Xavier Fernandez, planning manager for the board. He says the agency can make permitting very costly from a developer's point of view.

“What we would like them to do is to move it back as far as possible or not build it at all, and coordinate with adjacent communities in order to collectively come up with a plan for protecting that region,” he said.

Grappling with climate change in real time

Michelle Hummel,
an assistant professor at the University of Texas at Arlington who studies the impact of sea level rise on the bay extensively, says cities, agencies, and developers are paying mind to the outcome of the Newark debate.

“There needs to be clear guidelines about how we want to move forward locally and regionally,” she said, especially for development in vulnerable coastal margins between the bay and existing development.

“There's not really a clear understanding of whether or not this project can go through, and people are kind of just stalling right now,” she added.

Hummel says if the region’s piecemeal approach to addressing sea level rise continues on a development by development basis, eventually, the bay could see cumulative impacts as water floods neighborhoods, businesses and infrastructure.

She says what happens in Newark could “set the stage for how these types of projects are visualized and approved in the future."

The state wants to close regulatory gaps, like the one Sanctuary West exposed. BCDC’s new regional sea level rise adaptation plan, Bay Adapt, includes a potential fix and is a road map for agencies and cities to create new policies to interpret the effects of climate change better. This could include expanding BCDC’s jurisdiction beyond 100 feet from the shoreline. But that requires regional collaboration and legislation, which could take years.

“It's part of a bigger conversation; it's assessing sort of the whole web of regulation and then seeing what the solutions are for filling that in,” said Dana Brechwald, BCDC’s Adapting to Rising Tides Program manager.

And among all the regulatory confusion is a question: Should the Bay Area further develop its shoreline when climate models show the water will continually rise?

For Newark’s youngest City Council member, the answer is simple.

“It's no,” Bucci said.

He is apprehensive a catastrophic flood could happen in Newark because he lived through a flood in the ’90s.

“My entire street flooded up to the lawns,” he remembered. “What happens when those events come around again, and how bad is it going to be? It's scary to think that a small town like ours is on the frontline of that battle.”

From:	ART INTERIANO
To:	Radonich, Anna
Cc:	STEVEN TURNER; Macenski, Trevor; Johnson, Kaela
Subject:	FW: Mowry Village Project
Date:	Monday, December 20, 2021 10:33:12 AM
Attachments:	image001.png

Comment on Mowry Village NOP. For the file.

NEWARK california

Art Interiano
Deputy Community Development Director | Community Development Department
City of Newark | 37101 Newark Boulevard | Newark, CA | 94560
Office: 510-578-4330 | **Direct:** 510-578-4331

www.newark.org | www.facebook.com/cityofnewarkca | Art.interiano@newark.org

NOTE: City Hall is open limited hours, **Monday – Thursday 8:00am – 1:00pm**. Please check the City's website at www.newark.org for services on-line, via phone, and by appointment as needed.

From: P. Callaway <callaway_p@hotmail.com>
Sent: Saturday, December 18, 2021 11:59 AM
To: ART INTERIANO <ART.INTERIANO@newark.org>
Subject: Mowry Village Project

I oppose the Mowry Village Project and any Area 4 development for the following reasons:

1. Newark has an over abundance of housing already.

2. Adding additional housing will increase crime and traffic congestion, putting a burden on resources such as fire, police, postal/deliveries, and maintenance. (Newark hasn't handled current maintenance such as replacing street signs that have been unreadable for years.)

3. There will be increased train horn noise issues at the tracks.

4. There are rising sea levels that will impact Area 4.

5. We are in a draught and water shortages are and will continue to be an issue.

6. This area is in an earthquake liquefaction zone.

7. I'm not sure what you call it (high water level?), but you don't have to dig very deep in this area to reach sea water. When Area 3 was being developed and they dug into the soil to install the large pipes, an unintended lake was created, large enough that ducks swan on it.

Please do not develop this area. If anything, keep it open for wildlife.

Respectfully,

Pat Callaway
510-656-3419
Callaway_p@hotmail.com

From: Victoria Richard
To: ART INTERIANO
Subject: Mowry Village Park
Date: Monday, January 3, 2022 4:59:35 PM

Hi Art,

Regarding the proposed project, Mowry Village, I would like to see more designated park space. We are in desperate need of a park for elementary age kids and also an enclosed space for large and small dogs.

Sent from my iPhone

From:	Robert Lucey
To:	ART INTERIANO
Cc:	AL NAGY; MIKE BUCCI; LUIS FREITAS; suci.collazo@newark.org; MIKE HANNON
Subject:	Mowry Village Project - Comments
Date:	Tuesday, December 7, 2021 8:57:22 AM

Gentlemen/Ladies:

I recently received the City's "Notice of Preparation and Notice of Public Scope Meeting" dated November 30, 2021, concerning the proposed "Mowry Village Project" EIR. While I have no specific comment on the EIR process itself, my attention was drawn to the narrative description of the project's proposed changes to Mowry Avenue. They strike me as poorly thought out.

Mowry Avenue will be the only ingress/egress route for the new subdivision and thus see a significant increase in vehicular traffic. There will also eventually be additional future development of Areas 3 and 4, will there not? Yet, the proposed street scheme will provide only TWO vehicular traffic lanes (one in each direction). I would argue that provision of FOUR traffic lanes (two in each direction) from Cherry Street all the way to the new subdivision entrance should be a priority to be done now and not put off into the indefinite future.

South of the UPRR tracks, your description calls for a 54-foot pavement width (curb to curb), yet no less than 18 feet of that width is to be dedicated to bike lanes and an additional 12 feet dedicated to a proposed center landscape median. So 30 feet out of a total 54-foot wide street is to be lost for vehicular traffic lanes.

North of the UPRR tracks, your description calls for a 10-foot width of street pavement to be sacrificed to provide vehicular curb parking on the west side of Mowry Avenue (along the frontage for the existing office/light industrial parks). Why? How does a new subdivision almost half a mile distant generate a need for curb parking in this area? Both the industrial parks on the west side of Mowry and the Silliman complex on the east side of Mowry have very ample on-site parking. Allowing on-street curb parking here will only serve to inhibit the view of motorists and increase the risk of accidents as vehicles (which include large semi-trucks) enter and exit the industrial parks. There are already Amazon warehouse-bound semi-trucks using the Sillman Center softball field parking lot and east side of Mowry Avenue as a "cuing area" - we don't need the other side of Mowry similarly co-opted.

I humbly suggest the following:

Eliminate the proposed street curb parking on the west side of Mowry Avenue. It is not needed.

Eliminate the 12-foot wide center median on Mowry Avenue south of the UPRR tracks. Surely, a clever engineer can come up with an adequate "left turn pocket" design for southbound traffic to enter the subdivision without wasting so much pavement width.

Instead of bike paths on both sides of the pavement, provide a two-way bike path on the south side of Mowry Avenue. It could be separated from the vehicular lanes by traffic delineators or a narrow median with low fence. This would actually be safer for bike riders and also conserve needed street pavement width for FOUR traffic lanes. An even safer, though more expensive alternate, is to place the bike path behind the curb and thus completely off the street pavement.

I believe if these suggestions (or something similar) were followed, there would be sufficient pavement width for FOUR very much needed vehicular traffic lanes while accommodating the needs of bike riders.

Respectfully,

Robert Lucey

6337 Quicksilver Ave

Newark, CA

vbkr68@gmail.com

Cargill® Helping the world thrive

Art Interiano
Deputy Community Development Director
City of Newark
37101 Newark Boulevard
Newark, CA 94560

Subject: Comments on Notice of Preparation for a Draft Environmental Impact Report for the Mowry Village Project

Dear Mr. Interiano,

Thank you for the opportunity to review and comment on the Notice of Preparation for the Draft Environmental Impact Report (EIR) for the Mowry Village Project (Project). Based on our review of the Project Description, we have the following comments pertaining to the potential environmental impacts and the mitigation measures and alternatives that should be considered in the EIR.

Background

Cargill operates a solar sea salt facility in Newark and Fremont, California. The facility consists of an integrated newtwork of salt ponds, berms, pipelines, and related infrastructure. The ponds in which the crystallization of salt occurs (crystallizers), are located immediately adjacent to and directly north and northwest of the Project, as shown in Figure 1. The salt harvested from the crystallizers is used to produce a variety of commercial products, including food grade products. Some of the activities associated with the production and harvesting of salt and maintenance of the system generate noise and odor.

Air Quality

The EIR should evaluate air emissions associated with the Project to ensure that the Project does not result in offsite emissions that adversely impact the quality of the salt that is produced and harvested in the crystallizers. Measures should be required, as appropriate, to control dust and prevent offsite dust emissions both during construction and future maintenance, use, and other activities associated with the Project.

Cargill Salt
Land Management

7220 Central Avenue
Newark, CA 94560-4205

Tel (510) 790-8605
Fax (510) 790-8180
www.cargill.com

Transportation- Traffic and Circulation

Cargill needs to maintain unfettered access along Mowry Avenue for heavy equipment immediately adjacent to the Project both during Project construction and into the future. Cargill requires 24/7 unimpeded heavy equipment access to an existing entrance at the end of Mowry Ave, as shown in Figure 1. Accordingly, the proposed traffic improvements associated with the Project should take into consideration Cargill's access and use of heavy vehicles on Mowry Avenue. Measures should be required, as appropriate, to avoid, minimize, and mitigate any disruption to existing vehicular access.

Hydrology and Water Quality

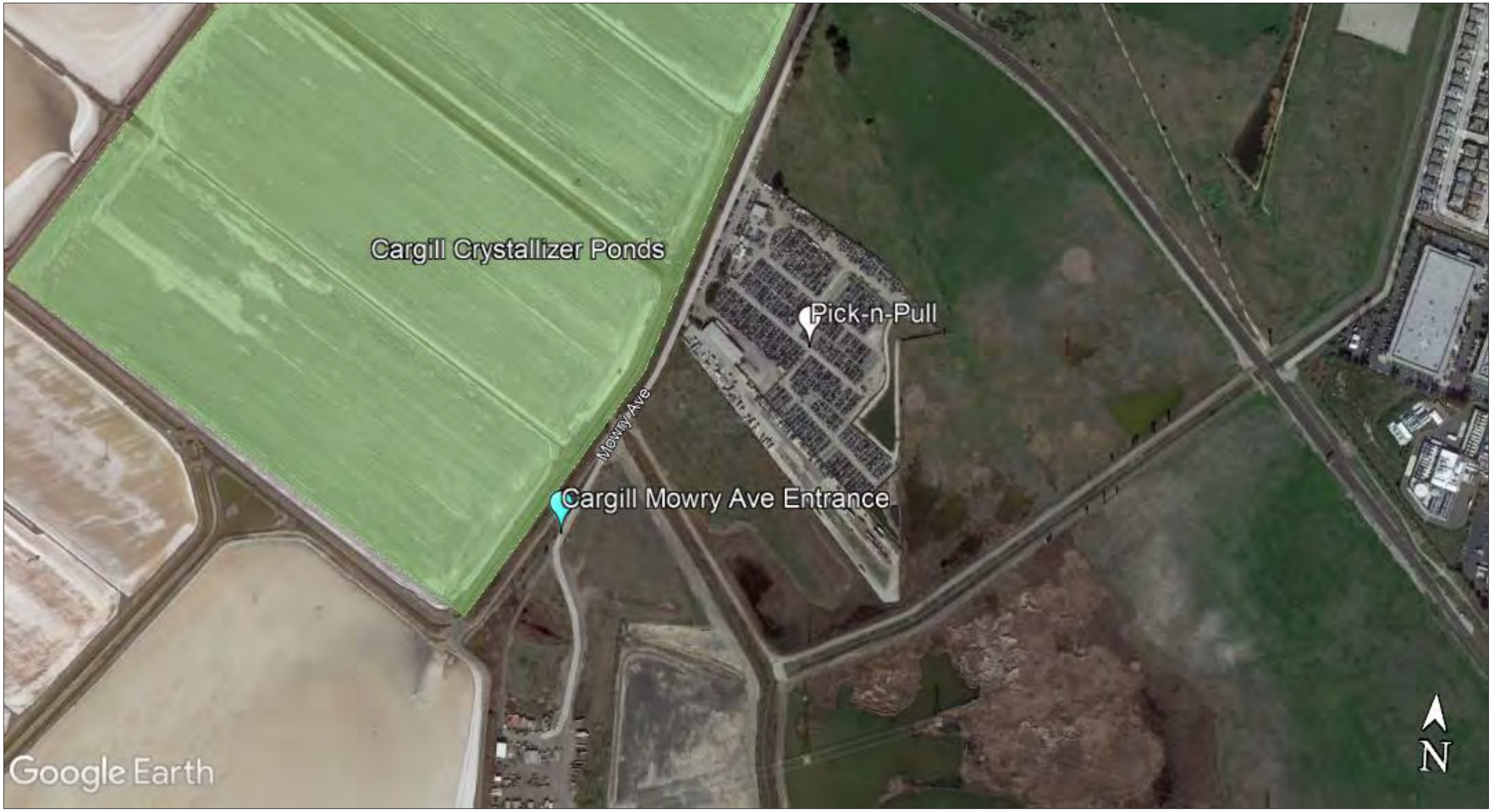
Flooding has been observed historically in and around the flood control channel along Mowry Ave southwest of the Pick-n-Pull lot, following high rainfall events. The EIR should evaluate storm water runoff and the potential for the Project to further exacerbate flooding. In addition, Cargill pumps baywater from Mowry Slough into its solar salt production system. The EIR should evaluate the potential for degradation of the water quality of Mowry Slough resulting from stormwater runoff into the slough asscoiated with the Project. Measures should be required, as appropriate, to prevent flooding or water quality degradation associated with the Project.

Thank you for the opportunity to comment on the Project. If you have any questions, please contact me at (510) 790-8182 or ric_notini@cargill.com.

Sincerely,

Ric Notini
Land Resources Manager
Cargill, Incorporated

Figure 1: Cargill Crystallizers and Mowry Ave Entrance



December 13, 2021

City of Newark Planning Commission
37101 Newark Boulevard, Newark, CA
94560

Art Interiano
Deputy Community Development Director
City of Newark
37101 Newark Boulevard, Newark, CA
94560

Dear Planning Commissioners,

We are writing to respectfully voice our sincere concern to the Planning Commission regarding the proposed Mowry Village subdivision, located in Newark's shoreline "Area 3 and Area 4 Specific Plan". For many years, our organizations have advocated for permanent protection and restoration of Newark Area 4, and while the proposed development site ("Pick-n-Pull") does not demand the same level of concern as it is already developed, the site's high vulnerability to sea level rise and current zoning as park space must be carefully considered nonetheless.

With just 24 inches of sea level rise, which we can expect by 2050, and a common storm (once every 5 years), the "Pick-n-Pull" site will be inundated with up to 7 feet of water in some places. This is only a near-term projection, **with 48 inches of sea level rise, the "Pick-n-Pull" site will be permanently submerged** (Adapting to Rising Tides, BCDC). When sea levels rise, inundation will expose site contaminants that could then leach into the water supply and pose severe public health risks to residents and result in massive disruptions to adjacent ecological uses. This site should be remediated and repositioned for development as an appropriate use, such as a park, open space, or recreational use (as it is currently zoned) that is compatible with best available sea level rise projections.

The “Pick-n-Pull” site is located in the midst of significant wildlife habitat and considerable restoration potential that should be embraced rather than squandered. With Alameda County already facing $15 billion in infrastructure and property at risk from sea level rise (“The impacts of Sea Level Rise on the San Francisco Bay, Pacific Institute, July 2012) - the 2nd most of any county in the state - and global wildlife species facing rapid declines, we all need to work together to quickly increase the resilience and adaptability of our communities and environment - not make these problems worse, as this development proposal would do.

We urge the Planning Commission to please consider our comments and carefully consider how to appropriately re-use the “Pick-n-Pull” site for uses that enhance the community, rather than place people, infrastructure, and economic assets, at risk. It is imperative that any development on this site incorporates adequate mitigation for both sea level rise and groundwater rise to accommodate development until at least 2100. As sea levels rise, any permanent use on this site will require higher and higher sea walls, increasing maintenance costs, and continuous infrastructure repairs that will likely require public funds. Please consider the long-term costs and risks associated with developing housing in a flood zone when considering whether to allow the Mowry Village project.

Respectfully,

Zoe Siegel
Director of Climate Resilience
Greenbelt Alliance

Carin High
Co-Chair
Citizens Committee to Complete the Refuge

Martha Kreeger
Chair, Southern Alameda County Group
Sierra Club

Lisa Belenky
Senior Attorney
Center for Biological Diversity

Eric Buescher
Senior Staff Attorney
San Francisco Baykeeper

Jeff Miller
Director
Alameda Creek Alliance

Shani Kleinhaus
Environmental Advocate
Santa Clara Valley Audubon Society

William Hoppes
President
Ohlone Audubon Society

William Yragui
Mission Peak Conservancy

ALAMEDA County Transportation Commission
1111 Broadway, Suite 800, Oakland, CA 94607 • 510.208.7400 • www.AlamedaCTC.org

January 3, 2022

Art Interiano
City of Newark
37101 Newark Blvd.
Newark, CA, 94560

SUBJECT: Response to the Notice of Preparation (NOP) of a Draft Environmental Impact Report for the Mowry Village Project

Dear Art Interiano,

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of the Draft Environmental Impact Report (DEIR) for the Mowry Village Project. The project site is located within the City of Newark on a 29-acre parcel, currently developed as an auto parts and scrap salvage lot.

The proposed project would demolish the existing structures, remediate the site, and construct 203 single-family, detached, 2-story homes. The proposed project would also widen Mowry Ave south of the Union Pacific Railroad Tracks from 49.5 feet to 54 feet to accommodate two 12-foot general purpose lanes in each direction, a median, and turn pockets as well as a six-foot bike lane with a three-foot buffer, a five-foot parking strip and five-foot sidewalks.

The Alameda County Transportation Commission (Alameda CTC) respectfully submits the following comments:

Basis for Congestion Management Program (CMP) Review

- It appears that the proposed project will generate at least 100 p.m. peak hour trips over existing conditions, and therefore the CMP Land Use Analysis Program requires the City to conduct a transportation impact analysis of the project. For information on the CMP, please visit: https://www.alamedactc.org/planning/congestion-management-program/.

Use of Countywide Travel Demand Model

- The Alameda Countywide Travel Demand Model should be used for CMP Land Use Analysis purposes. The CMP requires local jurisdictions to conduct travel model runs themselves or through a consultant. The City of Newark and the Alameda CTC signed a Countywide Model Agreement on April 1, 2009. Before the model can be used for this project, a letter must be submitted to the Alameda CTC requesting use of the model and describing the project. A copy of a sample letter agreement is available upon request. The most current version of the Alameda CTC Countywide Travel Demand Model was updated in May 2019 to be consistent with the assumptions of Plan Bay Area 2040.

Impacts

- The DEIR should address all potential impacts of the project on the Metropolitan Transportation System (MTS) roadway network.
    - o MTS roadway facilities in the project area include: I-880, SR-84 and Mowry Ave.
    - o For the purposes of CMP Land Use Analysis, the Highway Capacity Manual 2010 freeway and urban streets methodologies are the preferred methodologies to study vehicle delay impacts.
    - o The Alameda CTC has *not* adopted any policy for determining a threshold of significance for Level of Service for the Land Use Analysis Program of the CMP.

- The DEIR should address potential impacts of the project on Metropolitan Transportation System (MTS) transit operators.
    - o MTS transit operators potentially affected by the project include: AC Transit
    - o Transit impacts for consideration include the effects of project vehicle traffic on mixed flow transit operations, transit capacity, transit access/egress, need for future transit service, and consistency with adopted plans.

- The DEIR should address potential impacts of the project to people biking and walking in and near the project area, especially nearby roads included in the Countywide High-injury Network and major barriers identified in the Countywide Active Transportation Plan.
    - o Impacts to consider on conditions for cyclists include effects of vehicle traffic on cyclist safety and performance, site development and roadway improvements, and consistency with adopted plans.

Mitigation Measures

- Alameda CTC's policy regarding mitigation measures is that to be considered adequate they must:
    - o Adequately sustain CMP roadway and transit service standards;
    - o Be fully funded; and
    - o Be consistent with project funding priorities established in the Capital Improvement Program of the CMP, the Countywide Transportation Plan (CTP), and the Regional Transportation Plan (RTP) or the Federal Transportation Improvement Program, if the agency relies on state or federal funds programmed by Alameda CTC.

- The DEIR should discuss the adequacy of proposed mitigation measure according to the criteria above. In particular, the DEIR should detail when proposed roadway or transit route improvements are expected to be completed, how they will be funded, and the effect on service standards if only the funded portions of these mitigation measures are built prior to Project completion. The DEIR should also address the issue of transit funding as a mitigation measure in the context of the Alameda CTC mitigation measure criteria discussed above.

- Jurisdictions are encouraged to discuss multimodal tradeoffs associated with mitigation measures that involve changes in roadway geometry, intersection control, or other changes to the transportation network. This analysis should identify impacts to automobiles, transit, bicyclists, and pedestrians. The HCM 2010 MMLOS methodology is encouraged as a tool to evaluate these tradeoffs, but project sponsors may use other methodologies as appropriate for particular contexts or types of mitigations.

- The DEIR should consider the use of TDM measures, in conjunction with roadway and transit improvements, as a means of attaining acceptable levels of service. Whenever possible, mechanisms that encourage ridesharing, flextime, transit use, bicycling, telecommuting and other means of reducing peak hour traffic trips should be considered.

Thank you for the opportunity to comment on this NOP. Please contact me at (510) 208 7484 or Chris G. Marks, Associate Transportation Planner at (510) 208-7453, if you have any questions.

Sincerely,

Cathleen Sullivan
Director of Planning

cc: Chris G. Marks, Associate Transportation Planner
Shannon McCarthy, Associate Transportation Planner

NATIVE AMERICAN HERITAGE COMMISSION

Governor's Office of Planning & Research

Dec 10 2021

STATE CLEARING HOUSE

NAHC HEADQUARTERS
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Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

December 6, 2021

Art Interiano
City of Newark
37101 Newark Boulevard
Newark, CA 94560

Re: 2021110436, Mowry Village Project, Alameda County

Dear Mr. Interiano:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015. If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). Both SB 18 and AB 52 have tribal consultation requirements. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe. (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Katy.Sanchez@nahc.ca.gov.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Environmental Planner

cc: State Clearinghouse

ALAMEDA COUNTY WATER DISTRICT

43885 SOUTH GRIMMER BOULEVARD • FREMONT, CALIFORNIA 94538
(510) 668-4200 • FAX (510) 770-1793 • www.acwd.org

January 3, 2022

VIA ELECTRONIC MAIL
Art Interiano (art.interiano@newark.org)
Deputy Community Development Director
City of Newark
37101 Newark Boulevard
Newark, CA 94560

Dear Mr. Interiano:

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Mowry Village Project

Alameda County Water District (ACWD) has reviewed the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the Mowry Village Project (Project) and would appreciate your consideration of the following comments while developing the EIR:

1. Water Supply:

   ACWD understands that the Project is a subset of the Newark Area 3 and 4 Specific Plan for which ACWD prepared a Water Supply Assessment (WSA) in 2008. As was conveyed to ACWD in 2019 by City staff, that the total build out of Newark Area 3 and 4 has been reduced by 405 housing units and will no longer include a golf course from what was originally proposed for analysis in the WSA, thus reducing the total Project demands. Provided this information is still correct, and that the Mowry Village Project is consistent with this statement, the findings and determinations of the WSA still apply. However, if the Newark Area 3 and 4 Project demands have increased, the City is required to request ACWD to review, as set forth in Water Code section 10910(h), the findings of the previously prepared WSA for the Newark Areas 3 and 4 Specific Plan to confirm if ACWD continues to have sufficient water supply to serve the proposed Mowry Village Project. Please note that ACWD has recently updated its Urban Water Management Plan (UWMP) and all references to water supply should be updated to refer to the 2020-2025 UWMP.

2. Groundwater:

Local runoff along with imported water is percolated into the Niles Cone Groundwater Basin through recharge in Alameda Creek itself and through recharge ponds within the Quarry Lakes Regional Recreational Area and adjacent areas (Quarry Lakes). The water is subsequently recovered through groundwater production wells owned and operated by both public agencies and private users. ACWD primarily provides retail water service to approximately 357,000 people in the cities of Fremont, Newark, and Union City. Therefore, it is imperative that ACWD protects the water quality and ensures the continued use of the groundwater basin for water supply for ACWD's customers. ACWD requests that the following potentially significant impacts to groundwater resources be addressed by the EIR:

a. *Groundwater Well Protection/Destruction*:

i. As required by ACWD Ordinance No. 2010-01, drilling permits are required prior to the start of any subsurface drilling activities for wells, exploratory holes, and other excavations (including the installation of support piers, piles, or caissons) within the City of Newark. Application for a permit may be obtained from ACWD’s Engineering Department at 43885 South Grimmer Boulevard, Fremont, or online at http://www.acwd.org. Before a permit is issued, a cash or check deposit is required in a sufficient sum to cover the fee for issuance of the permit or charges for field investigation and inspection. All permitted work requires scheduling for inspection; therefore, all drilling activities must be coordinated with ACWD prior to the start of any field work.

ii. ACWD has identified four water wells (5S/1W-07G001, 5S/1W-07K003, 5S/1W-07G011, and 5S/1W-07G014) and at least three monitoring wells (5S/1W-07K002, 5S/1W-07K003, and 5S/1W-07Q001) located within the Project area. In order to protect the groundwater basin, each well located within the Project area must be in compliance with ACWD Ordinance No. 2010-01 and must be either protected or properly destroyed prior to, or during construction activities. If the well(s) are to remain, a letter indicating so must be sent to ACWD. If the well(s) are: 1) no longer required by any regulatory agency; 2) no longer monitored on a regular basis; or 3) damaged, lost, or the surface seal is jeopardized in any way during the construction process, the wells must be destroyed in accordance with ACWD requirements.

b. *Dewatering:*

Since groundwater is shallow within the Project area, the EIR should address temporary and permanent dewatering activities and the potential impact of dewatering on groundwater conditions. In addition, ACWD requests that the following potentially significant impacts related to dewatering activities be addressed:

i. The amount of water that may be extracted by either temporary or permanent dewatering must be evaluated and documented. Alternative designs should be considered that would minimize the amount of dewatering required during and subsequent to construction. Measurement of groundwater losses due to dewatering may be required and may be subject to a replenishment assessment fee. Mitigation measures should be identified to replace all significant losses of ACWD's water supplies.

ii. The EIR should also address the potential impacts that dewatering activities and construction may have on existing groundwater contamination and potential plume migration.

iii. ACWD permits are required for the installation and destruction of dewatering wells.

c. *Existing Hazardous Material Contamination:*

i. The EIR should acknowledge that as part of ACWD's Groundwater Protection Program, ACWD entered into Cooperative Agreements with the California Regional Water Quality Control Board – San Francisco Bay Region (Regional Board) and the City of Newark and Alameda County Environmental Health, which allows ACWD to provide technical oversight for the investigation and remediation of Leaking Underground Fuel Tank (LUFT) sites and sites where the pollution is attributed to spills or leaks from structures other than underground fuel tanks now referred to as Site Cleanup Program sites or SCP (formerly known as Spills, Leaks, Investigation, and Cleanup sites or SLIC) sites.

ii. There is an open SCP site, the Pick-N-Pull Auto Dismantlers, located at 7400 Mowry Avenue in Newark within the Project area where Phase II assessments have been performed. The Pick-N-Pull Auto Dismantlers site has been used as an automobile wrecking yard since the 1960s. Phase II site assessments conducted in January 2019 and in July 2019, documented that petroleum hydrocarbons, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), and metals from auto dismantling activities are present in soil, soil gas, groundwater, sediments, and surface water. The contamination is primarily located beneath the areas where auto dismantling activities have taken place.

On March 31, 2021, ACWD approved a "Corrective Action Plan" and a "Remedial Excavation Work Plan" for the site after holding a 30-day public comment period and conducting a virtual meeting with stakeholders.

The Corrective Action Plan (CAP) and Remedial Excavation Work Plan propose to remediate the impacted soil, soil gas, groundwater, sediments, and surface water through a combination of removing the soil contamination through excavation, groundwater contamination through in-situ remediation, surface water contamination through dewatering, and, if conditions warrant, natural attenuation to residential standards. Confirmation sampling will be performed regularly to assess the effectiveness of CAP activities. The excavated soil will be properly contained, analyzed, and reported prior to potential reuse and/or disposal to offsite. Clean overburden or clean imported soil will be used to backfill the excavations. The proposed CAP has not yet been implemented.

The contamination at the site could pose an unacceptable risk under certain development activities such as grading, excavation, or installation of water wells. The EIR should acknowledge that the Project proponents include mitigation measures that include regulatory agency review and approval to address potential health risks associated with development activities at or near the contaminated areas.

3. Utilities and Service Systems:

   a. Mowry Village potable water needs will be met by an extension of the existing main within Mowry Avenue as well as a minimum of one additional connection from existing main within the Sanctuary Development along the Alameda County Flood Control Channel to the Mowry Village Project site and potentially a direct connection(s) from the main(s) within the Sanctuary West Development, if those mains have been installed prior to the Mowry Village Project. No more than 25 units shall be served off a dead-end main. The mains may need to be installed on adjacent properties not part of this development to provide for a well-gridded, looped system to the Mowry Village Project site. The EIR should acknowledge this requirement.

   b. Non-potable water is not available at this time, but the proposed development *may* include provisions, including extension of existing and installation of new purple piping onsite, for use of non-potable water when it becomes available. This connection will be the extension of the non-potable water main within the Sanctuary Development, along the Alameda County Flood Control Channel to the Mowry Village Project site or a direct connection(s) from the non-potable water main(s) within the Sanctuary West Development, if those non-potable mains have been installed prior to the Mowry Village Project.

   c. Existing Hazardous Material Contamination: The ability to install a public water system within the Project area would be conditioned upon confirmation that the soil, groundwater, and/or soil gas vapors do not pose a risk to the health and safety of workers either during installation of the public water system or during its long-term routine operation and maintenance.

      The public water system extension and all appurtenances must be constructed in "clean corridors," which would be assured by either further testing of native soil, groundwater, and/or soil vapors along the proposed public water system alignments or by use of clean imported fill as backfill for all trenches excavated for any part of the public water system. The use of upgraded materials, including but not limited to all steel pipelines with upgraded gaskets, may be required.

   d. ACWD should be listed in the EIR as a permitting agency and that the Project proponent will need to coordinate with ACWD for all required ACWD permits.

   e. The Project shall be designed to implement water efficient plumbing fixtures and irrigation systems at both residential and non-residential developments, including but not limited to those listed in the Water Efficiency Measures for New Development, located on the District's website (http://acwd.org/DocumentCenter/View/421).

f. The ACWD service area and the State of California are currently experiencing a water supply shortage emergency. ACWD has taken steps to encourage water use reductions throughout its service area. On December 9, 2021, ACWD declared a water shortage emergency and adopted ACWD Ordinance No. 2021-01, imposing broad water use restrictions, water use prohibitions, and other measures, including restrictions on water use for purposes other than domestic use, public health, and fire protection. These restrictions will remain in place through the end of the water shortage emergency. In addition, ACWD may adopt additional water use restrictions or implement other measures should they become necessary.

4. ACWD Contacts:

The following ACWD contacts are provided so that the City of Newark staff can coordinate with ACWD as needed during the Project:

- Michelle Myers, Groundwater Resources Manager, at (510) 668-4454 or by email at michelle.myers@acwd.com, for coordination regarding ACWD's groundwater resources.

- Kit Soo, Well Ordinance Supervisor, at (510) 668-4455 or by email at kit.soo@acwd.com, for coordination regarding groundwater wells and drilling permits.

- Juniet Rotter, Development Services Manager, at (510) 668-4472 or by email at juniet.rotter@acwd.com, for coordination regarding public water systems and water service.

Thank you again for the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report for the Mowry Village Project.

Sincerely,

Laura J. Hidas

Laura J. Hidas
Director of Water Resources

al/ml
By E-mail
cc: Michelle Myers, ACWD
Kit Soo, ACWD
Juni Rotter, ACWD

Citizens Committee to Complete the Refuge

P.O. Box 23957, San Jose, CA 95153 Tel: 650-493-5540 Email: cccrrefuge@gmail.com wwsw.bayrefuge.org

Sent via electronic mail
Art Interiano, Deputy Community Development Director
City of Newark
37101 Newark Boulevard
Newark, CA 94560
ART.INTERIANO@newark.org

3 January 2022

Re: Notice of Public Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Mowry Village Project, dated November 30, 2021.

Dear Mr. Interiano,

These comments are submitted on behalf of the Citizens Committee to Complete the Refuge (CCCR). Thank you for the opportunity to provide scoping comments regarding the proposed Mowry Village housing development project. The 29-acre site lies southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks and is bounded by Mowry Avenue, the UPRR tracks, Alameda County Flood Control and Water Conservation District Line D and Mowry Slough. The proposed project is to construct 203 housing units and associated infrastructure on the site of the existing Pick-n-Pull Auto Dismantlers business and an adjoining undeveloped 10-acre parcel.

The Citizens Committee to Complete the Refuge (CCCR), with a membership of 1,800, has an ongoing history of interest in wetlands protection, wetlands restoration and wetlands acquisition. Our senior members were part of a group of citizens who became alarmed at the degradation of the Bay and its wetlands. We joined together, and with the support of Congressman Don Edwards, requested that Congress establish the Nation's first national wildlife refuge in an urban setting. The process took seven long years and in 1972 legislation was passed to form the San Francisco Bay National Wildlife Refuge (Refuge). We turned to Mr. Edwards again, and in 1988 (the first year he submitted it), his legislation to double the size of the Refuge was signed into law. The Refuge now bears his name in honor of his efforts.

We have taken an active interest in Clean Water Act (CWA), California Environmental Quality Act (CEQA), Porter-Cologne Water Quality Act and Endangered Species Act (ESA) and California Endangered Species Act (CESA) regulations, policies, implementation, and enforcement. We have established a record of providing information regarding possible CWA and ESA violations to the Corps, EPA, and FWS. We regularly respond to Corps public notices, and inform the public of important local CWA and ESA issues. We review and comment on CEQA documents. We also respond to ESA comment periods including five-year reviews, proposed listings, and recovery plans. All of these actions demonstrate our ongoing commitment to wetland and plant and wildlife issues, and towards protecting the public interest in wetlands, in Section 404 and 401 of the CWA, CEQA, the ESA and the CESA.

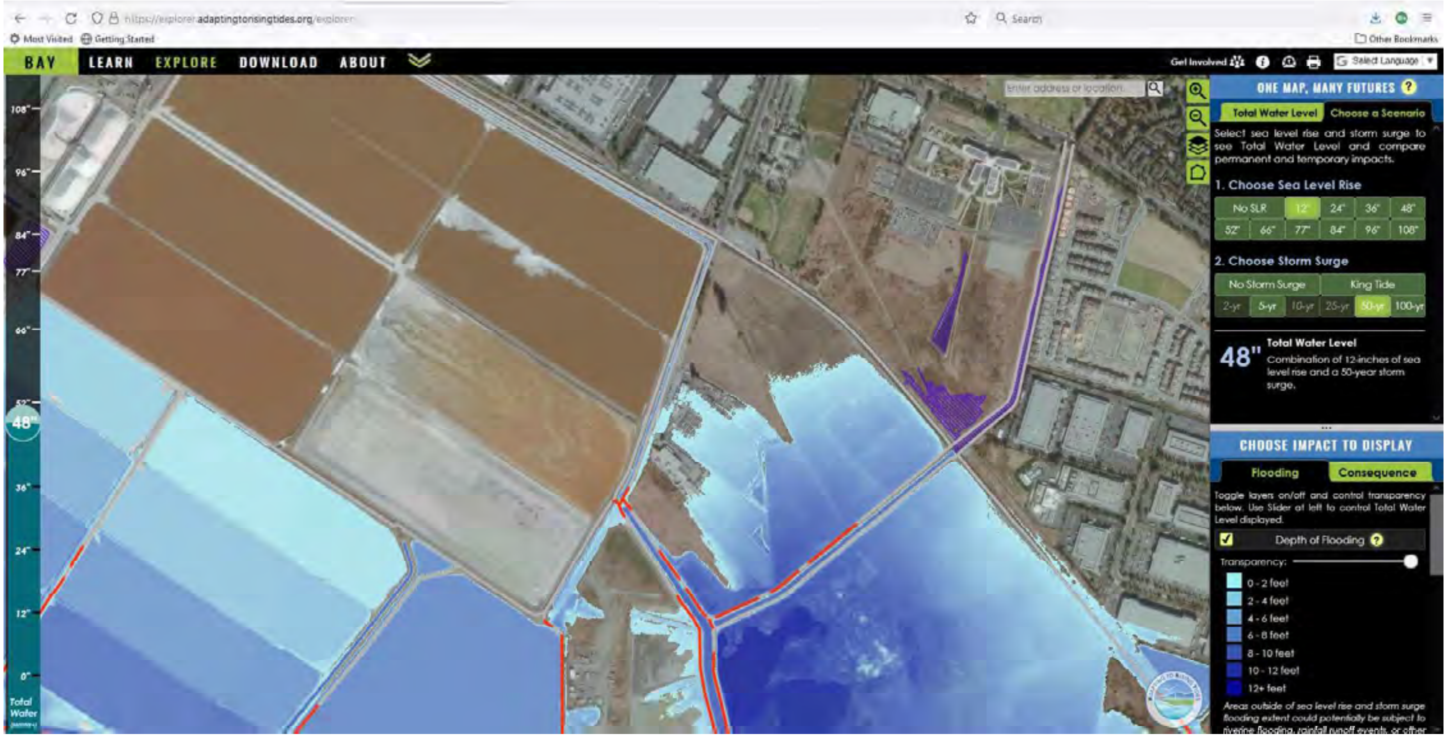
Based upon our review of the information contained in the NOP, the Mowry Village Draft Initial Study, prepared by Helix Environmental Planning, Inc. dated October 2020, the Mowry Village Biological Resources Technical Report, the draft Mitigation and Monitoring Plan and the Geotechnical Assessment. Based upon our review of these documents we have identified the following issues that should be analyzed in the DEIR for this project:

Sea Level Rise:

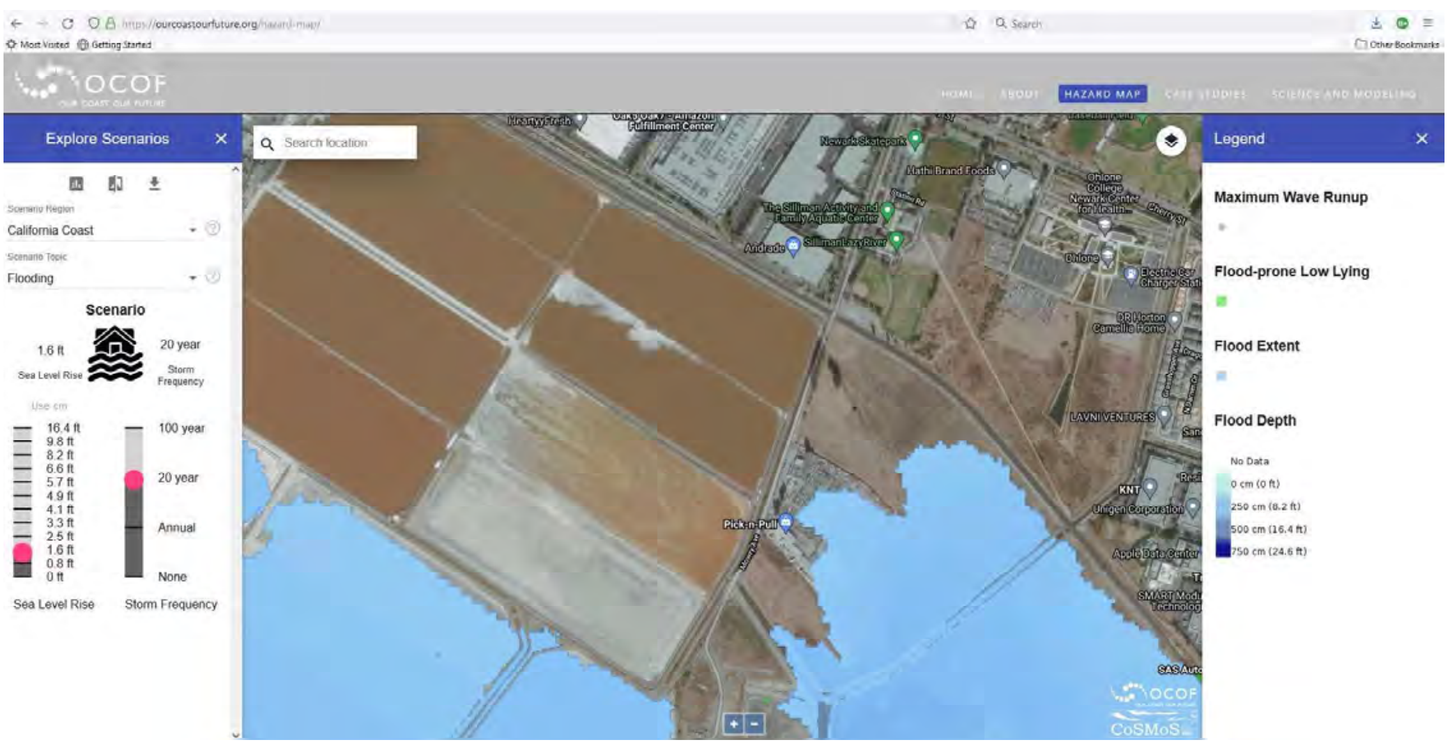
The Initial Study states:

> "...The effects of sea level rise on the City of Newark and SPA [2015 Area 3 & 4 Specific Area Plan] was analyzed in the RDEIR. The RDEIR concluded that development in the SPA would abide by the City's Municipal Code Flood Ordinance, which provides flood protection for the life of the proposed projects. A 50-year planning horizon is assumed for the life of the proposed projects, consistent with BCDC practices. Newark's Municipal Code also calls for residential structures to be "elevated to or above the base flood elevation or to a minimum of six inches above the building pad which shall be at a minimum elevation of 11.25 feet on the National Geodetic Vertical Datum (NGVD), whichever affords the greater degree of flood damage protection." Clean fill placed within the project site to a minimum elevation of 11.25 feet NGVD would provide 3.75 feet of freeboard above the current one-percent stillwater elevation of 7.5 feet and 3.25 feet of freeboard over the regulatory base flood elevation of eight (8) feet NGVD. Assuming the USACE's low sea level rise projection for 2100, an additional 0.6 foot was added to the 100-year stillwater flood elevation of 7.5 feet NGVD, and <u>it can be concluded that the Municipal Code's minimum building pad elevation (11.25 feet NGVD) would provide 3.15 feet of freeboard, which exceeds the current National Flood Insurance Program (NFIP) coastal freeboard criterion for stillwater surge of two feet.</u> If the predicted "intermediate" scenario of a 1.5 foot rise in sea level comes to fruition by 2100; then the placing clean fill to elevation 11.25 would provide 1.75 feet of freeboard. For the "high" sea level rise scenario, the one-percent water surface elevation would inundate the SPA by nearly one foot. That is, a rise in extreme storm surge equal to the extreme mean sea level rise would create a storm surge water surface elevation of 12.1 feet (7.5 ft + 4.6 ft sea level rise) which would inundate the minimum project elevation of 11.25 feet by 10.2 inches. <u>If the "high" sea level rise scenario proves to be true, then adaptive strategies to improve flood protection (for example levees or floodwalls) may prove to be necessary in the future. Since the proposed project would provide sufficient freeboard from 100-year flood events under low, intermediate, and high sea level rise projections in this planning horizon, the proposed project and its inhabitants would not be adversely impacted by predicted global climate change sea level rise (City of Newark 2014</u>)." [emphasis added]

The analysis of sea level rise must be updated. Since 2015 it has become exceedingly apparent that previous projections about the rate and extent of elevation changes related to sea level rise have failed to capture what science is observing and documenting. The analysis of potential flood inundation should include total flood water elevation including not only sea level rise, but also flood water rise from storm surges and precipitation. As an example, if one looks at the Hazard Mapping feature from the Our Coast Our Future website: https://ourcoastourfuture.org/hazard-map/
or the Adapting to Rising Tides Bay Shoreline Flood Explorer: https://explorer.adaptingtorisingtides.org/home it is evident that storm frequency plus sea level rise will have profound effects on total water levels and potential for flooding. As an example, the figure below is taken from the Adapting to Rising Tides (ART) Flood Explorer with the scenario of 12" of sea level rise (SLR) and a 50-year storm for a total water elevation of 48".



Other mapping tools depict similar flood potential for the site. The Our Coast Our Future (OCOF) Hazard Map for this area, below, also shows the flood potential of the site.

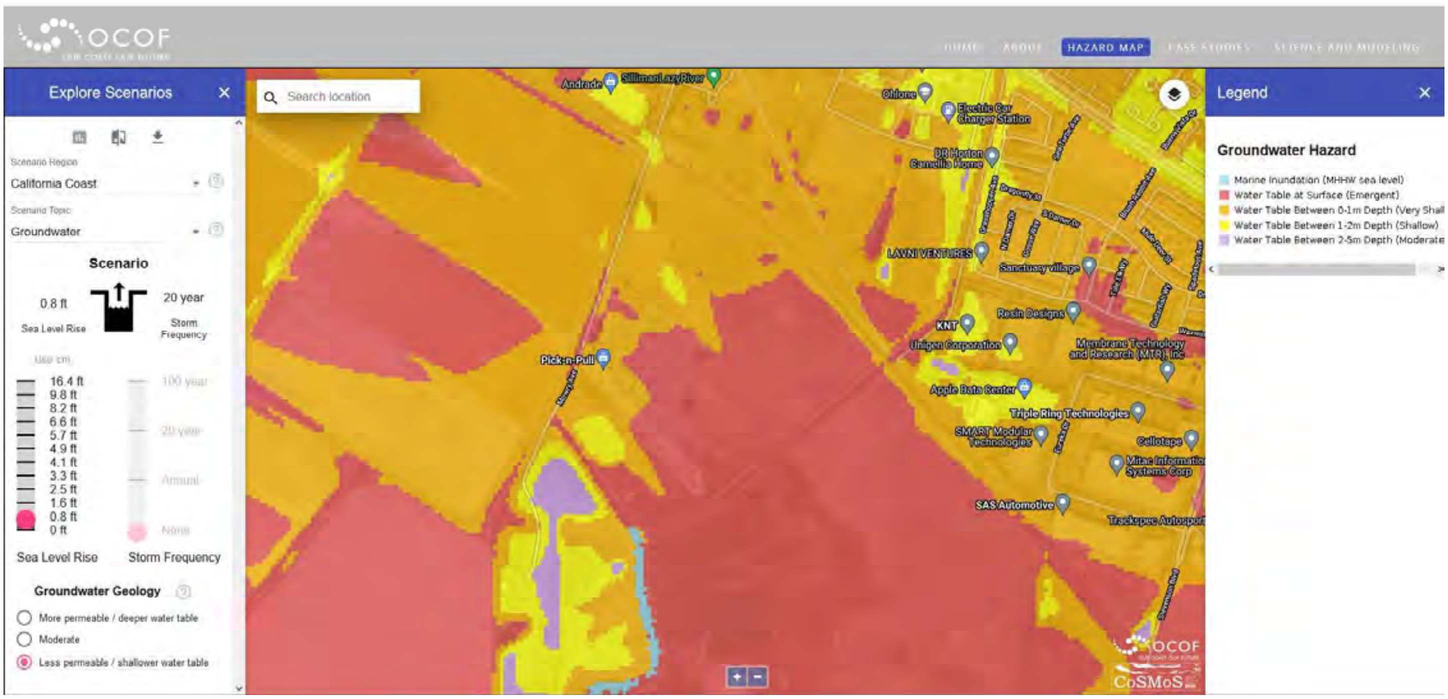


In February 2021, the California Ocean Protection Council (OPC) approved its "*Strategic Plan to Protect California's Coast and Ocean for 2020-2025*."[1] This document suggests that the time frame could be shorter than 50 to 60 years long:

> "1.1.1: <u>Ensure California's coast is resilient to at least 3.5 feet of sea-level rise by 2050 or higher</u>, as consistent with the State's Sea-Level Rise Guidance Document as appropriate for a given location or project. This target will be modified periodically based on the best available science and updates to the State's Sea-Level Rise Guidance Document." [emphasis added]

The project location should be evaluated for sea level rise resilience consistent with the most current guidance from the State.

Another related issue that should be evaluated within the DEIR are the potential impacts of groundwater rise on the project as proposed. Mapping from the OCOF website depicts the potential for groundwater rise for the site under low, moderate and high rates of permeability, though for this particular site, there doesn't seem to be much difference whether a less permeable or more permeable groundwater geology is selected. The mapping below depicts the potential groundwater hazard for the site and indicates the potential, with just 0.8 feet of sea level rise, for the water table to be at the surface on portions of the site.



The issues of how the project will be constructed under increasing rates of sea level and groundwater rise are issues that must be discussed in the DEIR, as there could be resulting direct and indirect impacts to the environment from project construction. For example, if more fill is required to raise the project out of potential sea level rise, storm frequency, groundwater rise flooding potential, there could be an increase in the amounts of fill that might be required to remove the flood risk, increased greenhouse gas emissions due to increased numbers of truckloads of fill that are required, changes in the geotechnical mitigation measures that

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[1]California Ocean Protection Council. "*Strategic Plan to Protect California's Coast and Ocean 2020-2025.*" February 2020. http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20200226/OPC-2020-2025-Strategic-Plan-FINAL-20200228.pdf

need to be employed, changes in the techniques that may be required to ensure the fill slopes are stabilized, changes in the methodology required to protect required infrastructure, changes in how below ground surface contaminants may need to be dealt with, etc. Any of these design features could also result in indirect impacts to the surrounding environment including the Line D, adjacent wetlands, Mowry Slough and Mowry Avenue. All of these issues should be disclosed within the DEIR.

Hydrology and Water Quality:

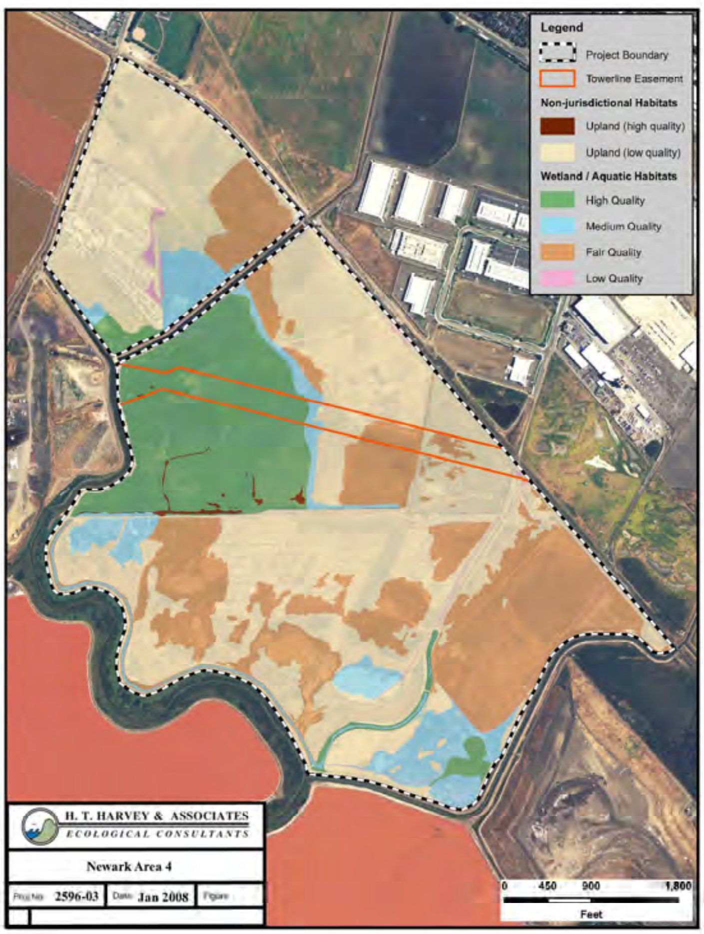
As indicated in the Initial Study, the 2015 Area 3 & 4 Specific Area Plan REIR did not anticipate the construction of housing in Sub Area D, which was designated as zoned as “Park” with the intention of utilizing the entirety of Sub Area D as a golf course or other recreational use. Contrary to the conclusion in the Initial Study of “less than significant impacts”, the DEIR should analyze the effect of raising the ground elevation of the proposed project site to determine if impacts could arise from displacement of flood waters to adjacent properties. Project ground improvements may also impact local hydrology and groundwater distribution resulting in indirect impacts on the adjacent wetland and wetland dependent species. These issues should be addressed in the DEIR.

The DEIR should provide an analysis of the flood control capabilities of Line D as sea levels continue to rise. Will the Line D flood control channel continue to be able to move stormwater off of the project site, as well as conveying stormwater from upstream areas, under conditions of rising sea levels? The DEIR should include information such as the spillway elevation at the western terminus of Line D.

Biological Resources:

The Mowry Village Initial Study includes an Aquatic Resources Delineation Report. That report states there are no waters of the United States (WOTUS) or waters of the State (WOTS) within the project boundaries. The Delineation Report includes Figure 5 a National Wetlands Inventory (NWI) Map that depicts potential wetlands immediately adjacent to the proposed project site. Photos from a February 14, 2008 site visit that show an extensive area of ponding in the eastern portion of Sub Area D and pickleweed habitat and ponding right up to the fence line of the project site on the western portion of Sub Area D.

The mapping provided of potential waters of the 2015 Area 3 & 4 REIR below depicts the potential for much more WOTUS and WOTS immediately adjacent to the proposed project site than what has been depicted on the NWI mapping.



Due to the proposed development of property right up to the property boundaries, and due to the proximity of WOTUS and WOTS immediately adjacent to the property, the DEIR should provide a Corps confirmed Clean Water Act Section 404 jurisdictional delineation of WOTUS within Sub Area D. It is not possible to assess the potential indirect impacts of the proposed project without this information.

The Initial Study states that no salt marsh harvest mouse (SMHM) habitat exists within the property boundaries. While it is unlikely that SMHM habitat exists within the current Pick-N-Pull facility, the undeveloped area of the project site may provide transition zone and upland escape habitat during periods of flooding. Have protocol level surveys been conducted in Sub Area D to determine if the SMHM exists adjacent to the proposed project?

The 2015 REIR identified areas immediately adjacent to the proposed project site as potential habitat for the SMHM.

The Mowry Village DEIR should assess the loss of transition zone and upslope escape habitat for the SMHM resulting from the development of the 10-acre undeveloped parcel, especially since according to the information provided on the "Mowry Village Tract 8517 Existing Site Conditions Tentative Map, TM-2" some of the highest elevations withing Sub Area D occur within the 10-acre undeveloped parcel. Smith et al[2] note that "...in the South San Francisco Bay marshes are narrow and vegetation is short [49]. In these areas, mice may employ alternate strategies when escaping the tide; for example, if vegetation is shorter than the water height at high tide, <u>mice may have no choice but to move upland</u> where they may be exposed to predation." [emphasis added]

Biological Mitigation Measures:

The Mowry Village Initial Study states that MM-BIO 1.1 to 1.3 from the 2015 REIR for Area 3 & 4 will not be included:

"MM BIO-1.1 to 1.3 (mitigation measures for loss of wetland habitats); these measures are not included because the project will not result in the loss of any wetlands or other waters of the U.S. or State;"

Based upon the information provided in the Initial Study, it is impossible to determine whether or not this is true. As mentioned previously, WOTUS and WOTS are immediately adjacent to the proposed project, therefore the DEIR should disclose the distances between any construction related to the proposed project and WOTUS and WOTS and the measures that will ensure that impacts will not occur.

The Initial Study also states:

> "MM BIO-8.1 to 8.4 (impacts to habitat for salt marsh harvest mouse and salt marsh wandering shrew); these measures are not included because there is no salt marsh habitat for these species on the project site. However, the applicant is voluntarily installing exclusionary fencing along the south and east sides of the project site to prevent salt marsh species from entering the site during construction and being harmed;"

---

[2] Smith KR, Barthman-Thompson L, Gould WR, Mabry KE. Effects of natural and anthropogenic change on habitat use and movement of endangered salt marsh harvest mice. *PLoS One*. 2014;9(10):e108739. Published 2014 Oct 13. doi:10.1371/journal.pone.0108739

As mentioned earlier, the DEIR should provide figures that delineate the proximity of existing SMHM and transition zone habitat to the proposed project so the public and agencies can assess whether adverse impacts to SMHM may occur.

The Southern populations of the SMHM, i.e., populations in the Central and South Bay have been significantly and adversely impacted by development of transition zone and upland habitats adjacent to tidal wetlands. Stratham et. al[3] have conducted genetic analyses of SMHM captured in Suisun and San Pablo Bays and in the South San Francisco Bay. Based upon their analyses they suggest that there are two distinct populations of SMHM – one in South San Francisco Bay and one from the two northern bays, with the southern population demonstrating a lower genetic diversity. This has ramifications for the survival of the southern subspecies that relate to the circumstances that may result from the proposed development in Sub Area D. The authors observe, "Such reduced genetic diversity has a bearing on the adaptive potential of the southern subspecies, <u>which is particularly important in light of ongoing climate change</u>. <u>This concern is elevated by the reduced and fragmented nature of remaining salt marsh habitat in the southern San Francisco Bay </u>(UFWS 2013)." [emphasis added]

The Tidal Marsh Ecosystems Recovery Plan[4] states:

> "...The southern subspecies inhabits central and south San Francisco Bay, and has suffered severe habitat loss and fragmentation. Less than 10 percent of its historic habitat acreage remains..."
>
> and
>
> "...Anticipated sea level rise presents a severe threat in the long-term, especially in the central and south San Francisco Bay where opportunities for landward migration of habitat are absent."

For these reasons, development of transition zone habitat and uplands habitat adjacent to areas that support potential SMHM habitat may result in significant adverse impacts.

BIO MM-4.7 mentions that feeding pets outdoors will be "prohibited so that pet food does not attract or subsidize the diets of nuisance species." The DEIR should describe how this mitigation measure would be enforced and specifically which department within the City of Newark would be responsible for ensuring compliance with this mitigation measure. The mitigation measure also states that "off-leash dogs will be prohibited in conservation areas and no free-roaming outdoor cats will be permitted..." For the proposed project we assume "conservation areas" would be within the adjacent WOTUS and WOTS. Does this mean the City will restrict off-leash dogs on the 66-acres owned by the City within Sub Area D? Also, how will the City ensure that "no free-roaming outdoor cats" will exist and what specific department within the City would be responsible for ensuring compliance? Off-leash dogs and free roaming domestic and feral cats resulting from the new housing units will have direct impact on the resident and migratory wildlife that use the adjacent properties. Several of these species are listed as threatened with extinction. The direct and indirect impacts of domestic pets on nearby wildlife should be provided in the DEIR.

---

[3] Statham MJ, Aamoth S, Barthman-Thompson L, Estrella S, Fresquez S, Hernandez LD, Tertes R, Sacks BN. Conservation genetics of the endangered San Francisco Bay endemic salt marsh harvest mouse (Reithrodontomys raviventris). Conservation Genetics, 17: 1055-1066.

[4] U.S. Fish and Wildlife Service. 2013. *Recovery Plan for Tidal Marsh Ecosystems in Northern and Central California.* xviii + 605 pp.

Predator/Nuisance Species Control Program:

The DEIR should provide information regarding how the predator/nuisance species (Norway rats, roof rats, raccoons, etc.) that may be attracted to the housing development and could adversely impact sensitive species, will be controlled. Merely stating that a plan will be developed, does not provide the public or agencies the opportunity to evaluate the efficacy of proposed methods.

Geotechnical Issues:

Potential geotechnical site conditions identified in the Berlogar Stevens & Associates letter, dated April 1, 2019, should be discussed in the DEIR with a level of detail sufficient for the public and agencies to understand the methodology that will be employed to address these issues and to assess the direct and indirect impacts of the selected methodologies on the environment (wetlands, wildlife resources, water quality, etc.). The issues identified include:

- Uncontrolled fill
- Seismic-induced (liquefaction) site settlement potential of 1 to 2 ½ inches
- Moderately compressible soils
- Expansive soils
- Corrosive soils

Light Pollution:

The DEIR should address the issue of light pollution. This issue must also be analyzed in the DEIR from a biological perspective and address whether night-lighting and noise would have any impacts on the biological resources adjacent to the project site.

Light pollution is documented to have serious adverse impacts for a wide range of wildlife ranging from invertebrates to mammals. It disrupts migratory patterns, foraging capabilities, predation, nesting, breeding, etc. Longcore and Rich[5] report the findings of Buchanan (1998 "Low-illumination prey detection by squirrel treefrogs," J Herpetology 32: 270-74) in which three different species of amphibians forage at different illumination intensities. As an example, the squirrel treefrog (*Hyla* squirrela) forages only between 10^{-5} lux and 10^{-3} lux under natural conditions, while the western toad (*Bufo boreas*) only forages at illuminations between 10^{-1} and 10^{-5} lux.

Evidence suggests light pollution affects the choice of nesting sites in the black-tailed godwit, with choice locations being the farther away from roadway lighting (De Molenaar et al 2000, in Longcore and Rich). Buchanan found frogs he was studying stopped their mating calls when the lights of a nearby stadium were turned on.

Public Safety Issues:

The only access to the site is across an at-grade crossing of the UPRR tracks on Mowry Avenue (a locked emergency vehicle access road that will parallel the UPRR tracks and exit via a proposed overpass at Stevenson Boulevard). The 2018 California Rail Plan[6], a state-wide rail plan calls for triple tracking the rail corridor

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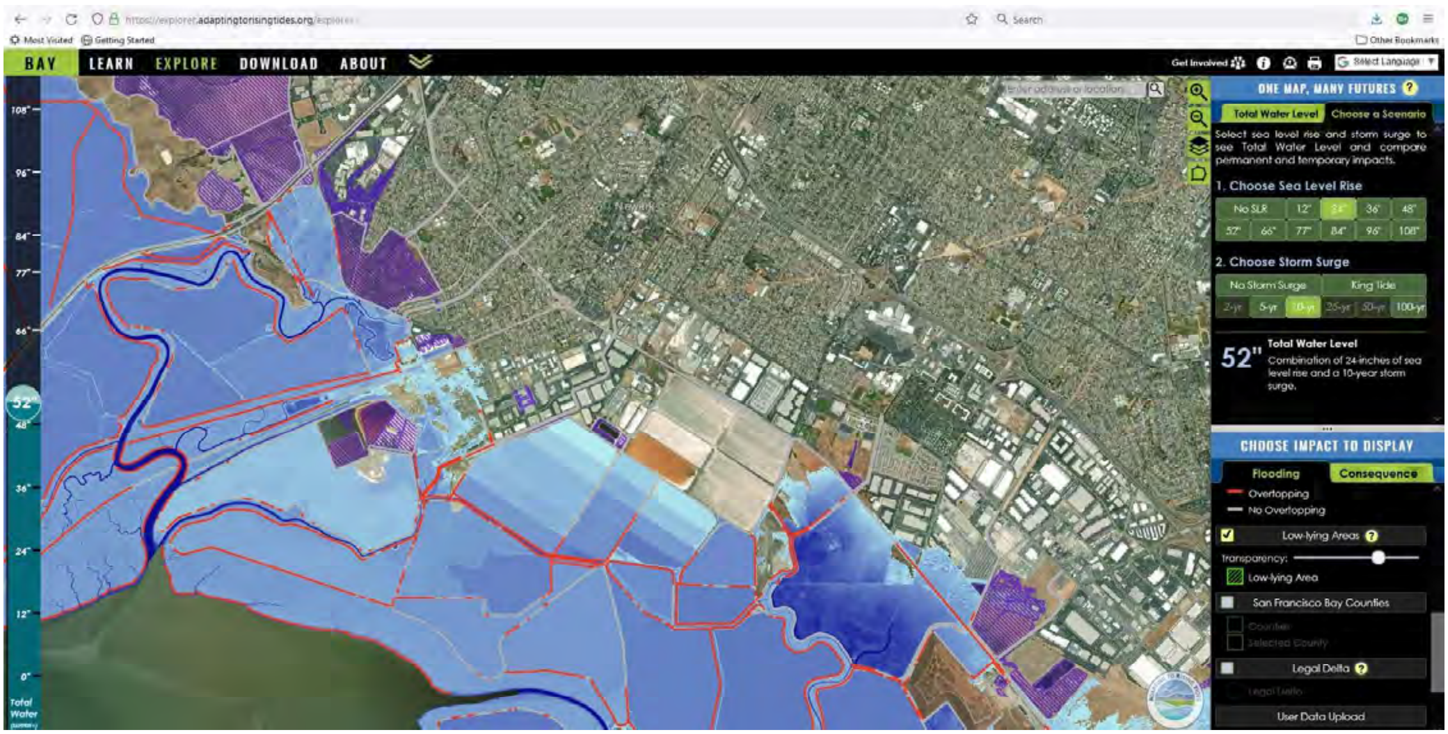
[5] Longcore, Travis and Catherine Rich. 2004. "*Ecological Light Pollution*" Frontiers in Ecology and the Environment. Vol. 2(4): 191-198

[6] 2018 California Rail Plan. https://dot.ca.gov/programs/rail-and-mass-transportation/california-state-rail-plan

through Newark to provide dedicated rail lines for passenger services (Capital Corridor, Altamont Commuter Express and Coast Starlight) and freight services. The project as proposed, when considered with the reasonably foreseeable plans to increase rail service on the adjacent Union Pacific railroad tracks could result in exacerbation of public safety concerns resulting from an increase of pedestrians and bicyclists utilizing the at-grade crossing, where increased frequency of trains is proposed. Has the California Public Utilities Commission approved use of an at-grade crossing for the proposed project?

Closing Remarks:

On December 13, 2021, a Joint Letter of Concern was submitted by local and regional environmental groups regarding the unsuitability of the proposed project site for construction of housing due to the threat of flooding posed by sea level and groundwater rise, and because of the proximity of the site to significant wildlife habitat. We urge the City to give due consideration to these concerns and consider an alternative location that is located closer to transit hubs and will not be susceptible to rising sea and groundwater levels.



The ART map above depicts areas within the City of Newark that may be prone to or at risk of flooding with 24” of sea level rise and a 10-year storm. While some of the areas within Area 2 have been elevated during construction, access roads and other infrastructure, as well as other areas within the City are at risk and will likely require future protection. We have learned through the Shoreline Levee process in Alviso just how financially costly that may be. The 2015 cost estimate for the 5 Reaches of the Phase I were $194 million, with the Non-Federal Sponsors share estimated to be $104.4 million. Fast forward to 2021. The estimates for Reaches 1-3 are now $545 million and the Non-Federal share of construction costs has more than doubled to $265 million. Is Newark prepared to pay its Non-Federal cost share for future mitigation resulting from the construction of housing units placed along the Bayshore? Communities along the edges of San Francisco Bay are experiencing the impacts of rising sea and groundwater levels and planning must be adjusted to ensure that we do not put more residents, development and infrastructure at risk. It is just too costly to continue to put new development and residents in harm’s way.

Thank you for the opportunity to provide comments.

Respectfully submitted,

Carin High

Carin High
CCCR, Co-Chair

cc: Katerina Galacatos, USACE
Brian Wines, RWQCB
Marcia Grefsrud, CDFW
Kim Squires, USFWS
Matt Brown, DESFBNWR
Luisa Valiela, EPA

From: ART INTERIANO <ART.INTERIANO@newark.org>
Sent: Wednesday, January 5, 2022 10:08 AM
To: Radonich, Anna <Anna.Radonich@stantec.com>; Macenski, Trevor <Trevor.Macenski@stantec.com>; Johnson, Kaela <Kaela.Johnson@stantec.com>
Cc: STEVEN TURNER <Stevent@newark.org>
Subject: FW: Mowry Village Project - Response to NOP

We received a late comment this morning. Please add to list of comments.

NEWARK california

Art Interiano
Deputy Community Development Director | Community Development Department
City of Newark | 37101 Newark Boulevard | Newark, CA | 94560
Office: 510-578-4330 | Direct: 510-578-4331

www.newark.org | www.facebook.com/cityofnewarkca | Art.interiano@newark.org

NOTE: City Hall is open limited hours, **Monday – Thursday 8:00am – 1:00pm**. Please check the City's website at www.newark.org for services on-line, via phone, and by appointment as needed.

From: Rollie Arbolante <rolliea@unionsanitary.ca.gov>
Sent: Wednesday, January 5, 2022 8:22 AM
To: ART INTERIANO <ART.INTERIANO@newark.org>

Cc: Rod Schurman <rods@unionsanitary.ca.gov>
Subject: Mowry Village Project - Response to NOP

Hi Art,

Thank you for the opportunity to review this NOP on the Mowry Village Project. The development under the NOP is to provide a single family residential development under the RS-6000 zoning. Per the Preliminary Lotting Plan attached to the NOP, this equates to approximately 212 units.

Comments:

There are no existing sanitary sewer facilities to serve this development so the developer would be required to install new facilities that can connect to USD's existing facilities. USD has existing sewer facilities in Mowry Avenue north/east of the UPRR tracks.

Wastewater flows from the development would drain to the District's existing Cherry Street Pump Station. This pump station will also serve the proposed Sanctuary West development. Per the City's Resolution No. 11.003, Condition bbbb. requires the Sanctuary West developer to enter into an Improvement and Relocation Agreement with USD, to provide for construction of a new pump station to replace the existing Cherry Street Pump Station. The pump station does not have the capacity to serve the Sanctuary West development. A similar agreement will be required for the Mowry Village Project development such that both developers would be responsible for replacement of the Cherry St Pump Station.

Regards,

Rollie Arbolante, P.E.
Technical Services Coach

Rec'd 12/2/21

City of Newark

Community Development Department - Planning
37101 Newark Boulevard
Newark, CA 94560

NEWARK california

NOTICE OF PREPARATION and NOTICE OF PUBLIC SCOPING MEETING

DATE:	**November 30, 2021**
TO:	**Reviewing Agencies, Interested Parties, and Organizations**
FROM:	**City of Newark, Lead Agency**
APPLICANT:	**Mowry Project Owner, LLC**
SUBJECT:	**Notice of Preparation and Scoping Meeting for a Draft Environmental Impact Report for the Mowry Village Project**

Purpose of this Notice of Preparation: In accordance with the California Environmental Quality Act (CEQA), California Code of Regulations (CCR) Section 15082, the City of Newark has prepared this Notice of Preparation (NOP) to inform agencies and interested parties that an Environmental Impact Report (EIR) will be prepared for the referenced proposed project. The purpose of an NOP is to provide sufficient information about the proposed project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed.

In compliance with CEQA, the City of Newark will be the Lead Agency in preparation of the EIR. The project description, location maps, and scope of the potential environmental issues to be addressed in the EIR are attached. The City is requesting comments and guidance on the scope and content of the EIR from responsible trustee agencies, interested public agencies, organizations, and the general public in accordance with CEQA Guidelines 15082. The Notice of Preparation is available for review online at: https://www.newark.org/departments/community-development/planning-division/projects-under-environmental-review

NOP Comment Period: The NOP review and comment period begins on **November 30, 2021** and ends on **January 3, 2022.** Comments may be sent anytime during the 30-day NOP comment period. All comments must be received during the comment period and no later than 5:00 PM on **January 3, 2022.**
The City of Newark encourages the electronic submission of comments. Please provide a contact name, phone number, and email address with your comments, and include Mowry Village Project in the subject line. All written and electronic comments must be sent to:

Art Interiano, Deputy Community Development Director
City of Newark
37101 Newark Boulevard, Newark, CA 94560
(510) 578-4330 | ART.INTERIANO@newark.org

Public Scoping Meeting: Pursuant to CEQA Guidelines Section 15082(c) (Notice of Preparation and Determination of Scope of EIR) and Section 15083 (Early Public Consultation), the City of Newark will also conduct a scoping meeting for the proposed project. **The scoping meeting will be held in-person on December 14, 2021 at 7:30 PM in the City Hall Council Chambers, 37101 Newark Boulevard, and available virtually via Zoom at:** https://us06web.zoom.us/j/82769486629?pwd=UDA4ZXloU05iczgzbURjMThueDk1dz09

Art Interiano (signature)

Art Interiano, Deputy Community Development Director

11/30/21
Date

Project Description

Project Title: Mowry Village Project

Project Applicant: Mowry Project Owner, LLC

Project Location: The project site is located in the City of Newark (City) in southwestern Alameda County, California, southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks, west of Cherry Street. The project site consists of three parcels identified as Assessor's Parcel Numbers 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00. The regional location and project site are shown in Figures 1 and 2.

General Plan Land Use and Zoning: The project site is designated Low Density Residential and zoned Park. The project is proposing to rezone the project site from Park to RS-6000: Residential Single-Family with Planned Unit Development Overlay.

Site History

The project site is within the Newark Areas 3 and 4 Specific Plan which was adopted by the City Council in 2010. The Newark Areas 3 and 4 Specific Plan consists of approximately 856 acres of land on the western edge of Newark. Area 3 is approximately 296 acres and encompasses land bounded by Mowry Avenue, Stevenson Boulevard, Cherry Street, and UPRR. Area 4 is approximately 560 acres and encompasses the land west of UPRR extending to Mowry Slough. The Newark Areas 3 and 4 Specific Plan calls for the development of up to 1,260 housing units, a major recreational facility such as a golf course, and a new school and neighborhood park.

The proposed project is within Sub Area D of Area 4 and is zoned Park with intention for a golf course or other recreational uses. To allow residential uses in Sub Area D of Area 4, the proposed project would require a Specific Plan Amendment to change the zoning from Park to RS-6000: Residential Single-Family.

Description of Project

The project site consists of a 29-acre site within the Newark Areas 3 and 4 Specific Plan that is currently developed as an auto part and scrap metal salvage lot, known as "Pick-n-Pull." The Applicant is proposing to demolish the existing onsite structures and remediate the site to construct 203 single-family detached homes (Figure 3). The proposed single-family homes would be located on three typical lot sizes that are 3,375 square feet (sf), 3,600 sf, or 4,000 sf. Each home would be two stories tall and feature various floor plans with four to five bedrooms, a two car garage, and a rear yard. The various lot sizes would feature New Traditional Mediterranean, Contemporary Spanish, or Farmhouse architectural styles.

The proposed project would provide approximately 4.89 acres of onsite open space. The onsite open space would include 0.94 acres of common open space consisting of landscaping, bioretention areas, and a pocket park. The pocket park would be located in the center of the project site and would include amenities such as a lawn, pedestrian path, and picnic tables. The proposed project would also provide a rear yard for each home, resulting in a total of 3.95 acres of private open space. Additional improvements would include on-street parking, drive aisles, underground utilities, Low Impact Development drainage and water quality treatment areas, lighting, sidewalks, and landscaping.

The proposed project would also include improvements and widening of Mowry Avenue. The proposed project would widen the right-of-way of Mowry Avenue, south of the UPRR tracks, from 49.5 feet to 54 feet to accommodate one 12-foot vehicle lane in the southbound direction, one 12-foot vehicle lane in the northbound direction, a 12-foot-wide median and left turn pocket to access the project site. A six-foot bicycle lane with 3-foot buffer would also be provided in each direction of travel. A 5-foot parkway strip, 5-foot sidewalk, and 3-foot landscape strip on the northbound side would be provided with a 4-foot landscape strip and a minimum 10-foot setback from face of curb to the top of bank of the Alameda County Flood Control's Line B channel on the southbound side.

The proposed project would provide a crosswalk at the UPRR crossing, which would be equipped with a crossing arm, upgraded roadway panels, signage, striping, and pedestrian path improvements to encourage safer access to the project site, surrounding development, and recreation facilities. The UPRR crossing would also include any required gate signals, visual, and/or audio equipment, as required by UPRR or the City's Municipal Code. Additionally, existing Mowry Avenue north of the UPRR railroad tracks and extending to Cherry Street would be re-striped. Re-striping the road would eliminate one travel lane in the southbound direction to accommodate a single 14-foot vehicle travel lane, a 3-foot bike buffer, a 6-foot bike lane and a 10-foot parking lane matching the northbound side of Mowry Avenue.

Required Approvals

The proposed project requires the following approvals from the City listed below:

- Rezone from Park to RS-6000: Residential Single-Family with Planned Unit Development Overlay
- Planned Unit Development
- Specific Plan Amendment
- Vesting Tentative Map
- Design Review
- Grading, Building, and Encroachment Permits

EIR Process

The City has determined an EIR is required for this project. The purpose of an EIR is to inform decision makers and the general public of the potential physical environmental impacts of a proposed project that an agency (in this case, City of Newark) may implement or approve. The EIR process is intended to: (1) provide information sufficient to evaluate a project and its potential for significant impacts on the environment, (2) examine methods for avoiding or reducing significant impacts which may include project-specific mitigations or uniformly applied development regulations; and (3) consider reasonable alternatives to the proposed project.

Following the close of the NOP comment period, a Draft EIR will be prepared that will consider all NOP comments. In accordance with CEQA Guidelines Section 15105(a), the Draft EIR will be released for public review and comment for a required 45-day review period. Following the close of the 45-day public review period, the City will prepare a final EIR, which will include responses to all substantive comments received on the draft focused EIR. The draft focused EIR and final EIR will be considered by the Planning Commission and City Council in making the decision to certify the EIR and approve or deny the project.

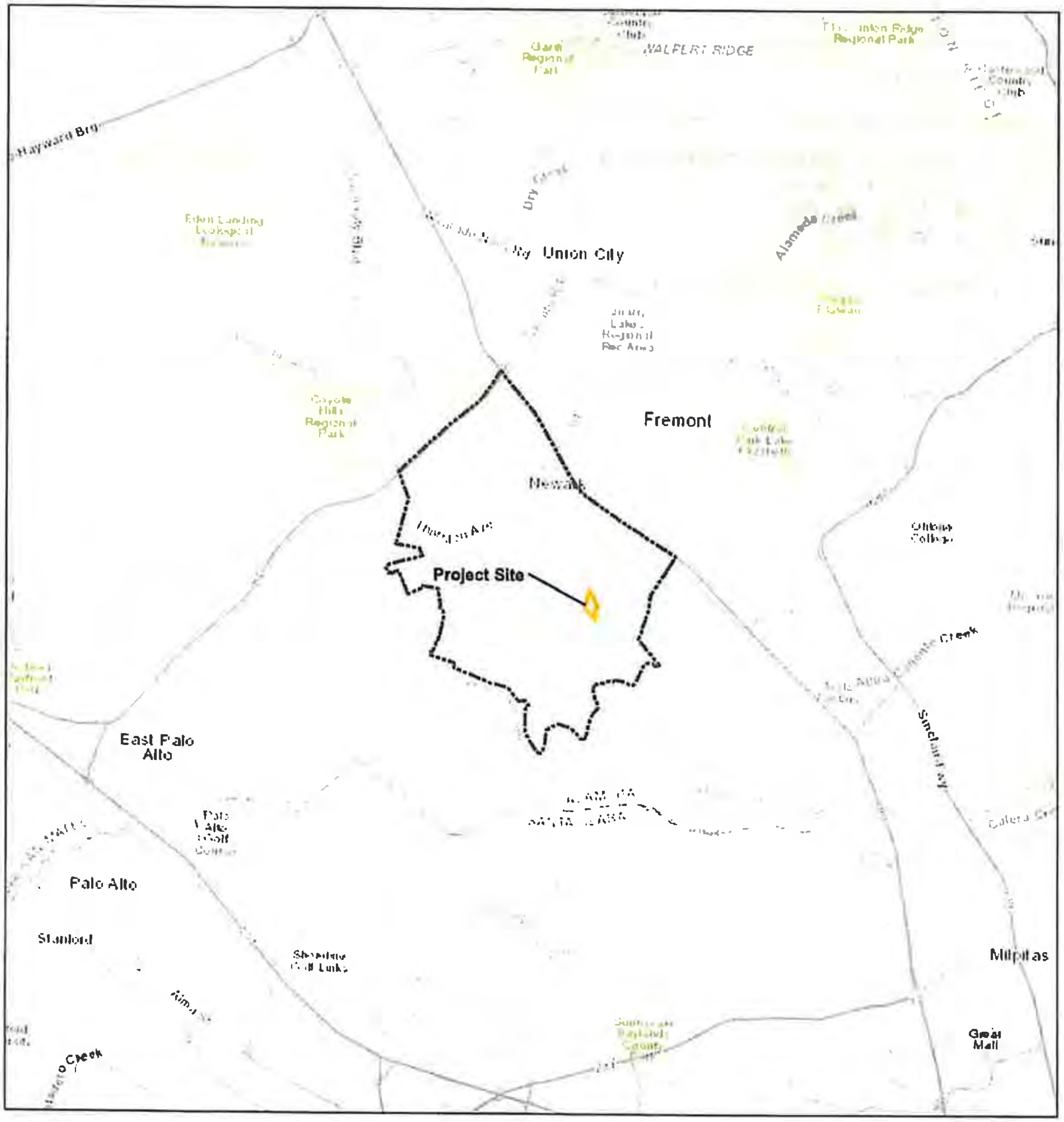
EIR Scope

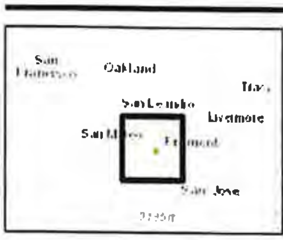
As allowed under Section 15063(a) of the CEQA Guidelines, the City has not prepared an Initial Study and will instead begin work directly on the EIR, as allowed under CEQA Guidelines Section 15081. The EIR will evaluate the potentially significant and significant effects of the proposed project and will document the reasons for concluding that other effects will be less than significant. The EIR will also identify potential cumulative impacts that consider impacts of the proposed project in combination with impacts of other past, present, and reasonably foreseeable future projects. The topics listed below will be further analyzed in the EIR.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Alternatives

Based on the significance conclusions determined in the EIR, alternatives to the proposed project will be analyzed to reduce identified impacts. Section 15126.6(e) of the CEQA Guidelines requires the evaluation of a No Project Alternative. Other alternatives may be considered during preparation of the EIR and will comply with the CEQA Guidelines, which call for a "range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.





Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

Legend

Project Site

City Boundary

0 1 2 Miles
(At original document size of 8.5x11)
1:150,000

N

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
1

Title
Regional Location

V:\1857\Active\185705502\mxd\fig_1_regional_location.mxd Revised: 2021-11-05 By: KAEJOHNSON

Legend

Project Site

Union Pacific Railroad

0 400 800 Feet
(At original document size of 8.5x11)
1:3,000,000

N

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
2

Title
Project Site

Notes
1. Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
2. Data Sources:
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment

V:\1857\Active\185705505\mxd\fig 2 project location.mxd Revised: 2021-11-05 By: KAEJOHNSON

Source: CBG, September 2021

Stantec

Project Location
Newark, California

Client/Project
City of Newark
Mowry Village Project

Figure No.
3

Title

Preliminary Lotting Plan

Appendix B

CalEEMod and

Energy Calculations

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

IPQ-35 Mowry Village

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	256.55	1000sqft	5.89	256,550.00	0
Other Non-Asphalt Surfaces	35.35	1000sqft	0.81	35,350.00	0
Parking Lot	310.50	1000sqft	7.13	310,500.00	0
City Park	4.89	Acre	4.89	213,008.40	0
Single Family Housing	203.00	Dwelling Unit	17.49	365,400.00	682

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run 6: Updated construction schedule; SAFE Rule adjustments disabled.
Run 5: Soil hauling distance changed to default (20 miles); Tier 4 engine mitigation added; DU changed to 203 single-family, added off-site improvements.

Land Use - Land uses and areas per development plan and PD.
Parking Lot = private streets and sidewalks.
Other asphalt Surfaces = off-site street improvements.
Other non-asphalt Surfaces = off-site utilities.

Construction Phase - Schedule per applicant.
Jack and bore for utltities under UPRR tracks and canal.
Architectural Coatings assumed to be concurrent with building construction.

Off-road Equipment -

Off-road Equipment - Max 3-story structures, limited use of cranes required.
Grid power to be used as soon a practical.
Wood frame construction, no welders.

Off-road Equipment - Off-Highway Trucks = water truck.

Off-road Equipment - Off-Highway Trucks = water truck.

Off-road Equipment - Off-highway truck = water truck.
Includes site cleanup and remedial soil removal.
Equipment adjusted for extened grading schedule.
Soil import, no scrapers.

Off-road Equipment - Equipment for jack and bore tunneling.

Off-road Equipment - Equipment for jack and bore pit filling and site cleanup.

Off-road Equipment - Equipment for jack and bore prep and pit excavations.

Off-road Equipment - Mobilization of equipment.

Off-road Equipment - Surfacing Equipment = pavement scarifier.

Off-road Equipment -

Off-road Equipment - Equipment for removal of Pick-N-Pull inventory.

Off-road Equipment - Equipment for removal of contaminated soil.
Off-Highway Trucks = water truck

Off-road Equipment - Import of fill soil during grading, no off-road equipment.

Off-road Equipment - Equipment for installation of underground utilities/infrastructure.
Off-Highway Trucks = water truck.

Trips and VMT - Inventory removal 40 loads per day.
Building const and arch coating trip from defaults for 100 homes concurrent.
4,500 haul trips during underground utilities for aggregate/concrete import.
1,500 haul trips during paving for asphalt import.

On-road Fugitive Dust - 0.2 miles of every demolition and soil haul trip assumed to be on unpaved on-site acess roads.

Demolition -

Grading - 39,000 CY vegetation and contaminated soil exported Remdial SoilCleanup.
252,000 CY soil imported during grading to raise building pads.

Architectural Coating - 100 g/L VOC limit for flat coating per BAAQMD Reg 8 Rule 3.

Vehicle Trips - Trip generation rates and miles from VMT analysis in Transproation Impact Analysis (Fehr & Peers 2021).

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves -

Area Coating - Residential flat coating VOC limits per BAAQMD Reg 8 Rule 3.

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Dust mitigation per BAAQMD Basic Construction Mitigation Measures (MM AIR-1). Tier Tier 4 engines per MM AIR-2.

Area Mitigation - No wood-burning devices in new construction per BAAQMD Regulation 6, Rule 3.

Energy Mitigation - 2019 solar generation per CEC.

Water Mitigation - 20% potable water/waste water reduction per 2019 CALGreen, not included in defaults.

Waste Mitigation - 25% solid waste diversion per AB 341 not included in defaults.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Exterior	150.00	100.00
tblAreaCoating	Area_EF_Residential_Exterior	150	100
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	55.00	130.00
tblConstructionPhase	NumDays	740.00	152.00
tblConstructionPhase	NumDays	50.00	88.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	50.00	45.00
tblConstructionPhase	NumDays	75.00	105.00
tblConstructionPhase	NumDays	75.00	107.00
tblConstructionPhase	NumDays	55.00	10.00
tblConstructionPhase	NumDays	55.00	7.00
tblConstructionPhase	NumDays	30.00	5.00
tblConstructionPhase	NumDays	30.00	31.00
tblGrading	MaterialExported	0.00	252,000.00
tblGrading	MaterialExported	0.00	39,000.00
tblLandUse	LotAcreage	65.91	17.49
tblLandUse	Population	581.00	682.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	7,040.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,500.00
tblTripsAndVMT	HaulingTripNumber	0.00	4,500.00
tblTripsAndVMT	VendorTripNumber	155.00	11.00
tblTripsAndVMT	WorkerTripNumber	416.00	36.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	9.25
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	9.54	9.80
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	8.55	9.80
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.44	9.80

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1100	1.3683	0.9019	3.4300e-003	0.0522	0.0485	0.1008	0.0143	0.0451	0.0594	0.0000	317.3241	317.3241	0.0477	0.0255	326.1239
2024	0.4054	5.8946	3.7043	0.0189	0.9690	0.1609	1.1299	0.3476	0.1492	0.4968	0.0000	1,778.5476	1,778.5476	0.2287	0.1770	1,837.0192
2025	0.9743	1.8216	2.3893	6.5900e-003	0.0831	0.0639	0.1470	0.0225	0.0592	0.0817	0.0000	594.6295	594.6295	0.1344	0.0241	605.1582
2026	1.7234	0.4095	0.6628	1.2600e-003	0.0453	0.0175	0.0628	0.0121	0.0164	0.0285	0.0000	112.2122	112.2122	0.0199	2.0100e-003	113.3079
Maximum	**1.7234**	**5.8946**	**3.7043**	**0.0189**	**0.9690**	**0.1609**	**1.1299**	**0.3476**	**0.1492**	**0.4968**	**0.0000**	**1,778.5476**	**1,778.5476**	**0.2287**	**0.1770**	**1,837.0192**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0283	0.4542	1.0801	3.4300e-003	0.0522	5.9000e-003	0.0581	0.0143	5.7600e-003	0.0201	0.0000	317.3239	317.3239	0.0477	0.0255	326.1237
2024	0.1361	2.9622	4.5843	0.0189	0.6285	0.0341	0.6626	0.2093	0.0331	0.2424	0.0000	1,778.5468	1,778.5468	0.2287	0.1770	1,837.0184
2025	0.8511	0.6104	3.0616	6.5900e-003	0.0831	0.0109	0.0939	0.0225	0.0107	0.0333	0.0000	594.6290	594.6290	0.1344	0.0241	605.1577
2026	1.6918	0.0701	0.6950	1.2600e-003	0.0453	1.6300e-003	0.0469	0.0121	1.6100e-003	0.0137	0.0000	112.2121	112.2121	0.0199	2.0100e-003	113.3078
Maximum	**1.6918**	**2.9622**	**4.5843**	**0.0189**	**0.6285**	**0.0341**	**0.6626**	**0.2093**	**0.0331**	**0.2424**	**0.0000**	**1,778.5468**	**1,778.5468**	**0.2287**	**0.1770**	**1,837.0184**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.74**	**56.85**	**-23.02**	**0.00**	**29.62**	**81.97**	**40.19**	**34.88**	**81.03**	**53.57**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-26-2023**	**12-25-2023**	1.3985	0.4603
2	**12-26-2023**	**3-25-2024**	1.0499	0.2357
3	**3-26-2024**	**6-25-2024**	1.6062	0.8944
4	**6-26-2024**	**9-25-2024**	2.5723	1.4389
5	**9-26-2024**	**12-25-2024**	1.0242	0.4673
6	**12-26-2024**	**3-25-2025**	0.5693	0.1948
7	**3-26-2025**	**6-25-2025**	0.7033	0.2396
8	**6-26-2025**	**9-25-2025**	0.4750	0.1608

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9	**9-26-2025**	**12-25-2025**	1.1097	0.8551
10	**12-26-2025**	**3-25-2026**	1.5251	1.2600
11	**3-26-2026**	**6-25-2026**	0.7108	0.5871
		Highest	2.5723	1.4389

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.9514	0.0436	3.2513	3.6700e-003		0.2593	0.2593		0.2593	0.2593	25.8035	8.8086	34.6121	0.0511	1.4800e-003	36.3302
Energy	0.0422	0.3610	0.1536	2.3000e-003		0.0292	0.0292		0.0292	0.0292	0.0000	574.8069	574.8069	0.0334	0.0107	578.8412
Mobile	0.8618	1.1954	8.8995	0.0213	2.4720	0.0152	2.4872	0.6604	0.0142	0.6746	0.0000	1,966.6600	1,966.6600	0.1079	0.0957	1,997.8751
Waste						0.0000	0.0000		0.0000	0.0000	58.2300	0.0000	58.2300	3.4413	0.0000	144.2623
Water						0.0000	0.0000		0.0000	0.0000	4.1961	11.2087	15.4048	0.4328	0.0104	29.3226
Total	**3.8555**	**1.6000**	**12.3043**	**0.0272**	**2.4720**	**0.3037**	**2.7757**	**0.6604**	**0.3027**	**0.9631**	**88.2296**	**2,561.4841**	**2,649.7137**	**4.0665**	**0.1183**	**2,786.6313**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7567	0.0323	1.5178	1.7000e-004		9.5800e-003	9.5800e-003		9.5800e-003	9.5800e-003	0.0000	19.7058	19.7058	2.7200e-003	3.2000e-004	19.8679
Energy	0.0422	0.3610	0.1536	2.3000e-003		0.0292	0.0292		0.0292	0.0292	0.0000	509.0200	509.0200	0.0227	9.4500e-003	512.4038
Mobile	0.8618	1.1954	8.8995	0.0213	2.4720	0.0152	2.4872	0.6604	0.0142	0.6746	0.0000	1,966.6600	1,966.6600	0.1079	0.0957	1,997.8751
Waste						0.0000	0.0000		0.0000	0.0000	43.6725	0.0000	43.6725	2.5810	0.0000	108.1968
Water						0.0000	0.0000		0.0000	0.0000	3.3569	8.9669	12.3238	0.3462	8.3200e-003	23.4581
Total	**2.6607**	**1.5887**	**10.5708**	**0.0237**	**2.4720**	**0.0540**	**2.5260**	**0.6604**	**0.0530**	**0.7134**	**47.0294**	**2,504.3527**	**2,551.3821**	**3.0606**	**0.1138**	**2,661.8015**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**30.99**	**0.71**	**14.09**	**12.85**	**0.00**	**82.22**	**9.00**	**0.00**	**82.50**	**25.93**	**46.70**	**2.23**	**3.71**	**24.74**	**3.83**	**4.48**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Pick-n-Pull Inventroy Removal	Demolition	9/26/2023	1/25/2024	5	88	
2	Demolition	Demolition	1/26/2024	3/28/2024	5	45	
3	Mobilization	Site Preparation	3/29/2024	4/4/2024	5	5	

4	Remedial Soil Cleanup	Site Preparation	4/10/2024	5/22/2024	5	31	
5	Soil Import	Grading	5/23/2024	10/16/2024	5	105	
6	Grading	Grading	5/23/2024	10/18/2024	5	107	
7	Underground Utilities	Trenching	10/19/2024	9/25/2025	5	244	
8	Jack and Bore Prep	Trenching	3/1/2025	3/10/2025	5	6	
9	Jack and Bore	Trenching	3/11/2025	4/21/2025	5	30	
10	Jack and Bore Final	Trenching	4/22/2025	4/29/2025	5	6	
11	Off-Site Street Improvements	Paving	5/1/2025	5/14/2025	5	10	
12	Paving	Paving	9/26/2025	10/6/2025	5	7	
13	Building Construction	Building Construction	10/7/2025	5/6/2026	5	152	
14	Architectural Coating	Architectural Coating	11/6/2025	5/6/2026	5	130	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 13.83

Residential Indoor: 739,935; Residential Outdoor: 246,645; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 36,144 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Pick-n-Pull Inventroy Removal	Concrete/Industrial Saws	1	8.00	81	0.73
Pick-n-Pull Inventroy Removal	Cranes	2	8.00	231	0.29
Pick-n-Pull Inventroy Removal	Excavators	3	8.00	158	0.38
Pick-n-Pull Inventroy Removal	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Off-Highway Trucks	1	8.00	402	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Mobilization	Cranes	1	2.00	231	0.29

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Remedial Soil Cleanup	Excavators	2	8.00	158	0.38
Remedial Soil Cleanup	Off-Highway Trucks	1	8.00	402	0.38
Remedial Soil Cleanup	Rubber Tired Dozers	1	8.00	247	0.40
Remedial Soil Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Soil Import	Graders	0	8.00	187	0.41
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Underground Utilities	Cranes	1	2.00	231	0.29
Underground Utilities	Excavators	2	8.00	158	0.38
Underground Utilities	Off-Highway Trucks	1	8.00	402	0.38
Underground Utilities	Rubber Tired Loaders	1	8.00	203	0.36
Underground Utilities	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Jack and Bore Prep	Cranes	1	2.00	231	0.29
Jack and Bore Prep	Excavators	1	8.00	158	0.38
Jack and Bore Prep	Skid Steer Loaders	1	8.00	65	0.37
Jack and Bore Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Jack and Bore	Bore/Drill Rigs	1	8.00	221	0.50
Jack and Bore	Cranes	1	2.00	231	0.29
Jack and Bore	Excavators	1	8.00	158	0.38
Jack and Bore	Pumps	1	8.00	84	0.74
Jack and Bore Final	Cranes	1	2.00	231	0.29
Jack and Bore Final	Skid Steer Loaders	1	8.00	65	0.37
Jack and Bore Final	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Off-Site Street Improvements	Pavers	2	8.00	130	0.42

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Site Street Improvements	Paving Equipment	2	8.00	132	0.36
Off-Site Street Improvements	Rollers	2	8.00	80	0.38
Off-Site Street Improvements	Surfacing Equipment	1	8.00	263	0.30
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	2.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	2.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Pick-n-Pull Inventroy Removal	8	20.00	0.00	7,040.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	7	18.00	0.00	80.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization	2	5.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Remedial Soil Cleanup	6	15.00	0.00	4,875.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Soil Import	0	0.00	0.00	31,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	9	23.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Underground Utilities	7	18.00	0.00	4,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore Prep	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore Final	3	8.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Off-Site Street Improvements	7	18.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	1,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	8	36.00	11.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	83.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Pick-n-Pull Inventroy Removal - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1025	1.0045	0.8043	1.7400e-003		0.0454	0.0454		0.0421	0.0421	0.0000	152.2523	152.2523	0.0442	0.0000	153.3563
Total	**0.1025**	**1.0045**	**0.8043**	**1.7400e-003**		**0.0454**	**0.0454**		**0.0421**	**0.0421**	**0.0000**	**152.2523**	**152.2523**	**0.0442**	**0.0000**	**153.3563**

3.2 Pick-n-Pull Inventroy Removal - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.6900e-003	0.3626	0.0823	1.6400e-003	0.0468	3.0900e-003	0.0499	0.0129	2.9600e-003	0.0158	0.0000	160.8238	160.8238	3.4100e-003	0.0254	168.4809
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-003	1.2400e-003	0.0153	5.0000e-005	5.4600e-003	3.0000e-005	5.4800e-003	1.4500e-003	3.0000e-005	1.4800e-003	0.0000	4.2480	4.2480	1.3000e-004	1.2000e-004	4.2867
Total	**7.4900e-003**	**0.3639**	**0.0976**	**1.6900e-003**	**0.0522**	**3.1200e-003**	**0.0553**	**0.0143**	**2.9900e-003**	**0.0173**	**0.0000**	**165.0717**	**165.0717**	**3.5400e-003**	**0.0255**	**172.7676**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0208	0.0903	0.9825	1.7400e-003		2.7800e-003	2.7800e-003		2.7800e-003	2.7800e-003	0.0000	152.2522	152.2522	0.0442	0.0000	153.3561
Total	**0.0208**	**0.0903**	**0.9825**	**1.7400e-003**		**2.7800e-003**	**2.7800e-003**		**2.7800e-003**	**2.7800e-003**	**0.0000**	**152.2522**	**152.2522**	**0.0442**	**0.0000**	**153.3561**

3.2 Pick-n-Pull Inventroy Removal - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.6900e-003	0.3626	0.0823	1.6400e-003	0.0468	3.0900e-003	0.0499	0.0129	2.9600e-003	0.0158	0.0000	160.8238	160.8238	3.4100e-003	0.0254	168.4809
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-003	1.2400e-003	0.0153	5.0000e-005	5.4600e-003	3.0000e-005	5.4800e-003	1.4500e-003	3.0000e-005	1.4800e-003	0.0000	4.2480	4.2480	1.3000e-004	1.2000e-004	4.2867
Total	**7.4900e-003**	**0.3639**	**0.0976**	**1.6900e-003**	**0.0522**	**3.1200e-003**	**0.0553**	**0.0143**	**2.9900e-003**	**0.0173**	**0.0000**	**165.0717**	**165.0717**	**3.5400e-003**	**0.0255**	**172.7676**

3.2 Pick-n-Pull Inventroy Removal - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0276	0.2649	0.2209	4.8000e-004		0.0119	0.0119		0.0110	0.0110	0.0000	41.9281	41.9281	0.0122	0.0000	42.2319
Total	**0.0276**	**0.2649**	**0.2209**	**4.8000e-004**		**0.0119**	**0.0119**		**0.0110**	**0.0110**	**0.0000**	**41.9281**	**41.9281**	**0.0122**	**0.0000**	**42.2319**

3.2 Pick-n-Pull Inventroy Removal - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5700e-003	0.1003	0.0228	4.5000e-004	0.0129	8.6000e-004	0.0137	3.5400e-003	8.2000e-004	4.3700e-003	0.0000	43.6358	43.6358	9.5000e-004	6.9000e-003	45.7142
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.0000e-004	3.9400e-003	1.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.1319	1.1319	3.0000e-005	3.0000e-005	1.1418
Total	**2.0300e-003**	**0.1006**	**0.0267**	**4.6000e-004**	**0.0144**	**8.7000e-004**	**0.0153**	**3.9400e-003**	**8.3000e-004**	**4.7800e-003**	**0.0000**	**44.7677**	**44.7677**	**9.8000e-004**	**6.9300e-003**	**46.8560**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7400e-003	0.0249	0.2705	4.8000e-004		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	41.9281	41.9281	0.0122	0.0000	42.2319
Total	**5.7400e-003**	**0.0249**	**0.2705**	**4.8000e-004**		**7.7000e-004**	**7.7000e-004**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**41.9281**	**41.9281**	**0.0122**	**0.0000**	**42.2319**

3.2 Pick-n-Pull Inventroy Removal - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5700e-003	0.1003	0.0228	4.5000e-004	0.0129	8.6000e-004	0.0137	3.5400e-003	8.2000e-004	4.3700e-003	0.0000	43.6358	43.6358	9.5000e-004	6.9000e-003	45.7142
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.0000e-004	3.9400e-003	1.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.1319	1.1319	3.0000e-005	3.0000e-005	1.1418
Total	**2.0300e-003**	**0.1006**	**0.0267**	**4.6000e-004**	**0.0144**	**8.7000e-004**	**0.0153**	**3.9400e-003**	**8.3000e-004**	**4.7800e-003**	**0.0000**	**44.7677**	**44.7677**	**9.8000e-004**	**6.9300e-003**	**46.8560**

3.3 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.6100e-003	0.0000	8.6100e-003	1.3000e-003	0.0000	1.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0617	0.5446	0.5166	1.1700e-003		0.0243	0.0243		0.0226	0.0226	0.0000	102.6252	102.6252	0.0299	0.0000	103.3715
Total	**0.0617**	**0.5446**	**0.5166**	**1.1700e-003**	**8.6100e-003**	**0.0243**	**0.0329**	**1.3000e-003**	**0.0226**	**0.0239**	**0.0000**	**102.6252**	**102.6252**	**0.0299**	**0.0000**	**103.3715**

3.3 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	5.2800e-003	1.2000e-003	2.0000e-005	6.8000e-004	5.0000e-005	7.2000e-004	1.9000e-004	4.0000e-005	2.3000e-004	0.0000	2.2966	2.2966	5.0000e-005	3.6000e-004	2.4060
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9000e-004	6.5000e-004	8.4000e-003	3.0000e-005	3.2000e-003	2.0000e-005	3.2200e-003	8.5000e-004	1.0000e-005	8.7000e-004	0.0000	2.4127	2.4127	7.0000e-005	7.0000e-005	2.4339
Total	**1.0700e-003**	**5.9300e-003**	**9.6000e-003**	**5.0000e-005**	**3.8800e-003**	**7.0000e-005**	**3.9400e-003**	**1.0400e-003**	**5.0000e-005**	**1.1000e-003**	**0.0000**	**4.7093**	**4.7093**	**1.2000e-004**	**4.3000e-004**	**4.8399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.8800e-003	0.0000	3.8800e-003	5.9000e-004	0.0000	5.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0140	0.0608	0.6572	1.1700e-003		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003	0.0000	102.6251	102.6251	0.0299	0.0000	103.3714
Total	**0.0140**	**0.0608**	**0.6572**	**1.1700e-003**	**3.8800e-003**	**1.8700e-003**	**5.7500e-003**	**5.9000e-004**	**1.8700e-003**	**2.4600e-003**	**0.0000**	**102.6251**	**102.6251**	**0.0299**	**0.0000**	**103.3714**

3.3 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	5.2800e-003	1.2000e-003	2.0000e-005	6.8000e-004	5.0000e-005	7.2000e-004	1.9000e-004	4.0000e-005	2.3000e-004	0.0000	2.2966	2.2966	5.0000e-005	3.6000e-004	2.4060
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9000e-004	6.5000e-004	8.4000e-003	3.0000e-005	3.2000e-003	2.0000e-005	3.2200e-003	8.5000e-004	1.0000e-005	8.7000e-004	0.0000	2.4127	2.4127	7.0000e-005	7.0000e-005	2.4339
Total	**1.0700e-003**	**5.9300e-003**	**9.6000e-003**	**5.0000e-005**	**3.8800e-003**	**7.0000e-005**	**3.9400e-003**	**1.0400e-003**	**5.0000e-005**	**1.1000e-003**	**0.0000**	**4.7093**	**4.7093**	**1.2000e-004**	**4.3000e-004**	**4.8399**

3.4 Mobilization - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7000e-004	5.8100e-003	6.7000e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.4000e-004	2.4000e-004	0.0000	1.0012	1.0012	3.2000e-004	0.0000	1.0093
Total	**5.7000e-004**	**5.8100e-003**	**6.7000e-003**	**1.0000e-005**	**0.0000**	**2.6000e-004**	**2.6000e-004**	**0.0000**	**2.4000e-004**	**2.4000e-004**	**0.0000**	**1.0012**	**1.0012**	**3.2000e-004**	**0.0000**	**1.0093**

3.4 Mobilization - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.6000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0745	0.0745	0.0000	0.0000	0.0751
Total	**3.0000e-005**	**2.0000e-005**	**2.6000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0745**	**0.0745**	**0.0000**	**0.0000**	**0.0751**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4000e-004	6.0000e-004	7.4800e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	1.0012	1.0012	3.2000e-004	0.0000	1.0093
Total	**1.4000e-004**	**6.0000e-004**	**7.4800e-003**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**1.0012**	**1.0012**	**3.2000e-004**	**0.0000**	**1.0093**

3.4 Mobilization - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.6000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0745	0.0745	0.0000	0.0000	0.0751
Total	**3.0000e-005**	**2.0000e-005**	**2.6000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0745**	**0.0745**	**0.0000**	**0.0000**	**0.0751**

3.5 Remedial Soil Cleanup - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1038	0.0000	0.1038	0.0525	0.0000	0.0525	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0319	0.2777	0.2465	6.9000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	60.7295	60.7295	0.0196	0.0000	61.2205
Total	**0.0319**	**0.2777**	**0.2465**	**6.9000e-004**	**0.1038**	**0.0114**	**0.1152**	**0.0525**	**0.0105**	**0.0630**	**0.0000**	**60.7295**	**60.7295**	**0.0196**	**0.0000**	**61.2205**

3.5 Remedial Soil Cleanup - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0200e-003	0.3217	0.0730	1.4300e-003	0.0413	2.7600e-003	0.0441	0.0114	2.6400e-003	0.0140	0.0000	139.9504	139.9504	3.0300e-003	0.0221	146.6163
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.7000e-004	4.8200e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.3851	1.3851	4.0000e-005	4.0000e-005	1.3972
Total	**5.5900e-003**	**0.3221**	**0.0778**	**1.4500e-003**	**0.0432**	**2.7700e-003**	**0.0459**	**0.0119**	**2.6500e-003**	**0.0145**	**0.0000**	**141.3355**	**141.3355**	**3.0700e-003**	**0.0222**	**148.0135**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0467	0.0000	0.0467	0.0236	0.0000	0.0236	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4900e-003	0.0368	0.3607	6.9000e-004		1.1300e-003	1.1300e-003		1.1300e-003	1.1300e-003	0.0000	60.7294	60.7294	0.0196	0.0000	61.2204
Total	**8.4900e-003**	**0.0368**	**0.3607**	**6.9000e-004**	**0.0467**	**1.1300e-003**	**0.0478**	**0.0236**	**1.1300e-003**	**0.0248**	**0.0000**	**60.7294**	**60.7294**	**0.0196**	**0.0000**	**61.2204**

3.5 Remedial Soil Cleanup - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0200e-003	0.3217	0.0730	1.4300e-003	0.0413	2.7600e-003	0.0441	0.0114	2.6400e-003	0.0140	0.0000	139.9504	139.9504	3.0300e-003	0.0221	146.6163
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.7000e-004	4.8200e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.3851	1.3851	4.0000e-005	4.0000e-005	1.3972
Total	**5.5900e-003**	**0.3221**	**0.0778**	**1.4500e-003**	**0.0432**	**2.7700e-003**	**0.0459**	**0.0119**	**2.6500e-003**	**0.0145**	**0.0000**	**141.3355**	**141.3355**	**3.0700e-003**	**0.0222**	**148.0135**

3.6 Soil Import - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0143	0.0000	0.0143	2.1600e-003	0.0000	2.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0143**	**0.0000**	**0.0143**	**2.1600e-003**	**0.0000**	**2.1600e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Soil Import - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0325	2.0786	0.4717	9.2400e-003	0.2669	0.0178	0.2847	0.0735	0.0170	0.0905	0.0000	904.2950	904.2950	0.0196	0.1429	947.3668
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0325**	**2.0786**	**0.4717**	**9.2400e-003**	**0.2669**	**0.0178**	**0.2847**	**0.0735**	**0.0170**	**0.0905**	**0.0000**	**904.2950**	**904.2950**	**0.0196**	**0.1429**	**947.3668**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.4100e-003	0.0000	6.4100e-003	9.7000e-004	0.0000	9.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.4100e-003**	**0.0000**	**6.4100e-003**	**9.7000e-004**	**0.0000**	**9.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Soil Import - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0325	2.0786	0.4717	9.2400e-003	0.2669	0.0178	0.2847	0.0735	0.0170	0.0905	0.0000	904.2950	904.2950	0.0196	0.1429	947.3668
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0325**	**2.0786**	**0.4717**	**9.2400e-003**	**0.2669**	**0.0178**	**0.2847**	**0.0735**	**0.0170**	**0.0905**	**0.0000**	**904.2950**	**904.2950**	**0.0196**	**0.1429**	**947.3668**

3.7 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4924	0.0000	0.4924	0.1955	0.0000	0.1955	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1988	1.9102	1.6571	4.0300e-003		0.0779	0.0779		0.0716	0.0716	0.0000	353.8205	353.8205	0.1144	0.0000	356.6813
Total	**0.1988**	**1.9102**	**1.6571**	**4.0300e-003**	**0.4924**	**0.0779**	**0.5702**	**0.1955**	**0.0716**	**0.2671**	**0.0000**	**353.8205**	**353.8205**	**0.1144**	**0.0000**	**356.6813**

3.7 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0100e-003	1.9700e-003	0.0255	8.0000e-005	9.7300e-003	5.0000e-005	9.7800e-003	2.5900e-003	4.0000e-005	2.6300e-003	0.0000	7.3305	7.3305	2.0000e-004	2.0000e-004	7.3947
Total	**3.0100e-003**	**1.9700e-003**	**0.0255**	**8.0000e-005**	**9.7300e-003**	**5.0000e-005**	**9.7800e-003**	**2.5900e-003**	**4.0000e-005**	**2.6300e-003**	**0.0000**	**7.3305**	**7.3305**	**2.0000e-004**	**2.0000e-004**	**7.3947**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2216	0.0000	0.2216	0.0880	0.0000	0.0880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0494	0.2140	2.0826	4.0300e-003		6.5900e-003	6.5900e-003		6.5900e-003	6.5900e-003	0.0000	353.8201	353.8201	0.1144	0.0000	356.6809
Total	**0.0494**	**0.2140**	**2.0826**	**4.0300e-003**	**0.2216**	**6.5900e-003**	**0.2282**	**0.0880**	**6.5900e-003**	**0.0946**	**0.0000**	**353.8201**	**353.8201**	**0.1144**	**0.0000**	**356.6809**

3.7 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0100e-003	1.9700e-003	0.0255	8.0000e-005	9.7300e-003	5.0000e-005	9.7800e-003	2.5900e-003	4.0000e-005	2.6300e-003	0.0000	7.3305	7.3305	2.0000e-004	2.0000e-004	7.3947
Total	**3.0100e-003**	**1.9700e-003**	**0.0255**	**8.0000e-005**	**9.7300e-003**	**5.0000e-005**	**9.7800e-003**	**2.5900e-003**	**4.0000e-005**	**2.6300e-003**	**0.0000**	**7.3305**	**7.3305**	**2.0000e-004**	**2.0000e-004**	**7.3947**

3.8 Underground Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0385	0.3181	0.4210	9.7000e-004		0.0131	0.0131		0.0121	0.0121	0.0000	85.6114	85.6114	0.0277	0.0000	86.3036
Total	**0.0385**	**0.3181**	**0.4210**	**9.7000e-004**		**0.0131**	**0.0131**		**0.0121**	**0.0121**	**0.0000**	**85.6114**	**85.6114**	**0.0277**	**0.0000**	**86.3036**

3.8 Underground Utilities - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.9000e-004	0.0633	0.0144	2.8000e-004	8.1300e-003	5.4000e-004	8.6700e-003	2.2400e-003	5.2000e-004	2.7500e-003	0.0000	27.5312	27.5312	6.0000e-004	4.3500e-003	28.8426
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.5000e-004	9.7000e-003	3.0000e-005	3.7000e-003	2.0000e-005	3.7200e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	2.7880	2.7880	8.0000e-005	8.0000e-005	2.8125
Total	**2.1300e-003**	**0.0640**	**0.0241**	**3.1000e-004**	**0.0118**	**5.6000e-004**	**0.0124**	**3.2200e-003**	**5.4000e-004**	**3.7500e-003**	**0.0000**	**30.3193**	**30.3193**	**6.8000e-004**	**4.4300e-003**	**31.6550**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0120	0.0518	0.5703	9.7000e-004		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	85.6113	85.6113	0.0277	0.0000	86.3035
Total	**0.0120**	**0.0518**	**0.5703**	**9.7000e-004**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**	**85.6113**	**85.6113**	**0.0277**	**0.0000**	**86.3035**

3.8 Underground Utilities - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.9000e-004	0.0633	0.0144	2.8000e-004	8.1300e-003	5.4000e-004	8.6700e-003	2.2400e-003	5.2000e-004	2.7500e-003	0.0000	27.5312	27.5312	6.0000e-004	4.3500e-003	28.8426
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.5000e-004	9.7000e-003	3.0000e-005	3.7000e-003	2.0000e-005	3.7200e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	2.7880	2.7880	8.0000e-005	8.0000e-005	2.8125
Total	**2.1300e-003**	**0.0640**	**0.0241**	**3.1000e-004**	**0.0118**	**5.6000e-004**	**0.0124**	**3.2200e-003**	**5.4000e-004**	**3.7500e-003**	**0.0000**	**30.3193**	**30.3193**	**6.8000e-004**	**4.4300e-003**	**31.6550**

3.8 Underground Utilities - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1328	1.0205	1.5426	3.6000e-003		0.0410	0.0410		0.0377	0.0377	0.0000	316.1176	316.1176	0.1022	0.0000	318.6735
Total	**0.1328**	**1.0205**	**1.5426**	**3.6000e-003**		**0.0410**	**0.0410**		**0.0377**	**0.0377**	**0.0000**	**316.1176**	**316.1176**	**0.1022**	**0.0000**	**318.6735**

3.8 Underground Utilities - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6300e-003	0.2329	0.0531	1.0200e-003	0.0300	2.0000e-003	0.0320	8.2600e-003	1.9100e-003	0.0102	0.0000	99.7871	99.7871	2.2200e-003	0.0158	104.5420
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9600e-003	2.4900e-003	0.0336	1.1000e-004	0.0137	6.0000e-005	0.0137	3.6300e-003	6.0000e-005	3.6900e-003	0.0000	9.9490	9.9490	2.6000e-004	2.6000e-004	10.0334
Total	**7.5900e-003**	**0.2354**	**0.0867**	**1.1300e-003**	**0.0437**	**2.0600e-003**	**0.0457**	**0.0119**	**1.9700e-003**	**0.0139**	**0.0000**	**109.7360**	**109.7360**	**2.4800e-003**	**0.0160**	**114.5754**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0441	0.1913	2.1056	3.6000e-003		5.8800e-003	5.8800e-003		5.8800e-003	5.8800e-003	0.0000	316.1172	316.1172	0.1022	0.0000	318.6732
Total	**0.0441**	**0.1913**	**2.1056**	**3.6000e-003**		**5.8800e-003**	**5.8800e-003**		**5.8800e-003**	**5.8800e-003**	**0.0000**	**316.1172**	**316.1172**	**0.1022**	**0.0000**	**318.6732**

3.8 Underground Utilities - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6300e-003	0.2329	0.0531	1.0200e-003	0.0300	2.0000e-003	0.0320	8.2600e-003	1.9100e-003	0.0102	0.0000	99.7871	99.7871	2.2200e-003	0.0158	104.5420
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9600e-003	2.4900e-003	0.0336	1.1000e-004	0.0137	6.0000e-005	0.0137	3.6300e-003	6.0000e-005	3.6900e-003	0.0000	9.9490	9.9490	2.6000e-004	2.6000e-004	10.0334
Total	**7.5900e-003**	**0.2354**	**0.0867**	**1.1300e-003**	**0.0437**	**2.0600e-003**	**0.0457**	**0.0119**	**1.9700e-003**	**0.0139**	**0.0000**	**109.7360**	**109.7360**	**2.4800e-003**	**0.0160**	**114.5754**

3.9 Jack and Bore Prep - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3100e-003	0.0124	0.0219	4.0000e-005		5.2000e-004	5.2000e-004		4.7000e-004	4.7000e-004	0.0000	3.1096	3.1096	1.0100e-003	0.0000	3.1347
Total	**1.3100e-003**	**0.0124**	**0.0219**	**4.0000e-005**		**5.2000e-004**	**5.2000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**3.1096**	**3.1096**	**1.0100e-003**	**0.0000**	**3.1347**

3.9 Jack and Bore Prep - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	4.0000e-005	5.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1727	0.1727	0.0000	0.0000	0.1742
Total	**7.0000e-005**	**4.0000e-005**	**5.8000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1727**	**0.1727**	**0.0000**	**0.0000**	**0.1742**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1000e-004	5.0400e-003	0.0254	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.1096	3.1096	1.0100e-003	0.0000	3.1347
Total	**5.1000e-004**	**5.0400e-003**	**0.0254**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.1096**	**3.1096**	**1.0100e-003**	**0.0000**	**3.1347**

3.9 Jack and Bore Prep - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	4.0000e-005	5.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1727	0.1727	0.0000	0.0000	0.1742
Total	**7.0000e-005**	**4.0000e-005**	**5.8000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1727**	**0.1727**	**0.0000**	**0.0000**	**0.1742**

3.10 Jack and Bore - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0111	0.0946	0.1417	3.4000e-004		3.8300e-003	3.8300e-003		3.6500e-003	3.6500e-003	0.0000	29.6694	29.6694	7.2000e-003	0.0000	29.8493
Total	**0.0111**	**0.0946**	**0.1417**	**3.4000e-004**		**3.8300e-003**	**3.8300e-003**		**3.6500e-003**	**3.6500e-003**	**0.0000**	**29.6694**	**29.6694**	**7.2000e-003**	**0.0000**	**29.8493**

3.10 Jack and Bore - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.2000e-004	2.9100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.8636	0.8636	2.0000e-005	2.0000e-005	0.8710
Total	**3.4000e-004**	**2.2000e-004**	**2.9100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.8636**	**0.8636**	**2.0000e-005**	**2.0000e-005**	**0.8710**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9600e-003	0.0172	0.1937	3.4000e-004		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	29.6694	29.6694	7.2000e-003	0.0000	29.8493
Total	**3.9600e-003**	**0.0172**	**0.1937**	**3.4000e-004**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**29.6694**	**29.6694**	**7.2000e-003**	**0.0000**	**29.8493**

3.10 Jack and Bore - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.2000e-004	2.9100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.8636	0.8636	2.0000e-005	2.0000e-005	0.8710
Total	**3.4000e-004**	**2.2000e-004**	**2.9100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.8636**	**0.8636**	**2.0000e-005**	**2.0000e-005**	**0.8710**

3.11 Jack and Bore Final - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.1000e-004	8.7600e-003	0.0121	2.0000e-005		3.4000e-004	3.4000e-004		3.1000e-004	3.1000e-004	0.0000	1.7479	1.7479	5.7000e-004	0.0000	1.7620
Total	**8.1000e-004**	**8.7600e-003**	**0.0121**	**2.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**1.7479**	**1.7479**	**5.7000e-004**	**0.0000**	**1.7620**

3.11 Jack and Bore Final - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.7000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1382	0.1382	0.0000	0.0000	0.1394
Total	**5.0000e-005**	**3.0000e-005**	**4.7000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1382**	**0.1382**	**0.0000**	**0.0000**	**0.1394**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2000e-004	4.2100e-003	0.0137	2.0000e-005		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	1.7479	1.7479	5.7000e-004	0.0000	1.7620
Total	**3.2000e-004**	**4.2100e-003**	**0.0137**	**2.0000e-005**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**1.7479**	**1.7479**	**5.7000e-004**	**0.0000**	**1.7620**

3.11 Jack and Bore Final - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.7000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1382	0.1382	0.0000	0.0000	0.1394
Total	**5.0000e-005**	**3.0000e-005**	**4.7000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1382**	**0.1382**	**0.0000**	**0.0000**	**0.1394**

3.12 Off-Site Street Improvements - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.4700e-003	0.0521	0.0810	1.5000e-004		2.4500e-003	2.4500e-003		2.2500e-003	2.2500e-003	0.0000	12.9781	12.9781	4.2000e-003	0.0000	13.0830
Paving	0.0171					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0225**	**0.0521**	**0.0810**	**1.5000e-004**		**2.4500e-003**	**2.4500e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**12.9781**	**12.9781**	**4.2000e-003**	**0.0000**	**13.0830**

3.12 Off-Site Street Improvements - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.3000e-004	1.7500e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5182	0.5182	1.0000e-005	1.0000e-005	0.5226
Total	**2.1000e-004**	**1.3000e-004**	**1.7500e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5182**	**0.5182**	**1.0000e-005**	**1.0000e-005**	**0.5226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8200e-003	7.8900e-003	0.1018	1.5000e-004		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	12.9780	12.9780	4.2000e-003	0.0000	13.0830
Paving	0.0171					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0189**	**7.8900e-003**	**0.1018**	**1.5000e-004**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**12.9780**	**12.9780**	**4.2000e-003**	**0.0000**	**13.0830**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Off-Site Street Improvements - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.3000e-004	1.7500e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5182	0.5182	1.0000e-005	1.0000e-005	0.5226
Total	**2.1000e-004**	**1.3000e-004**	**1.7500e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5182**	**0.5182**	**1.0000e-005**	**1.0000e-005**	**0.5226**

3.13 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2000e-003	0.0300	0.0510	8.0000e-005		1.4600e-003	1.4600e-003		1.3500e-003	1.3500e-003	0.0000	7.0067	7.0067	2.2700e-003	0.0000	7.0634
Paving	0.0171					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0203**	**0.0300**	**0.0510**	**8.0000e-005**		**1.4600e-003**	**1.4600e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**7.0067**	**7.0067**	**2.2700e-003**	**0.0000**	**7.0634**

3.13 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0987	0.0225	4.3000e-004	0.0127	8.5000e-004	0.0136	3.5000e-003	8.1000e-004	4.3100e-003	0.0000	42.2709	42.2709	9.4000e-004	6.6800e-003	44.2852
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	1.0200e-003	0.0000	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3023	0.3023	1.0000e-005	1.0000e-005	0.3048
Total	**1.6600e-003**	**0.0987**	**0.0235**	**4.3000e-004**	**0.0131**	**8.5000e-004**	**0.0140**	**3.6100e-003**	**8.1000e-004**	**4.4200e-003**	**0.0000**	**42.5732**	**42.5732**	**9.5000e-004**	**6.6900e-003**	**44.5900**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8000e-004	4.2500e-003	0.0605	8.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	7.0067	7.0067	2.2700e-003	0.0000	7.0634
Paving	0.0171					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0180**	**4.2500e-003**	**0.0605**	**8.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**7.0067**	**7.0067**	**2.2700e-003**	**0.0000**	**7.0634**

3.13 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0987	0.0225	4.3000e-004	0.0127	8.5000e-004	0.0136	3.5000e-003	8.1000e-004	4.3100e-003	0.0000	42.2709	42.2709	9.4000e-004	6.6800e-003	44.2852
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	1.0200e-003	0.0000	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3023	0.3023	1.0000e-005	1.0000e-005	0.3048
Total	**1.6600e-003**	**0.0987**	**0.0235**	**4.3000e-004**	**0.0131**	**8.5000e-004**	**0.0140**	**3.6100e-003**	**8.1000e-004**	**4.4200e-003**	**0.0000**	**42.5732**	**42.5732**	**9.5000e-004**	**6.6900e-003**	**44.5900**

3.14 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0233	0.2279	0.3287	4.9000e-004		0.0103	0.0103		9.5000e-003	9.5000e-003	0.0000	43.0968	43.0968	0.0127	0.0000	43.4139
Total	**0.0233**	**0.2279**	**0.3287**	**4.9000e-004**		**0.0103**	**0.0103**		**9.5000e-003**	**9.5000e-003**	**0.0000**	**43.0968**	**43.0968**	**0.0127**	**0.0000**	**43.4139**

3.14 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	0.0139	4.2100e-003	6.0000e-005	2.0300e-003	8.0000e-005	2.1100e-003	5.9000e-004	8.0000e-005	6.7000e-004	0.0000	5.8123	5.8123	8.0000e-005	8.7000e-004	6.0741
Worker	2.5600e-003	1.6100e-003	0.0217	7.0000e-005	8.8200e-003	4.0000e-005	8.8700e-003	2.3500e-003	4.0000e-005	2.3900e-003	0.0000	6.4254	6.4254	1.7000e-004	1.7000e-004	6.4799
Total	**2.8800e-003**	**0.0155**	**0.0259**	**1.3000e-004**	**0.0109**	**1.2000e-004**	**0.0110**	**2.9400e-003**	**1.2000e-004**	**3.0600e-003**	**0.0000**	**12.2376**	**12.2376**	**2.5000e-004**	**1.0400e-003**	**12.5539**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9000e-003	0.0256	0.3502	4.9000e-004		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	43.0967	43.0967	0.0127	0.0000	43.4138
Total	**5.9000e-003**	**0.0256**	**0.3502**	**4.9000e-004**		**7.9000e-004**	**7.9000e-004**		**7.9000e-004**	**7.9000e-004**	**0.0000**	**43.0967**	**43.0967**	**0.0127**	**0.0000**	**43.4138**

3.14 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	0.0139	4.2100e-003	6.0000e-005	2.0300e-003	8.0000e-005	2.1100e-003	5.9000e-004	8.0000e-005	6.7000e-004	0.0000	5.8123	5.8123	8.0000e-005	8.7000e-004	6.0741
Worker	2.5600e-003	1.6100e-003	0.0217	7.0000e-005	8.8200e-003	4.0000e-005	8.8700e-003	2.3500e-003	4.0000e-005	2.3900e-003	0.0000	6.4254	6.4254	1.7000e-004	1.7000e-004	6.4799
Total	**2.8800e-003**	**0.0155**	**0.0259**	**1.3000e-004**	**0.0109**	**1.2000e-004**	**0.0110**	**2.9400e-003**	**1.2000e-004**	**3.0600e-003**	**0.0000**	**12.2376**	**12.2376**	**2.5000e-004**	**1.0400e-003**	**12.5539**

3.14 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0339	0.3308	0.4771	7.1000e-004		0.0149	0.0149		0.0138	0.0138	0.0000	62.5599	62.5599	0.0184	0.0000	63.0202
Total	**0.0339**	**0.3308**	**0.4771**	**7.1000e-004**		**0.0149**	**0.0149**		**0.0138**	**0.0138**	**0.0000**	**62.5599**	**62.5599**	**0.0184**	**0.0000**	**63.0202**

3.14 Building Construction - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5000e-004	0.0201	6.0400e-003	9.0000e-005	2.9400e-003	1.2000e-004	3.0600e-003	8.5000e-004	1.1000e-004	9.6000e-004	0.0000	8.2823	8.2823	1.2000e-004	1.2400e-003	8.6555
Worker	3.5000e-003	2.1300e-003	0.0297	1.0000e-004	0.0128	6.0000e-005	0.0129	3.4100e-003	5.0000e-005	3.4600e-003	0.0000	9.0394	9.0394	2.2000e-004	2.3000e-004	9.1140
Total	**3.9500e-003**	**0.0222**	**0.0357**	**1.9000e-004**	**0.0158**	**1.8000e-004**	**0.0159**	**4.2600e-003**	**1.6000e-004**	**4.4200e-003**	**0.0000**	**17.3218**	**17.3218**	**3.4000e-004**	**1.4700e-003**	**17.7695**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.5700e-003	0.0371	0.5083	7.1000e-004		1.1400e-003	1.1400e-003		1.1400e-003	1.1400e-003	0.0000	62.5598	62.5598	0.0184	0.0000	63.0201
Total	**8.5700e-003**	**0.0371**	**0.5083**	**7.1000e-004**		**1.1400e-003**	**1.1400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**62.5598**	**62.5598**	**0.0184**	**0.0000**	**63.0201**

3.14 Building Construction - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5000e-004	0.0201	6.0400e-003	9.0000e-005	2.9400e-003	1.2000e-004	3.0600e-003	8.5000e-004	1.1000e-004	9.6000e-004	0.0000	8.2823	8.2823	1.2000e-004	1.2400e-003	8.6555
Worker	3.5000e-003	2.1300e-003	0.0297	1.0000e-004	0.0128	6.0000e-005	0.0129	3.4100e-003	5.0000e-005	3.4600e-003	0.0000	9.0394	9.0394	2.2000e-004	2.3000e-004	9.1140
Total	**3.9500e-003**	**0.0222**	**0.0357**	**1.9000e-004**	**0.0158**	**1.8000e-004**	**0.0159**	**4.2600e-003**	**1.6000e-004**	**4.4200e-003**	**0.0000**	**17.3218**	**17.3218**	**3.4000e-004**	**1.4700e-003**	**17.7695**

3.15 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4200e-003	0.0229	0.0362	6.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	5.1065	5.1065	2.8000e-004	0.0000	5.1135
Total	**0.7456**	**0.0229**	**0.0362**	**6.0000e-005**		**1.0300e-003**	**1.0300e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**5.1065**	**5.1065**	**2.8000e-004**	**0.0000**	**5.1135**

3.15 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-003	2.3900e-003	0.0323	1.0000e-004	0.0131	6.0000e-005	0.0132	3.4900e-003	6.0000e-005	3.5500e-003	0.0000	9.5574	9.5574	2.5000e-004	2.5000e-004	9.6385
Total	**3.8000e-003**	**2.3900e-003**	**0.0323**	**1.0000e-004**	**0.0131**	**6.0000e-005**	**0.0132**	**3.4900e-003**	**6.0000e-005**	**3.5500e-003**	**0.0000**	**9.5574**	**9.5574**	**2.5000e-004**	**2.5000e-004**	**9.6385**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7422					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9000e-004	2.5800e-003	0.0367	6.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	5.1065	5.1065	2.8000e-004	0.0000	5.1135
Total	**0.7428**	**2.5800e-003**	**0.0367**	**6.0000e-005**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**5.1065**	**5.1065**	**2.8000e-004**	**0.0000**	**5.1135**

3.15 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-003	2.3900e-003	0.0323	1.0000e-004	0.0131	6.0000e-005	0.0132	3.4900e-003	6.0000e-005	3.5500e-003	0.0000	9.5574	9.5574	2.5000e-004	2.5000e-004	9.6385
Total	**3.8000e-003**	**2.3900e-003**	**0.0323**	**1.0000e-004**	**0.0131**	**6.0000e-005**	**0.0132**	**3.4900e-003**	**6.0000e-005**	**3.5500e-003**	**0.0000**	**9.5574**	**9.5574**	**2.5000e-004**	**2.5000e-004**	**9.6385**

3.15 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.6699					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6900e-003	0.0516	0.0814	1.3000e-004		2.3200e-003	2.3200e-003		2.3200e-003	2.3200e-003	0.0000	11.4896	11.4896	6.3000e-004	0.0000	11.5053
Total	**1.6776**	**0.0516**	**0.0814**	**1.3000e-004**		**2.3200e-003**	**2.3200e-003**		**2.3200e-003**	**2.3200e-003**	**0.0000**	**11.4896**	**11.4896**	**6.3000e-004**	**0.0000**	**11.5053**

3.15 Architectural Coating - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0700e-003	4.9000e-003	0.0685	2.3000e-004	0.0295	1.3000e-004	0.0297	7.8600e-003	1.2000e-004	7.9800e-003	0.0000	20.8409	20.8409	5.2000e-004	5.3000e-004	21.0129
Total	**8.0700e-003**	**4.9000e-003**	**0.0685**	**2.3000e-004**	**0.0295**	**1.3000e-004**	**0.0297**	**7.8600e-003**	**1.2000e-004**	**7.9800e-003**	**0.0000**	**20.8409**	**20.8409**	**5.2000e-004**	**5.3000e-004**	**21.0129**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.6699					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	5.7900e-003	0.0825	1.3000e-004		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	11.4896	11.4896	6.3000e-004	0.0000	11.5053
Total	**1.6712**	**5.7900e-003**	**0.0825**	**1.3000e-004**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**11.4896**	**11.4896**	**6.3000e-004**	**0.0000**	**11.5053**

3.15 Architectural Coating - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0700e-003	4.9000e-003	0.0685	2.3000e-004	0.0295	1.3000e-004	0.0297	7.8600e-003	1.2000e-004	7.9800e-003	0.0000	20.8409	20.8409	5.2000e-004	5.3000e-004	21.0129
Total	**8.0700e-003**	**4.9000e-003**	**0.0685**	**2.3000e-004**	**0.0295**	**1.3000e-004**	**0.0297**	**7.8600e-003**	**1.2000e-004**	**7.9800e-003**	**0.0000**	**20.8409**	**20.8409**	**5.2000e-004**	**5.3000e-004**	**21.0129**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8618	1.1954	8.8995	0.0213	2.4720	0.0152	2.4872	0.6604	0.0142	0.6746	0.0000	1,966.660 0	1,966.660 0	0.1079	0.0957	1,997.875 1
Unmitigated	0.8618	1.1954	8.8995	0.0213	2.4720	0.0152	2.4872	0.6604	0.0142	0.6746	0.0000	1,966.660 0	1,966.660 0	0.1079	0.0957	1,997.875 1

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	1,989.40	1,989.40	1989.40	6,698,310	6,698,310
Total	1,989.40	1,989.40	1,989.40	6,698,310	6,698,310

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	9.25	4.80	5.70	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Other Asphalt Surfaces	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Other Non-Asphalt Surfaces	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Parking Lot	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Single Family Housing	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	90.9679	90.9679	0.0147	1.7800e-003	91.8674
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	156.7548	156.7548	0.0254	3.0700e-003	158.3048
NaturalGas Mitigated	0.0422	0.3610	0.1536	2.3000e-003		0.0292	0.0292		0.0292	0.0292	0.0000	418.0522	418.0522	8.0100e-003	7.6600e-003	420.5364
NaturalGas Unmitigated	0.0422	0.3610	0.1536	2.3000e-003		0.0292	0.0292		0.0292	0.0292	0.0000	418.0522	418.0522	8.0100e-003	7.6600e-003	420.5364

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7.834e+006	0.0422	0.3610	0.1536	2.3000e-003		0.0292	0.0292		0.0292	0.0292	0.0000	418.0522	418.0522	8.0100e-003	7.6600e-003	420.5364
Total		**0.0422**	**0.3610**	**0.1536**	**2.3000e-003**		**0.0292**	**0.0292**		**0.0292**	**0.0292**	**0.0000**	**418.0522**	**418.0522**	**8.0100e-003**	**7.6600e-003**	**420.5364**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	7.834e +006	0.0422	0.3610	0.1536	2.3000e-003		0.0292	0.0292		0.0292	0.0292	0.0000	418.0522	418.0522	8.0100e-003	7.6600e-003	420.5364
Total		**0.0422**	**0.3610**	**0.1536**	**2.3000e-003**		**0.0292**	**0.0292**		**0.0292**	**0.0292**	**0.0000**	**418.0522**	**418.0522**	**8.0100e-003**	**7.6600e-003**	**420.5364**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	108675	10.0550	1.6300e-003	2.0000e-004	10.1545
Single Family Housing	1.58554e+006	146.6997	0.0237	2.8800e-003	148.1503
Total		**156.7548**	**0.0254**	**3.0800e-003**	**158.3048**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	-142205	-13.1574	-0.0021	-0.0003	-13.2875
Other Asphalt Surfaces	-142205	-13.1574	-0.0021	-0.0003	-13.2875
Other Non-Asphalt Surfaces	-142205	-13.1574	-0.0021	-0.0003	-13.2875
Parking Lot	-33530.4	-3.1024	-0.0005	-0.0001	-3.1330
Single Family Housing	1.44333e +006	133.5424	0.0216	2.6200e-003	134.8629
Total		**90.9679**	**0.0147**	**1.7800e-003**	**91.8674**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7567	0.0323	1.5178	1.7000e-004		9.5800e-003	9.5800e-003		9.5800e-003	9.5800e-003	0.0000	19.7058	19.7058	2.7200e-003	3.2000e-004	19.8679
Unmitigated	2.9514	0.0436	3.2513	3.6700e-003		0.2593	0.2593		0.2593	0.2593	25.8035	8.8086	34.6121	0.0511	1.4800e-003	36.3302

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2412					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4680					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1965	0.0262	1.7398	3.5900e-003		0.2509	0.2509		0.2509	0.2509	25.8035	6.3356	32.1391	0.0488	1.4800e-003	33.7975
Landscaping	0.0457	0.0174	1.5114	8.0000e-005		8.3800e-003	8.3800e-003		8.3800e-003	8.3800e-003	0.0000	2.4730	2.4730	2.3900e-003	0.0000	2.5327
Total	**2.9514**	**0.0436**	**3.2513**	**3.6700e-003**		**0.2593**	**0.2593**		**0.2593**	**0.2593**	**25.8035**	**8.8086**	**34.6121**	**0.0511**	**1.4800e-003**	**36.3302**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2412					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4680					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.7400e-003	0.0149	6.3300e-003	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	17.2328	17.2328	3.3000e-004	3.2000e-004	17.3352
Landscaping	0.0457	0.0174	1.5114	8.0000e-005		8.3800e-003	8.3800e-003		8.3800e-003	8.3800e-003	0.0000	2.4730	2.4730	2.3900e-003	0.0000	2.5327
Total	**1.7567**	**0.0323**	**1.5178**	**1.7000e-004**		**9.5800e-003**	**9.5800e-003**		**9.5800e-003**	**9.5800e-003**	**0.0000**	**19.7058**	**19.7058**	**2.7200e-003**	**3.2000e-004**	**19.8679**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	12.3238	0.3462	8.3200e-003	23.4581
Unmitigated	15.4048	0.4328	0.0104	29.3226

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 5.82634	1.8868	3.1000e-004	4.0000e-005	1.9054
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	13.2263 / 8.3383	13.5180	0.4325	0.0104	27.4172
Total		**15.4047**	**0.4328**	**0.0104**	**29.3226**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 4.66108	1.5094	2.4000e-004	3.0000e-005	1.5243
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	10.581 / 6.67064	10.8144	0.3460	8.2900e-003	21.9337
Total		**12.3238**	**0.3462**	**8.3200e-003**	**23.4581**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	43.6725	2.5810	0.0000	108.1968
Unmitigated	58.2300	3.4413	0.0000	144.2623

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.42	0.0853	5.0400e-003	0.0000	0.2112
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	286.44	58.1447	3.4363	0.0000	144.0511
Total		**58.2300**	**3.4413**	**0.0000**	**144.2623**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.315	0.0639	3.7800e-003	0.0000	0.1584
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	214.83	43.6086	2.5772	0.0000	108.0383
Total		**43.6725**	**2.5810**	**0.0000**	**108.1967**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

IPQ-35 Mowry Village

Alameda County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	256.55	1000sqft	5.89	256,550.00	0
Other Non-Asphalt Surfaces	35.35	1000sqft	0.81	35,350.00	0
Parking Lot	310.50	1000sqft	7.13	310,500.00	0
City Park	4.89	Acre	4.89	213,008.40	0
Single Family Housing	203.00	Dwelling Unit	17.49	365,400.00	682

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2027

Utility Company Pacific Gas and Electric Company

CO2 Intensity (lb/MWhr) 203.98 **CH4 Intensity (lb/MWhr)** 0.033 **N2O Intensity (lb/MWhr)** 0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run 6: Updated construction schedule; SAFE Rule adjustments disabled.
Run 5: Soil hauling distance changed to default (20 miles); Tier 4 engine mitigation added; DU changed to 203 single-family, added off-site improvements.

Land Use - Land uses and areas per development plan and PD.
Parking Lot = private streets and sidewalks.
Other asphalt Surfaces = off-site street improvements.
Other non-asphalt Surfaces = off-site utilities.

Construction Phase - Schedule per applicant.
Jack and bore for utltities under UPRR tracks and canal.
Architectural Coatings assumed to be concurrent with building construction.

Off-road Equipment -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Max 3-story structures, limited use of cranes required.
Grid power to be used as soon a practical.
Wood frame construction, no welders.

Off-road Equipment - Off-Highway Trucks = water truck.

Off-road Equipment - Off-Highway Trucks = water truck.

Off-road Equipment - Off-highway truck = water truck.
Includes site cleanup and remedial soil removal.
Equipment adjusted for extened grading schedule.
Soil import, no scrapers.

Off-road Equipment - Equipment for jack and bore tunneling.

Off-road Equipment - Equipment for jack and bore pit filling and site cleanup.

Off-road Equipment - Equipment for jack and bore prep and pit excavations.

Off-road Equipment - Mobilization of equipment.

Off-road Equipment - Surfacing Equipment = pavement scarifier.

Off-road Equipment -

Off-road Equipment - Equipment for removal of Pick-N-Pull inventory.

Off-road Equipment - Equipment for removal of contaminated soil.
Off-Highway Trucks = water truck

Off-road Equipment - Import of fill soil during grading, no off-road equipment.

Off-road Equipment - Equipment for installation of underground utilities/infrastructure.
Off-Highway Trucks = water truck.

Trips and VMT - Inventory removal 40 loads per day.
Building const and arch coating trip from defaults for 100 homes concurrent.
4,500 haul trips during underground utilities for aggregate/concrete import.
1,500 haul trips during paving for asphalt import.

On-road Fugitive Dust - 0.2 miles of every demolition and soil haul trip assumed to be on unpaved on-site acess roads.

Demolition -

Grading - 39,000 CY vegetation and contaminated soil exported Remdial SoilCleanup.
252,000 CY soil imported during grading to raise building pads.

Architectural Coating - 100 g/L VOC limit for flat coating per BAAQMD Reg 8 Rule 3.

Vehicle Trips - Trip generation rates and miles from VMT analysis in Transproation Impact Analysis (Fehr & Peers 2021).

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves -

Area Coating - Residential flat coating VOC limits per BAAQMD Reg 8 Rule 3.

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Dust mitigation per BAAQMD Basic Construction Mitigation Measures (MM AIR-1). Tier Tier 4 engines per MM AIR-2.

Area Mitigation - No wood-burning devices in new construction per BAAQMD Regulation 6, Rule 3.

Energy Mitigation - 2019 solar generation per CEC.

Water Mitigation - 20% potable water/waste water reduction per 2019 CALGreen, not included in defaults.

Waste Mitigation - 25% solid waste diversion per AB 341 not included in defaults.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Exterior	150.00	100.00
tblAreaCoating	Area_EF_Residential_Exterior	150	100
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	55.00	130.00
tblConstructionPhase	NumDays	740.00	152.00
tblConstructionPhase	NumDays	50.00	88.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	50.00	45.00
tblConstructionPhase	NumDays	75.00	105.00
tblConstructionPhase	NumDays	75.00	107.00
tblConstructionPhase	NumDays	55.00	10.00
tblConstructionPhase	NumDays	55.00	7.00
tblConstructionPhase	NumDays	30.00	5.00
tblConstructionPhase	NumDays	30.00	31.00
tblGrading	MaterialExported	0.00	252,000.00
tblGrading	MaterialExported	0.00	39,000.00
tblLandUse	LotAcreage	65.91	17.49
tblLandUse	Population	581.00	682.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	7,040.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,500.00
tblTripsAndVMT	HaulingTripNumber	0.00	4,500.00
tblTripsAndVMT	VendorTripNumber	155.00	11.00
tblTripsAndVMT	WorkerTripNumber	416.00	36.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	9.25
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	9.54	9.80
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	8.55	9.80
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.44	9.80

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.1972	39.2721	26.1625	0.0994	1.5656	1.4066	2.9722	0.4279	1.3076	1.7355	0.0000	10,145.9689	10,145.9689	1.5238	0.8150	10,426.9219
2024	4.4104	73.8778	40.4173	0.2528	14.9190	1.7950	16.7141	5.1861	1.6639	6.8500	0.0000	26,429.8470	26,429.8470	2.7739	3.0025	27,393.9539
2025	38.3312	35.7514	33.5735	0.1471	3.8771	0.9381	4.5378	1.0621	0.8639	1.6789	0.0000	15,615.4530	15,615.4530	2.1304	2.1053	16,268.1305
2026	38.3142	9.0653	14.8807	0.0285	1.0450	0.3893	1.4343	0.2787	0.3643	0.6430	0.0000	2,799.4747	2,799.4747	0.4861	0.0476	2,825.8258
Maximum	**38.3312**	**73.8778**	**40.4173**	**0.2528**	**14.9190**	**1.7950**	**16.7141**	**5.1861**	**1.6639**	**6.8500**	**0.0000**	**26,429.8470**	**26,429.8470**	**2.7739**	**3.0025**	**27,393.9539**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.8294	12.7743	31.3288	0.0994	1.5656	0.1709	1.7365	0.4279	0.1670	0.5948	0.0000	10,145.9689	10,145.9689	1.5238	0.8150	10,426.9219
2024	1.6184	42.1736	48.3707	0.2528	9.7078	0.4629	10.1707	3.1539	0.4482	3.6021	0.0000	26,429.8470	26,429.8470	2.7739	3.0025	27,393.9539
2025	37.6281	28.3851	43.5901	0.1471	3.8771	0.2796	4.1567	1.0621	0.2691	1.3312	0.0000	15,615.4530	15,615.4530	2.1304	2.1053	16,268.1305
2026	37.6111	1.5224	15.5974	0.0285	1.0450	0.0362	1.0812	0.2787	0.0358	0.3145	0.0000	2,799.4747	2,799.4747	0.4861	0.0476	2,825.8258
Maximum	**37.6281**	**42.1736**	**48.3707**	**0.2528**	**9.7078**	**0.4629**	**10.1707**	**3.1539**	**0.4482**	**3.6021**	**0.0000**	**26,429.8470**	**26,429.8470**	**2.7739**	**3.0025**	**27,393.9539**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**7.79**	**46.28**	**-20.74**	**0.00**	**24.34**	**79.03**	**33.18**	**29.22**	**78.09**	**46.43**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	220.2461	4.2439	288.8723	0.5133		38.5663	38.5663		38.5663	38.5663	4,136.8027	1,284.1126	5,420.9153	5.1442	0.2919	5,636.5090
Energy	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Mobile	5.2048	6.0753	49.2842	0.1233	14.1075	0.0837	14.1912	3.7576	0.0781	3.8357		12,559.5367	12,559.5367	0.6193	0.5542	12,740.1812
Total	**225.6823**	**12.2972**	**338.9982**	**0.6492**	**14.1075**	**38.8100**	**52.9174**	**3.7576**	**38.8044**	**42.5620**	**4,136.8027**	**16,368.7102**	**20,505.5129**	**5.8119**	**0.8924**	**20,916.7563**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.1863	2.8648	17.9305	0.0179		0.3091	0.3091		0.3091	0.3091	0.0000	3,440.6890	3,440.6890	0.0946	0.0625	3,461.6859
Energy	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Mobile	5.2048	6.0753	49.2842	0.1233	14.1075	0.0837	14.1912	3.7576	0.0781	3.8357		12,559.5367	12,559.5367	0.6193	0.5542	12,740.1812
Total	**15.6225**	**10.9180**	**68.0564**	**0.1539**	**14.1075**	**0.5527**	**14.6601**	**3.7576**	**0.5471**	**4.3047**	**0.0000**	**18,525.2866**	**18,525.2866**	**0.7623**	**0.6630**	**18,741.9332**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	93.08	11.22	79.92	76.30	0.00	98.58	72.30	0.00	98.59	89.89	100.00	-13.17	9.66	86.88	25.70	10.40

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Pick-n-Pull Inventroy Removal	Demolition	9/26/2023	1/25/2024	5	88	
2	Demolition	Demolition	1/26/2024	3/28/2024	5	45	
3	Mobilization	Site Preparation	3/29/2024	4/4/2024	5	5	
4	Remedial Soil Cleanup	Site Preparation	4/10/2024	5/22/2024	5	31	
5	Soil Import	Grading	5/23/2024	10/16/2024	5	105	
6	Grading	Grading	5/23/2024	10/18/2024	5	107	
7	Underground Utilities	Trenching	10/19/2024	9/25/2025	5	244	
8	Jack and Bore Prep	Trenching	3/1/2025	3/10/2025	5	6	
9	Jack and Bore	Trenching	3/11/2025	4/21/2025	5	30	
10	Jack and Bore Final	Trenching	4/22/2025	4/29/2025	5	6	
11	Off-Site Street Improvements	Paving	5/1/2025	5/14/2025	5	10	
12	Paving	Paving	9/26/2025	10/6/2025	5	7	
13	Building Construction	Building Construction	10/7/2025	5/6/2026	5	152	
14	Architectural Coating	Architectural Coating	11/6/2025	5/6/2026	5	130	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 13.83

Residential Indoor: 739,935; Residential Outdoor: 246,645; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 36,144 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Pick-n-Pull Inventroy Removal	Concrete/Industrial Saws	1	8.00	81	0.73
Pick-n-Pull Inventroy Removal	Cranes	2	8.00	231	0.29
Pick-n-Pull Inventroy Removal	Excavators	3	8.00	158	0.38
Pick-n-Pull Inventroy Removal	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Off-Highway Trucks	1	8.00	402	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Mobilization	Cranes	1	2.00	231	0.29
Mobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Remedial Soil Cleanup	Excavators	2	8.00	158	0.38
Remedial Soil Cleanup	Off-Highway Trucks	1	8.00	402	0.38
Remedial Soil Cleanup	Rubber Tired Dozers	1	8.00	247	0.40
Remedial Soil Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Soil Import	Graders	0	8.00	187	0.41
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Underground Utilities	Cranes	1	2.00	231	0.29
Underground Utilities	Excavators	2	8.00	158	0.38
Underground Utilities	Off-Highway Trucks	1	8.00	402	0.38
Underground Utilities	Rubber Tired Loaders	1	8.00	203	0.36
Underground Utilities	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Jack and Bore Prep	Cranes	1	2.00	231	0.29

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Jack and Bore Prep	Excavators	1	8.00	158	0.38
Jack and Bore Prep	Skid Steer Loaders	1	8.00	65	0.37
Jack and Bore Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Jack and Bore	Bore/Drill Rigs	1	8.00	221	0.50
Jack and Bore	Cranes	1	2.00	231	0.29
Jack and Bore	Excavators	1	8.00	158	0.38
Jack and Bore	Pumps	1	8.00	84	0.74
Jack and Bore Final	Cranes	1	2.00	231	0.29
Jack and Bore Final	Skid Steer Loaders	1	8.00	65	0.37
Jack and Bore Final	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Off-Site Street Improvements	Pavers	2	8.00	130	0.42
Off-Site Street Improvements	Paving Equipment	2	8.00	132	0.36
Off-Site Street Improvements	Rollers	2	8.00	80	0.38
Off-Site Street Improvements	Surfacing Equipment	1	8.00	263	0.30
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	2.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	2.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Pick-n-Pull Inventroy Removal	8	20.00	0.00	7,040.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition	7	18.00	0.00	80.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization	2	5.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Remedial Soil Cleanup	6	15.00	0.00	4,875.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Soil Import	0	0.00	0.00	31,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	9	23.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Underground Utilities	7	18.00	0.00	4,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore Prep	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore Final	3	8.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Off-Site Street Improvements	7	18.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	1,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	36.00	11.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	83.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Pick-n-Pull Inventroy Removal - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9719	29.1155	23.3122	0.0504		1.3162	1.3162		1.2212	1.2212		4,864.622 5	4,864.622 5	1.4108		4,899.893 4
Total	**2.9719**	**29.1155**	**23.3122**	**0.0504**		**1.3162**	**1.3162**		**1.2212**	**1.2212**		**4,864.622 5**	**4,864.622 5**	**1.4108**		**4,899.893 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1697	10.1250	2.3712	0.0476	1.4013	0.0896	1.4908	0.3843	0.0857	0.4699		5,136.121 6	5,136.121 6	0.1092	0.8115	5,380.664 4
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0556	0.0316	0.4792	1.4400e-003	0.1643	8.2000e-004	0.1651	0.0436	7.6000e-004	0.0443		145.2248	145.2248	3.7700e-003	3.5100e-003	146.3640
Total	**0.2253**	**10.1567**	**2.8503**	**0.0491**	**1.5656**	**0.0904**	**1.6559**	**0.4279**	**0.0864**	**0.5143**		**5,281.346 4**	**5,281.346 4**	**0.1130**	**0.8150**	**5,527.028 4**

3.2 Pick-n-Pull Inventroy Removal - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6041	2.6176	28.4785	0.0504		0.0805	0.0805		0.0805	0.0805	0.0000	4,864.6225	4,864.6225	1.4108		4,899.8934
Total	**0.6041**	**2.6176**	**28.4785**	**0.0504**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**0.0000**	**4,864.6225**	**4,864.6225**	**1.4108**		**4,899.8934**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1697	10.1250	2.3712	0.0476	1.4013	0.0896	1.4908	0.3843	0.0857	0.4699		5,136.1216	5,136.1216	0.1092	0.8115	5,380.6644
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0556	0.0316	0.4792	1.4400e-003	0.1643	8.2000e-004	0.1651	0.0436	7.6000e-004	0.0443		145.2248	145.2248	3.7700e-003	3.5100e-003	146.3640
Total	**0.2253**	**10.1567**	**2.8503**	**0.0491**	**1.5656**	**0.0904**	**1.6559**	**0.4279**	**0.0864**	**0.5143**		**5,281.3464**	**5,281.3464**	**0.1130**	**0.8150**	**5,527.0284**

3.2 Pick-n-Pull Inventroy Removal - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9072	27.8867	23.2568	0.0504		1.2518	1.2518		1.1605	1.1605		4,865.0374	4,865.0374	1.4099		4,900.2857
Total	**2.9072**	**27.8867**	**23.2568**	**0.0504**		**1.2518**	**1.2518**		**1.1605**	**1.1605**		**4,865.0374**	**4,865.0374**	**1.4099**		**4,900.2857**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1695	10.1708	2.3818	0.0469	1.4014	0.0904	1.4917	0.3843	0.0865	0.4708		5,060.8447	5,060.8447	0.1099	0.7997	5,301.8964
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0518	0.0282	0.4457	1.3900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		140.5045	140.5045	3.4100e-003	3.2700e-003	141.5644
Total	**0.2213**	**10.1991**	**2.8275**	**0.0483**	**1.5657**	**0.0912**	**1.6568**	**0.4279**	**0.0872**	**0.5151**		**5,201.3493**	**5,201.3493**	**0.1133**	**0.8030**	**5,443.4608**

3.2 Pick-n-Pull Inventroy Removal - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6041	2.6176	28.4785	0.0504		0.0805	0.0805		0.0805	0.0805	0.0000	4,865.0374	4,865.0374	1.4099		4,900.2857
Total	**0.6041**	**2.6176**	**28.4785**	**0.0504**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**0.0000**	**4,865.0374**	**4,865.0374**	**1.4099**		**4,900.2857**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1695	10.1708	2.3818	0.0469	1.4014	0.0904	1.4917	0.3843	0.0865	0.4708		5,060.8447	5,060.8447	0.1099	0.7997	5,301.8964
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0518	0.0282	0.4457	1.3900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		140.5045	140.5045	3.4100e-003	3.2700e-003	141.5644
Total	**0.2213**	**10.1991**	**2.8275**	**0.0483**	**1.5657**	**0.0912**	**1.6568**	**0.4279**	**0.0872**	**0.5151**		**5,201.3493**	**5,201.3493**	**0.1133**	**0.8030**	**5,443.4608**

3.3 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3828	0.0000	0.3828	0.0580	0.0000	0.0580			0.0000			0.0000
Off-Road	2.7408	24.2060	22.9576	0.0521		1.0800	1.0800		1.0024	1.0024		5,027.773 2	5,027.773 2	1.4626		5,064.337 2
Total	**2.7408**	**24.2060**	**22.9576**	**0.0521**	**0.3828**	**1.0800**	**1.4628**	**0.0580**	**1.0024**	**1.0604**		**5,027.773 2**	**5,027.773 2**	**1.4626**		**5,064.337 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7700e-003	0.2260	0.0529	1.0400e-003	0.0311	2.0100e-003	0.0332	8.5400e-003	1.9200e-003	0.0105		112.4632	112.4632	2.4400e-003	0.0178	117.8199
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0467	0.0254	0.4011	1.2500e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		126.4541	126.4541	3.0700e-003	2.9400e-003	127.4079
Total	**0.0504**	**0.2514**	**0.4540**	**2.2900e-003**	**0.1790**	**2.7100e-003**	**0.1817**	**0.0478**	**2.5700e-003**	**0.0503**		**238.9173**	**238.9173**	**5.5100e-003**	**0.0207**	**245.2279**

3.3 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1723	0.0000	0.1723	0.0261	0.0000	0.0261			0.0000			0.0000
Off-Road	0.6239	2.7037	29.2071	0.0521		0.0832	0.0832		0.0832	0.0832	0.0000	5,027.773 2	5,027.773 2	1.4626		5,064.337 2
Total	**0.6239**	**2.7037**	**29.2071**	**0.0521**	**0.1723**	**0.0832**	**0.2555**	**0.0261**	**0.0832**	**0.1093**	**0.0000**	**5,027.773 2**	**5,027.773 2**	**1.4626**		**5,064.337 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7700e-003	0.2260	0.0529	1.0400e-003	0.0311	2.0100e-003	0.0332	8.5400e-003	1.9200e-003	0.0105		112.4632	112.4632	2.4400e-003	0.0178	117.8199
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0467	0.0254	0.4011	1.2500e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		126.4541	126.4541	3.0700e-003	2.9400e-003	127.4079
Total	**0.0504**	**0.2514**	**0.4540**	**2.2900e-003**	**0.1790**	**2.7100e-003**	**0.1817**	**0.0478**	**2.5700e-003**	**0.0503**		**238.9173**	**238.9173**	**5.5100e-003**	**0.0207**	**245.2279**

3.4 Mobilization - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2269	2.3243	2.6793	4.5600e-003		0.1029	0.1029		0.0947	0.0947		441.4686	441.4686	0.1428		445.0381
Total	**0.2269**	**2.3243**	**2.6793**	**4.5600e-003**	**0.0000**	**0.1029**	**0.1029**	**0.0000**	**0.0947**	**0.0947**		**441.4686**	**441.4686**	**0.1428**		**445.0381**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0130	7.0600e-003	0.1114	3.5000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		35.1261	35.1261	8.5000e-004	8.2000e-004	35.3911
Total	**0.0130**	**7.0600e-003**	**0.1114**	**3.5000e-004**	**0.0411**	**2.0000e-004**	**0.0413**	**0.0109**	**1.8000e-004**	**0.0111**		**35.1261**	**35.1261**	**8.5000e-004**	**8.2000e-004**	**35.3911**

3.4 Mobilization - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0557	0.2414	2.9919	4.5600e-003		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003	0.0000	441.4686	441.4686	0.1428		445.0381
Total	**0.0557**	**0.2414**	**2.9919**	**4.5600e-003**	**0.0000**	**7.4300e-003**	**7.4300e-003**	**0.0000**	**7.4300e-003**	**7.4300e-003**	**0.0000**	**441.4686**	**441.4686**	**0.1428**		**445.0381**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0130	7.0600e-003	0.1114	3.5000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		35.1261	35.1261	8.5000e-004	8.2000e-004	35.3911
Total	**0.0130**	**7.0600e-003**	**0.1114**	**3.5000e-004**	**0.0411**	**2.0000e-004**	**0.0413**	**0.0109**	**1.8000e-004**	**0.0111**		**35.1261**	**35.1261**	**8.5000e-004**	**8.2000e-004**	**35.3911**

3.5 Remedial Soil Cleanup - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6946	0.0000	6.6946	3.3890	0.0000	3.3890			0.0000			0.0000
Off-Road	2.0606	17.9167	15.9035	0.0446		0.7349	0.7349		0.6762	0.6762		4,318.8904	4,318.8904	1.3968		4,353.8108
Total	**2.0606**	**17.9167**	**15.9035**	**0.0446**	**6.6946**	**0.7349**	**7.4296**	**3.3890**	**0.6762**	**4.0652**		**4,318.8904**	**4,318.8904**	**1.3968**		**4,353.8108**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3332	19.9930	4.6820	0.0922	2.7547	0.1777	2.9323	0.7554	0.1700	0.9254		9,948.2331	9,948.2331	0.2161	1.5719	10,422.0746
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0389	0.0212	0.3343	1.0400e-003	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		105.3784	105.3784	2.5600e-003	2.4500e-003	106.1733
Total	**0.3721**	**20.0142**	**5.0162**	**0.0932**	**2.8779**	**0.1783**	**3.0562**	**0.7881**	**0.1705**	**0.9586**		**10,053.6115**	**10,053.6115**	**0.2187**	**1.5744**	**10,528.2479**

3.5 Remedial Soil Cleanup - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0126	0.0000	3.0126	1.5251	0.0000	1.5251			0.0000			0.0000
Off-Road	0.5480	2.3744	23.2681	0.0446		0.0731	0.0731		0.0731	0.0731	0.0000	4,318.890 4	4,318.890 4	1.3968		4,353.810 8
Total	**0.5480**	**2.3744**	**23.2681**	**0.0446**	**3.0126**	**0.0731**	**3.0856**	**1.5251**	**0.0731**	**1.5981**	**0.0000**	**4,318.890 4**	**4,318.890 4**	**1.3968**		**4,353.810 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3332	19.9930	4.6820	0.0922	2.7547	0.1777	2.9323	0.7554	0.1700	0.9254		9,948.233 1	9,948.233 1	0.2161	1.5719	10,422.07 46
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0389	0.0212	0.3343	1.0400e-003	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		105.3784	105.3784	2.5600e-003	2.4500e-003	106.1733
Total	**0.3721**	**20.0142**	**5.0162**	**0.0932**	**2.8779**	**0.1783**	**3.0562**	**0.7881**	**0.1705**	**0.9586**		**10,053.61 15**	**10,053.61 15**	**0.2187**	**1.5744**	**10,528.24 79**

3.6 Soil Import - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2714	0.0000	0.2714	0.0411	0.0000	0.0411			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2714**	**0.0000**	**0.2714**	**0.0411**	**0.0000**	**0.0411**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6356	38.1406	8.9318	0.1759	5.2551	0.3389	5.5940	1.4411	0.3243	1.7654		18,978.1677	18,978.1677	0.4123	2.9988	19,882.1116
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6356**	**38.1406**	**8.9318**	**0.1759**	**5.2551**	**0.3389**	**5.5940**	**1.4411**	**0.3243**	**1.7654**		**18,978.1677**	**18,978.1677**	**0.4123**	**2.9988**	**19,882.1116**

3.6 Soil Import - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1221	0.0000	0.1221	0.0185	0.0000	0.0185			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1221**	**0.0000**	**0.1221**	**0.0185**	**0.0000**	**0.0185**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6356	38.1406	8.9318	0.1759	5.2551	0.3389	5.5940	1.4411	0.3243	1.7654		18,978.1677	18,978.1677	0.4123	2.9988	19,882.1116
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6356**	**38.1406**	**8.9318**	**0.1759**	**5.2551**	**0.3389**	**5.5940**	**1.4411**	**0.3243**	**1.7654**		**18,978.1677**	**18,978.1677**	**0.4123**	**2.9988**	**19,882.1116**

3.7 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.7152	35.7048	30.9730	0.0753		1.4552	1.4552		1.3388	1.3388		7,290.0991	7,290.0991	2.3578		7,349.0433
Total	**3.7152**	**35.7048**	**30.9730**	**0.0753**	**9.2036**	**1.4552**	**10.6588**	**3.6538**	**1.3388**	**4.9926**		**7,290.0991**	**7,290.0991**	**2.3578**		**7,349.0433**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0596	0.0325	0.5125	1.6000e-003	0.1889	9.0000e-004	0.1898	0.0501	8.3000e-004	0.0509		161.5802	161.5802	3.9200e-003	3.7600e-003	162.7990
Total	**0.0596**	**0.0325**	**0.5125**	**1.6000e-003**	**0.1889**	**9.0000e-004**	**0.1898**	**0.0501**	**8.3000e-004**	**0.0509**		**161.5802**	**161.5802**	**3.9200e-003**	**3.7600e-003**	**162.7990**

3.7 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	0.9232	4.0005	38.9264	0.0753		0.1231	0.1231		0.1231	0.1231	0.0000	7,290.0991	7,290.0991	2.3578		7,349.0432
Total	**0.9232**	**4.0005**	**38.9264**	**0.0753**	**4.1416**	**0.1231**	**4.2647**	**1.6442**	**0.1231**	**1.7673**	**0.0000**	**7,290.0991**	**7,290.0991**	**2.3578**		**7,349.0432**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0596	0.0325	0.5125	1.6000e-003	0.1889	9.0000e-004	0.1898	0.0501	8.3000e-004	0.0509		161.5802	161.5802	3.9200e-003	3.7600e-003	162.7990
Total	**0.0596**	**0.0325**	**0.5125**	**1.6000e-003**	**0.1889**	**9.0000e-004**	**0.1898**	**0.0501**	**8.3000e-004**	**0.0509**		**161.5802**	**161.5802**	**3.9200e-003**	**3.7600e-003**	**162.7990**

3.8 Underground Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4823	12.2339	16.1912	0.0375		0.5053	0.5053		0.4649	0.4649		3,629.6306	3,629.6306	1.1739		3,658.9780
Total	**1.4823**	**12.2339**	**16.1912**	**0.0375**		**0.5053**	**0.5053**		**0.4649**	**0.4649**		**3,629.6306**	**3,629.6306**	**1.1739**		**3,658.9780**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0391	2.3447	0.5491	0.0108	0.3231	0.0208	0.3439	0.0886	0.0199	0.1085		1,166.6906	1,166.6906	0.0253	0.1844	1,222.2610
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0467	0.0254	0.4011	1.2500e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		126.4541	126.4541	3.0700e-003	2.9400e-003	127.4079
Total	**0.0857**	**2.3701**	**0.9502**	**0.0121**	**0.4709**	**0.0215**	**0.4925**	**0.1278**	**0.0206**	**0.1484**		**1,293.1447**	**1,293.1447**	**0.0284**	**0.1873**	**1,349.6689**

3.8 Underground Utilities - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4597	1.9922	21.9329	0.0375		0.0613	0.0613		0.0613	0.0613	0.0000	3,629.6306	3,629.6306	1.1739		3,658.9780
Total	**0.4597**	**1.9922**	**21.9329**	**0.0375**		**0.0613**	**0.0613**		**0.0613**	**0.0613**	**0.0000**	**3,629.6306**	**3,629.6306**	**1.1739**		**3,658.9780**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0391	2.3447	0.5491	0.0108	0.3231	0.0208	0.3439	0.0886	0.0199	0.1085		1,166.6906	1,166.6906	0.0253	0.1844	1,222.2610
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0467	0.0254	0.4011	1.2500e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		126.4541	126.4541	3.0700e-003	2.9400e-003	127.4079
Total	**0.0857**	**2.3701**	**0.9502**	**0.0121**	**0.4709**	**0.0215**	**0.4925**	**0.1278**	**0.0206**	**0.1484**		**1,293.1447**	**1,293.1447**	**0.0284**	**0.1873**	**1,349.6689**

3.8 Underground Utilities - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3829	10.6302	16.0692	0.0375		0.4265	0.4265		0.3924	0.3924		3,629.7913	3,629.7913	1.1740		3,659.1400
Total	**1.3829**	**10.6302**	**16.0692**	**0.0375**		**0.4265**	**0.4265**		**0.3924**	**0.3924**		**3,629.7913**	**3,629.7913**	**1.1740**		**3,659.1400**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0389	2.3367	0.5500	0.0106	0.3231	0.0208	0.3439	0.0886	0.0199	0.1085		1,145.2641	1,145.2641	0.0255	0.1810	1,199.8375
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0437	0.0229	0.3751	1.2100e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		122.1957	122.1957	2.7900e-003	2.7600e-003	123.0881
Total	**0.0826**	**2.3596**	**0.9251**	**0.0118**	**0.4710**	**0.0215**	**0.4924**	**0.1278**	**0.0205**	**0.1483**		**1,267.4598**	**1,267.4598**	**0.0283**	**0.1838**	**1,322.9256**

3.8 Underground Utilities - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4597	1.9922	21.9329	0.0375		0.0613	0.0613		0.0613	0.0613	0.0000	3,629.7913	3,629.7913	1.1740		3,659.1400
Total	**0.4597**	**1.9922**	**21.9329**	**0.0375**		**0.0613**	**0.0613**		**0.0613**	**0.0613**	**0.0000**	**3,629.7913**	**3,629.7913**	**1.1740**		**3,659.1400**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0389	2.3367	0.5500	0.0106	0.3231	0.0208	0.3439	0.0886	0.0199	0.1085		1,145.2641	1,145.2641	0.0255	0.1810	1,199.8375
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0437	0.0229	0.3751	1.2100e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		122.1957	122.1957	2.7900e-003	2.7600e-003	123.0881
Total	**0.0826**	**2.3596**	**0.9251**	**0.0118**	**0.4710**	**0.0215**	**0.4924**	**0.1278**	**0.0205**	**0.1483**		**1,267.4598**	**1,267.4598**	**0.0283**	**0.1838**	**1,322.9256**

3.9 Jack and Bore Prep - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4367	4.1408	7.3024	0.0118		0.1717	0.1717		0.1580	0.1580		1,142.575 3	1,142.575 3	0.3695		1,151.813 6
Total	**0.4367**	**4.1408**	**7.3024**	**0.0118**		**0.1717**	**0.1717**		**0.1580**	**0.1580**		**1,142.575 3**	**1,142.575 3**	**0.3695**		**1,151.813 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0243	0.0127	0.2084	6.7000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		67.8865	67.8865	1.5500e-003	1.5300e-003	68.3823
Total	**0.0243**	**0.0127**	**0.2084**	**6.7000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**67.8865**	**67.8865**	**1.5500e-003**	**1.5300e-003**	**68.3823**

3.9 Jack and Bore Prep - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1701	1.6789	8.4793	0.0118		0.0193	0.0193		0.0193	0.0193	0.0000	1,142.5753	1,142.5753	0.3695		1,151.8136
Total	**0.1701**	**1.6789**	**8.4793**	**0.0118**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**1,142.5753**	**1,142.5753**	**0.3695**		**1,151.8136**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0243	0.0127	0.2084	6.7000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		67.8865	67.8865	1.5500e-003	1.5300e-003	68.3823
Total	**0.0243**	**0.0127**	**0.2084**	**6.7000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**67.8865**	**67.8865**	**1.5500e-003**	**1.5300e-003**	**68.3823**

3.10 Jack and Bore - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7408	6.3052	9.4452	0.0227		0.2557	0.2557		0.2433	0.2433		2,180.3292	2,180.3292	0.5289		2,193.5511
Total	**0.7408**	**6.3052**	**9.4452**	**0.0227**		**0.2557**	**0.2557**		**0.2433**	**0.2433**		**2,180.3292**	**2,180.3292**	**0.5289**		**2,193.5511**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0243	0.0127	0.2084	6.7000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		67.8865	67.8865	1.5500e-003	1.5300e-003	68.3823
Total	**0.0243**	**0.0127**	**0.2084**	**6.7000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**67.8865**	**67.8865**	**1.5500e-003**	**1.5300e-003**	**68.3823**

3.10 Jack and Bore - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2640	1.1439	12.9118	0.0227		0.0352	0.0352		0.0352	0.0352	0.0000	2,180.3292	2,180.3292	0.5289		2,193.5511
Total	**0.2640**	**1.1439**	**12.9118**	**0.0227**		**0.0352**	**0.0352**		**0.0352**	**0.0352**	**0.0000**	**2,180.3292**	**2,180.3292**	**0.5289**		**2,193.5511**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0243	0.0127	0.2084	6.7000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		67.8865	67.8865	1.5500e-003	1.5300e-003	68.3823
Total	**0.0243**	**0.0127**	**0.2084**	**6.7000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**67.8865**	**67.8865**	**1.5500e-003**	**1.5300e-003**	**68.3823**

3.11 Jack and Bore Final - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2696	2.9192	4.0430	6.6400e-003		0.1118	0.1118		0.1029	0.1029		642.2374	642.2374	0.2077		647.4302
Total	**0.2696**	**2.9192**	**4.0430**	**6.6400e-003**		**0.1118**	**0.1118**		**0.1029**	**0.1029**		**642.2374**	**642.2374**	**0.2077**		**647.4302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1667	5.4000e-004	0.0657	3.0000e-004	0.0660	0.0174	2.7000e-004	0.0177		54.3092	54.3092	1.2400e-003	1.2300e-003	54.7058
Total	**0.0194**	**0.0102**	**0.1667**	**5.4000e-004**	**0.0657**	**3.0000e-004**	**0.0660**	**0.0174**	**2.7000e-004**	**0.0177**		**54.3092**	**54.3092**	**1.2400e-003**	**1.2300e-003**	**54.7058**

3.11 Jack and Bore Final - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1066	1.4036	4.5613	6.6400e-003		0.0108	0.0108		0.0108	0.0108	0.0000	642.2374	642.2374	0.2077		647.4302
Total	**0.1066**	**1.4036**	**4.5613**	**6.6400e-003**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**642.2374**	**642.2374**	**0.2077**		**647.4302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0194	0.0102	0.1667	5.4000e-004	0.0657	3.0000e-004	0.0660	0.0174	2.7000e-004	0.0177		54.3092	54.3092	1.2400e-003	1.2300e-003	54.7058
Total	**0.0194**	**0.0102**	**0.1667**	**5.4000e-004**	**0.0657**	**3.0000e-004**	**0.0660**	**0.0174**	**2.7000e-004**	**0.0177**		**54.3092**	**54.3092**	**1.2400e-003**	**1.2300e-003**	**54.7058**

3.12 Off-Site Street Improvements - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0931	10.4280	16.2042	0.0296		0.4895	0.4895		0.4503	0.4503		2,861.1707	2,861.1707	0.9254		2,884.3047
Paving	3.4112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.5043**	**10.4280**	**16.2042**	**0.0296**		**0.4895**	**0.4895**		**0.4503**	**0.4503**		**2,861.1707**	**2,861.1707**	**0.9254**		**2,884.3047**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0437	0.0229	0.3751	1.2100e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		122.1957	122.1957	2.7900e-003	2.7600e-003	123.0881
Total	**0.0437**	**0.0229**	**0.3751**	**1.2100e-003**	**0.1479**	**6.7000e-004**	**0.1485**	**0.0392**	**6.2000e-004**	**0.0398**		**122.1957**	**122.1957**	**2.7900e-003**	**2.7600e-003**	**123.0881**

3.12 Off-Site Street Improvements - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3640	1.5772	20.3571	0.0296		0.0485	0.0485		0.0485	0.0485	0.0000	2,861.1707	2,861.1707	0.9254		2,884.3047
Paving	3.4112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7752**	**1.5772**	**20.3571**	**0.0296**		**0.0485**	**0.0485**		**0.0485**	**0.0485**	**0.0000**	**2,861.1707**	**2,861.1707**	**0.9254**		**2,884.3047**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0437	0.0229	0.3751	1.2100e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		122.1957	122.1957	2.7900e-003	2.7600e-003	123.0881
Total	**0.0437**	**0.0229**	**0.3751**	**1.2100e-003**	**0.1479**	**6.7000e-004**	**0.1485**	**0.0392**	**6.2000e-004**	**0.0398**		**122.1957**	**122.1957**	**2.7900e-003**	**2.7600e-003**	**123.0881**

3.13 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	4.8732					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.7884**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4518	27.1507	6.3903	0.1233	3.7539	0.2416	3.9955	1.0295	0.2312	1.2606		13,306.8781	13,306.8781	0.2964	2.1030	13,940.9693
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0365	0.0191	0.3126	1.0100e-003	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		101.8298	101.8298	2.3200e-003	2.3000e-003	102.5734
Total	**0.4883**	**27.1697**	**6.7029**	**0.1243**	**3.8771**	**0.2422**	**4.1193**	**1.0621**	**0.2317**	**1.2938**		**13,408.7079**	**13,408.7079**	**0.2987**	**2.1053**	**14,043.5427**

3.13 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	4.8732					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.1537**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Hauling	0.4518	27.1507	6.3903	0.1233	3.7539	0.2416	3.9955	1.0295	0.2312	1.2606		13,306.8781	13,306.8781	0.2964	2.1030	13,940.9693
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0365	0.0191	0.3126	1.0100e-003	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		101.8298	101.8298	2.3200e-003	2.3000e-003	102.5734
Total	**0.4883**	**27.1697**	**6.7029**	**0.1243**	**3.8771**	**0.2422**	**4.1193**	**1.0621**	**0.2317**	**1.2938**		**13,408.7079**	**13,408.7079**	**0.2987**	**2.1053**	**14,043.5427**

3.14 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7523	7.3511	10.6031	0.0159		0.3310	0.3310		0.3064	0.3064		1,532.4543	1,532.4543	0.4510		1,543.7295
Total	**0.7523**	**7.3511**	**10.6031**	**0.0159**		**0.3310**	**0.3310**		**0.3064**	**0.3064**		**1,532.4543**	**1,532.4543**	**0.4510**		**1,543.7295**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.4324	0.1338	1.9300e-003	0.0674	2.6500e-003	0.0701	0.0194	2.5400e-003	0.0220		206.5121	206.5121	2.9400e-003	0.0310	215.8095
Worker	0.0875	0.0458	0.7501	2.4200e-003	0.2957	1.3400e-003	0.2971	0.0784	1.2400e-003	0.0797		244.3914	244.3914	5.5700e-003	5.5200e-003	246.1761
Total	**0.0979**	**0.4781**	**0.8839**	**4.3500e-003**	**0.3632**	**3.9900e-003**	**0.3672**	**0.0979**	**3.7800e-003**	**0.1016**		**450.9035**	**450.9035**	**8.5100e-003**	**0.0365**	**461.9856**

3.14 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1904	0.8250	11.2966	0.0159		0.0254	0.0254		0.0254	0.0254	0.0000	1,532.454 3	1,532.454 3	0.4510		1,543.729 5
Total	**0.1904**	**0.8250**	**11.2966**	**0.0159**		**0.0254**	**0.0254**		**0.0254**	**0.0254**	**0.0000**	**1,532.454 3**	**1,532.454 3**	**0.4510**		**1,543.729 5**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.4324	0.1338	1.9300e-003	0.0674	2.6500e-003	0.0701	0.0194	2.5400e-003	0.0220		206.5121	206.5121	2.9400e-003	0.0310	215.8095
Worker	0.0875	0.0458	0.7501	2.4200e-003	0.2957	1.3400e-003	0.2971	0.0784	1.2400e-003	0.0797		244.3914	244.3914	5.5700e-003	5.5200e-003	246.1761
Total	**0.0979**	**0.4781**	**0.8839**	**4.3500e-003**	**0.3632**	**3.9900e-003**	**0.3672**	**0.0979**	**3.7800e-003**	**0.1016**		**450.9035**	**450.9035**	**8.5100e-003**	**0.0365**	**461.9856**

3.14 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7523	7.3511	10.6031	0.0159		0.3310	0.3310		0.3064	0.3064		1,532.4543	1,532.4543	0.4510		1,543.7295
Total	**0.7523**	**7.3511**	**10.6031**	**0.0159**		**0.3310**	**0.3310**		**0.3064**	**0.3064**		**1,532.4543**	**1,532.4543**	**0.4510**		**1,543.7295**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0103	0.4310	0.1320	1.9000e-003	0.0674	2.6400e-003	0.0701	0.0194	2.5300e-003	0.0220		202.7210	202.7210	2.9400e-003	0.0304	211.8513
Worker	0.0824	0.0417	0.7068	2.3400e-003	0.2957	1.2800e-003	0.2970	0.0784	1.1800e-003	0.0796		236.8290	236.8290	5.0800e-003	5.2200e-003	238.5115
Total	**0.0927**	**0.4727**	**0.8388**	**4.2400e-003**	**0.3632**	**3.9200e-003**	**0.3671**	**0.0979**	**3.7100e-003**	**0.1016**		**439.5500**	**439.5500**	**8.0200e-003**	**0.0356**	**450.3628**

3.14 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1904	0.8250	11.2966	0.0159		0.0254	0.0254		0.0254	0.0254	0.0000	1,532.4543	1,532.4543	0.4510		1,543.7295
Total	**0.1904**	**0.8250**	**11.2966**	**0.0159**		**0.0254**	**0.0254**		**0.0254**	**0.0254**	**0.0000**	**1,532.4543**	**1,532.4543**	**0.4510**		**1,543.7295**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0103	0.4310	0.1320	1.9000e-003	0.0674	2.6400e-003	0.0701	0.0194	2.5300e-003	0.0220		202.7210	202.7210	2.9400e-003	0.0304	211.8513
Worker	0.0824	0.0417	0.7068	2.3400e-003	0.2957	1.2800e-003	0.2970	0.0784	1.1800e-003	0.0796		236.8290	236.8290	5.0800e-003	5.2200e-003	238.5115
Total	**0.0927**	**0.4727**	**0.8388**	**4.2400e-003**	**0.3632**	**3.9200e-003**	**0.3671**	**0.0979**	**3.7100e-003**	**0.1016**		**439.5500**	**439.5500**	**8.0200e-003**	**0.0356**	**450.3628**

3.15 Architectural Coating - 2025

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**37.2792**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2017	0.1055	1.7295	5.5700e-003	0.6818	3.0900e-003	0.6849	0.1809	2.8500e-003	0.1837		563.4580	563.4580	0.0129	0.0127	567.5727
Total	**0.2017**	**0.1055**	**1.7295**	**5.5700e-003**	**0.6818**	**3.0900e-003**	**0.6849**	**0.1809**	**2.8500e-003**	**0.1837**		**563.4580**	**563.4580**	**0.0129**	**0.0127**	**567.5727**

3.15 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**37.1381**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2017	0.1055	1.7295	5.5700e-003	0.6818	3.0900e-003	0.6849	0.1809	2.8500e-003	0.1837		563.4580	563.4580	0.0129	0.0127	567.5727
Total	**0.2017**	**0.1055**	**1.7295**	**5.5700e-003**	**0.6818**	**3.0900e-003**	**0.6849**	**0.1809**	**2.8500e-003**	**0.1837**		**563.4580**	**563.4580**	**0.0129**	**0.0127**	**567.5727**

3.15 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**37.2792**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1900	0.0961	1.6296	5.4000e-003	0.6818	2.9500e-003	0.6848	0.1809	2.7100e-003	0.1836		546.0223	546.0223	0.0117	0.0120	549.9016
Total	**0.1900**	**0.0961**	**1.6296**	**5.4000e-003**	**0.6818**	**2.9500e-003**	**0.6848**	**0.1809**	**2.7100e-003**	**0.1836**		**546.0223**	**546.0223**	**0.0117**	**0.0120**	**549.9016**

3.15 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**37.1381**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1900	0.0961	1.6296	5.4000e-003	0.6818	2.9500e-003	0.6848	0.1809	2.7100e-003	0.1836		546.0223	546.0223	0.0117	0.0120	549.9016
Total	**0.1900**	**0.0961**	**1.6296**	**5.4000e-003**	**0.6818**	**2.9500e-003**	**0.6848**	**0.1809**	**2.7100e-003**	**0.1836**		**546.0223**	**546.0223**	**0.0117**	**0.0120**	**549.9016**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2048	6.0753	49.2842	0.1233	14.1075	0.0837	14.1912	3.7576	0.0781	3.8357		12,559.5367	12,559.5367	0.6193	0.5542	12,740.1812
Unmitigated	5.2048	6.0753	49.2842	0.1233	14.1075	0.0837	14.1912	3.7576	0.0781	3.8357		12,559.5367	12,559.5367	0.6193	0.5542	12,740.1812

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	1,989.40	1,989.40	1989.40	6,698,310	6,698,310
Total	1,989.40	1,989.40	1,989.40	6,698,310	6,698,310

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	9.25	4.80	5.70	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Other Asphalt Surfaces	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Other Non-Asphalt Surfaces	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Parking Lot	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Single Family Housing	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
NaturalGas Unmitigated	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	21463	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Total		**0.2315**	**1.9780**	**0.8417**	**0.0126**		**0.1599**	**0.1599**		**0.1599**	**0.1599**		**2,525.0609**	**2,525.0609**	**0.0484**	**0.0463**	**2,540.0661**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	21.463	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Total		**0.2315**	**1.9780**	**0.8417**	**0.0126**		**0.1599**	**0.1599**		**0.1599**	**0.1599**		**2,525.0609**	**2,525.0609**	**0.0484**	**0.0463**	**2,540.0661**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.1863	2.8648	17.9305	0.0179		0.3091	0.3091		0.3091	0.3091	0.0000	3,440.6890	3,440.6890	0.0946	0.0625	3,461.6859
Unmitigated	220.2461	4.2439	288.8723	0.5133		38.5663	38.5663		38.5663	38.5663	4,136.8027	1,284.1126	5,420.9153	5.1442	0.2919	5,636.5090

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3217					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.0439					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	210.3725	4.0506	272.0786	0.5124		38.4733	38.4733		38.4733	38.4733	4,136.8027	1,253.8235	5,390.6263	5.1150	0.2919	5,605.4894
Landscaping	0.5081	0.1933	16.7937	8.9000e-004		0.0931	0.0931		0.0931	0.0931		30.2890	30.2890	0.0292		31.0196
Total	**220.2461**	**4.2439**	**288.8723**	**0.5133**		**38.5663**	**38.5663**		**38.5663**	**38.5663**	**4,136.8027**	**1,284.1126**	**5,420.9153**	**5.1442**	**0.2919**	**5,636.5090**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3217					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.0439					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3126	2.6715	1.1368	0.0171		0.2160	0.2160		0.2160	0.2160	0.0000	3,410.4000	3,410.4000	0.0654	0.0625	3,430.6663
Landscaping	0.5081	0.1933	16.7937	8.9000e-004		0.0931	0.0931		0.0931	0.0931		30.2890	30.2890	0.0292		31.0196
Total	**10.1863**	**2.8648**	**17.9305**	**0.0179**		**0.3091**	**0.3091**		**0.3091**	**0.3091**	**0.0000**	**3,440.6890**	**3,440.6890**	**0.0946**	**0.0625**	**3,461.6859**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

IPQ-35 Mowry Village

Alameda County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	256.55	1000sqft	5.89	256,550.00	0
Other Non-Asphalt Surfaces	35.35	1000sqft	0.81	35,350.00	0
Parking Lot	310.50	1000sqft	7.13	310,500.00	0
City Park	4.89	Acre	4.89	213,008.40	0
Single Family Housing	203.00	Dwelling Unit	17.49	365,400.00	682

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run 6: Updated construction schedule; SAFE Rule adjustments disabled.
Run 5: Soil hauling distance changed to default (20 miles); Tier 4 engine mitigation added; DU changed to 203 single-family, added off-site improvements.

Land Use - Land uses and areas per development plan and PD.
Parking Lot = private streets and sidewalks.
Other asphalt Surfaces = off-site street improvements.
Other non-asphalt Surfaces = off-site utilities.

Construction Phase - Schedule per applicant.
Jack and bore for utltities under UPRR tracks and canal.
Architectural Coatings assumed to be concurrent with building construction.

Off-road Equipment -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Max 3-story structures, limited use of cranes required.
Grid power to be used as soon a practical.
Wood frame construction, no welders.

Off-road Equipment - Off-Highway Trucks = water truck.

Off-road Equipment - Off-Highway Trucks = water truck.

Off-road Equipment - Off-highway truck = water truck.
Includes site cleanup and remedial soil removal.
Equipment adjusted for extened grading schedule.
Soil import, no scrapers.

Off-road Equipment - Equipment for jack and bore tunneling.

Off-road Equipment - Equipment for jack and bore pit filling and site cleanup.

Off-road Equipment - Equipment for jack and bore prep and pit excavations.

Off-road Equipment - Mobilization of equipment.

Off-road Equipment - Surfacing Equipment = pavement scarifier.

Off-road Equipment -

Off-road Equipment - Equipment for removal of Pick-N-Pull inventory.

Off-road Equipment - Equipment for removal of contaminated soil.
Off-Highway Trucks = water truck

Off-road Equipment - Import of fill soil during grading, no off-road equipment.

Off-road Equipment - Equipment for installation of underground utilities/infrastructure.
Off-Highway Trucks = water truck.

Trips and VMT - Inventory removal 40 loads per day.
Building const and arch coating trip from defaults for 100 homes concurrent.
4,500 haul trips during underground utilities for aggregate/concrete import.
1,500 haul trips during paving for asphalt import.

On-road Fugitive Dust - 0.2 miles of every demolition and soil haul trip assumed to be on unpaved on-site acess roads.

Demolition -

Grading - 39,000 CY vegetation and contaminated soil exported Remdial SoilCleanup.
252,000 CY soil imported during grading to raise building pads.

Architectural Coating - 100 g/L VOC limit for flat coating per BAAQMD Reg 8 Rule 3.

Vehicle Trips - Trip generation rates and miles from VMT analysis in Transproation Impact Analysis (Fehr & Peers 2021).

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves -
Area Coating - Residential flat coating VOC limits per BAAQMD Reg 8 Rule 3.

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Dust mitigation per BAAQMD Basic Construction Mitigation Measures (MM AIR-1).
Tier Tier 4 engines per MM AIR-2.

Area Mitigation - No wood-burning devices in new construction per BAAQMD Regulation 6, Rule 3.

Energy Mitigation - 2019 solar generation per CEC.

Water Mitigation - 20% potable water/waste water reduction per 2019 CALGreen, not included in defaults.

Waste Mitigation - 25% solid waste diversion per AB 341 not included in defaults.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Exterior	150.00	100.00
tblAreaCoating	Area_EF_Residential_Exterior	150	100
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	55.00	130.00
tblConstructionPhase	NumDays	740.00	152.00
tblConstructionPhase	NumDays	50.00	88.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	50.00	45.00
tblConstructionPhase	NumDays	75.00	105.00
tblConstructionPhase	NumDays	75.00	107.00
tblConstructionPhase	NumDays	55.00	10.00
tblConstructionPhase	NumDays	55.00	7.00
tblConstructionPhase	NumDays	30.00	5.00
tblConstructionPhase	NumDays	30.00	31.00
tblGrading	MaterialExported	0.00	252,000.00
tblGrading	MaterialExported	0.00	39,000.00
tblLandUse	LotAcreage	65.91	17.49
tblLandUse	Population	581.00	682.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	99.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	7,040.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,500.00
tblTripsAndVMT	HaulingTripNumber	0.00	4,500.00
tblTripsAndVMT	VendorTripNumber	155.00	11.00
tblTripsAndVMT	WorkerTripNumber	416.00	36.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TTP	54.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	HS_TTP	15.00	0.00
tblVehicleTrips	HW_TL	10.80	9.25
tblVehicleTrips	HW_TTP	31.00	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	9.54	9.80
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	8.55	9.80
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.44	9.80

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.1870	39.8753	26.1785	0.0994	1.5656	1.4067	2.9723	0.4279	1.3077	1.7356	0.0000	10,141.1947	10,141.1947	1.5238	0.8164	10,422.5838
2024	4.3700	76.1285	40.5288	0.2529	14.9190	1.7955	16.7145	5.1861	1.6643	6.8504	0.0000	26,439.1919	26,439.1919	2.7723	3.0065	27,404.4470
2025	38.3371	37.3526	33.5569	0.1472	3.8771	0.9382	4.5381	1.0621	0.8639	1.6792	0.0000	15,622.8964	15,622.8964	2.1311	2.1080	16,276.3625
2026	38.3205	9.1242	14.8139	0.0279	1.0450	0.3894	1.4344	0.2787	0.3643	0.6431	0.0000	2,744.0350	2,744.0350	0.4886	0.0504	2,771.2707
Maximum	**38.3371**	**76.1285**	**40.5288**	**0.2529**	**14.9190**	**1.7955**	**16.7145**	**5.1861**	**1.6643**	**6.8504**	**0.0000**	**26,439.1919**	**26,439.1919**	**2.7723**	**3.0065**	**27,404.4470**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.8192	13.3775	31.3447	0.0994	1.5656	0.1710	1.7366	0.4279	0.1671	0.5949	0.0000	10,141.1947	10,141.1947	1.5238	0.8164	10,422.5838
2024	1.5780	44.4242	48.4822	0.2529	9.7078	0.4634	10.1711	3.1539	0.4486	3.6025	0.0000	26,439.1919	26,439.1919	2.7723	3.0065	27,404.4470
2025	37.6340	29.9864	43.5735	0.1472	3.8771	0.2799	4.1570	1.0621	0.2694	1.3315	0.0000	15,622.8964	15,622.8964	2.1311	2.1080	16,276.3625
2026	37.6174	1.5813	15.5306	0.0279	1.0450	0.0362	1.0812	0.2787	0.0358	0.3145	0.0000	2,744.0350	2,744.0350	0.4886	0.0504	2,771.2707
Maximum	**37.6340**	**44.4242**	**48.4822**	**0.2529**	**9.7078**	**0.4634**	**10.1711**	**3.1539**	**0.4486**	**3.6025**	**0.0000**	**26,439.1919**	**26,439.1919**	**2.7723**	**3.0065**	**27,404.4470**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**7.80**	**45.00**	**-20.73**	**0.00**	**24.34**	**79.02**	**33.18**	**29.22**	**78.08**	**46.43**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	220.2461	4.2439	288.8723	0.5133		38.5663	38.5663		38.5663	38.5663	4,136.8027	1,284.1126	5,420.9153	5.1442	0.2919	5,636.5090
Energy	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Mobile	4.7435	6.9109	51.8933	0.1165	14.1075	0.0837	14.1912	3.7576	0.0782	3.8358		11,868.4726	11,868.4726	0.6859	0.5992	12,064.1870
Total	**225.2211**	**13.1328**	**341.6074**	**0.6424**	**14.1075**	**38.8100**	**52.9175**	**3.7576**	**38.8044**	**42.5620**	**4,136.8027**	**15,677.6460**	**19,814.4487**	**5.8785**	**0.9374**	**20,240.7620**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.1863	2.8648	17.9305	0.0179		0.3091	0.3091		0.3091	0.3091	0.0000	3,440.6890	3,440.6890	0.0946	0.0625	3,461.6859
Energy	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Mobile	4.7435	6.9109	51.8933	0.1165	14.1075	0.0837	14.1912	3.7576	0.0782	3.8358		11,868.4726	11,868.4726	0.6859	0.5992	12,064.1870
Total	**15.1612**	**11.7536**	**70.6656**	**0.1470**	**14.1075**	**0.5527**	**14.6602**	**3.7576**	**0.5471**	**4.3048**	**0.0000**	**17,834.2225**	**17,834.2225**	**0.8289**	**0.7080**	**18,065.9390**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	93.27	10.50	79.31	77.11	0.00	98.58	72.30	0.00	98.59	89.89	100.00	-13.76	9.99	85.90	24.47	10.74

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Pick-n-Pull Inventroy Removal	Demolition	9/26/2023	1/25/2024	5	88	
2	Demolition	Demolition	1/26/2024	3/28/2024	5	45	
3	Mobilization	Site Preparation	3/29/2024	4/4/2024	5	5	
4	Remedial Soil Cleanup	Site Preparation	4/10/2024	5/22/2024	5	31	
5	Soil Import	Grading	5/23/2024	10/16/2024	5	105	
6	Grading	Grading	5/23/2024	10/18/2024	5	107	
7	Underground Utilities	Trenching	10/19/2024	9/25/2025	5	244	
8	Jack and Bore Prep	Trenching	3/1/2025	3/10/2025	5	6	
9	Jack and Bore	Trenching	3/11/2025	4/21/2025	5	30	
10	Jack and Bore Final	Trenching	4/22/2025	4/29/2025	5	6	
11	Off-Site Street Improvements	Paving	5/1/2025	5/14/2025	5	10	
12	Paving	Paving	9/26/2025	10/6/2025	5	7	
13	Building Construction	Building Construction	10/7/2025	5/6/2026	5	152	
14	Architectural Coating	Architectural Coating	11/6/2025	5/6/2026	5	130	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 13.83

Residential Indoor: 739,935; Residential Outdoor: 246,645; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 36,144 (Architectural Coating – sqft)

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Pick-n-Pull Inventroy Removal	Concrete/Industrial Saws	1	8.00	81	0.73
Pick-n-Pull Inventroy Removal	Cranes	2	8.00	231	0.29
Pick-n-Pull Inventroy Removal	Excavators	3	8.00	158	0.38
Pick-n-Pull Inventroy Removal	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Off-Highway Trucks	1	8.00	402	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Mobilization	Cranes	1	2.00	231	0.29
Mobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Remedial Soil Cleanup	Excavators	2	8.00	158	0.38
Remedial Soil Cleanup	Off-Highway Trucks	1	8.00	402	0.38
Remedial Soil Cleanup	Rubber Tired Dozers	1	8.00	247	0.40
Remedial Soil Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Soil Import	Graders	0	8.00	187	0.41
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Underground Utilities	Cranes	1	2.00	231	0.29
Underground Utilities	Excavators	2	8.00	158	0.38
Underground Utilities	Off-Highway Trucks	1	8.00	402	0.38
Underground Utilities	Rubber Tired Loaders	1	8.00	203	0.36
Underground Utilities	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Jack and Bore Prep	Cranes	1	2.00	231	0.29

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Jack and Bore Prep	Excavators	1	8.00	158	0.38
Jack and Bore Prep	Skid Steer Loaders	1	8.00	65	0.37
Jack and Bore Prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Jack and Bore	Bore/Drill Rigs	1	8.00	221	0.50
Jack and Bore	Cranes	1	2.00	231	0.29
Jack and Bore	Excavators	1	8.00	158	0.38
Jack and Bore	Pumps	1	8.00	84	0.74
Jack and Bore Final	Cranes	1	2.00	231	0.29
Jack and Bore Final	Skid Steer Loaders	1	8.00	65	0.37
Jack and Bore Final	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Off-Site Street Improvements	Pavers	2	8.00	130	0.42
Off-Site Street Improvements	Paving Equipment	2	8.00	132	0.36
Off-Site Street Improvements	Rollers	2	8.00	80	0.38
Off-Site Street Improvements	Surfacing Equipment	1	8.00	263	0.30
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	2.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	2.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Pick-n-Pull Inventroy Removal	8	20.00	0.00	7,040.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Demolition	7	18.00	0.00	80.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization	2	5.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Remedial Soil Cleanup	6	15.00	0.00	4,875.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Soil Import	0	0.00	0.00	31,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	9	23.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Underground Utilities	7	18.00	0.00	4,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore Prep	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Jack and Bore Final	3	8.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Off-Site Street Improvements	7	18.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	1,500.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	36.00	11.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	83.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Pick-n-Pull Inventroy Removal - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9719	29.1155	23.3122	0.0504		1.3162	1.3162		1.2212	1.2212		4,864.622 5	4,864.622 5	1.4108		4,899.893 4
Total	**2.9719**	**29.1155**	**23.3122**	**0.0504**		**1.3162**	**1.3162**		**1.2212**	**1.2212**		**4,864.622 5**	**4,864.622 5**	**1.4108**		**4,899.893 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1586	10.7206	2.4059	0.0477	1.4013	0.0897	1.4909	0.3843	0.0858	0.4701		5,141.760 4	5,141.760 4	0.1086	0.8124	5,386.562 5
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0565	0.0393	0.4604	1.3300e-003	0.1643	8.2000e-004	0.1651	0.0436	7.6000e-004	0.0443		134.8118	134.8118	4.3100e-003	4.0500e-003	136.1278
Total	**0.2151**	**10.7599**	**2.8663**	**0.0490**	**1.5656**	**0.0905**	**1.6561**	**0.4279**	**0.0866**	**0.5144**		**5,276.572 2**	**5,276.572 2**	**0.1129**	**0.8164**	**5,522.690 3**

3.2 Pick-n-Pull Inventroy Removal - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6041	2.6176	28.4785	0.0504		0.0805	0.0805		0.0805	0.0805	0.0000	4,864.622 5	4,864.622 5	1.4108		4,899.893 4
Total	**0.6041**	**2.6176**	**28.4785**	**0.0504**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**0.0000**	**4,864.622 5**	**4,864.622 5**	**1.4108**		**4,899.893 4**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1586	10.7206	2.4059	0.0477	1.4013	0.0897	1.4909	0.3843	0.0858	0.4701		5,141.760 4	5,141.760 4	0.1086	0.8124	5,386.562 5
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0565	0.0393	0.4604	1.3300e-003	0.1643	8.2000e-004	0.1651	0.0436	7.6000e-004	0.0443		134.8118	134.8118	4.3100e-003	4.0500e-003	136.1278
Total	**0.2151**	**10.7599**	**2.8663**	**0.0490**	**1.5656**	**0.0905**	**1.6561**	**0.4279**	**0.0866**	**0.5144**		**5,276.572 2**	**5,276.572 2**	**0.1129**	**0.8164**	**5,522.690 3**

3.2 Pick-n-Pull Inventroy Removal - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9072	27.8867	23.2568	0.0504		1.2518	1.2518		1.1605	1.1605		4,865.037 4	4,865.037 4	1.4099		4,900.285 7
Total	**2.9072**	**27.8867**	**23.2568**	**0.0504**		**1.2518**	**1.2518**		**1.1605**	**1.1605**		**4,865.037 4**	**4,865.037 4**	**1.4099**		**4,900.285 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1584	10.7689	2.4164	0.0470	1.4014	0.0905	1.4919	0.3843	0.0866	0.4709		5,066.419 4	5,066.419 4	0.1094	0.8006	5,307.726 9
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0529	0.0351	0.4298	1.2900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		130.4521	130.4521	3.9100e-003	3.7800e-003	131.6763
Total	**0.2113**	**10.8039**	**2.8462**	**0.0482**	**1.5657**	**0.0913**	**1.6569**	**0.4279**	**0.0873**	**0.5152**		**5,196.871 5**	**5,196.871 5**	**0.1133**	**0.8044**	**5,439.403 2**

3.2 Pick-n-Pull Inventroy Removal - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6041	2.6176	28.4785	0.0504		0.0805	0.0805		0.0805	0.0805	0.0000	4,865.037 4	4,865.037 4	1.4099		4,900.285 7
Total	**0.6041**	**2.6176**	**28.4785**	**0.0504**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**0.0000**	**4,865.037 4**	**4,865.037 4**	**1.4099**		**4,900.285 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1584	10.7689	2.4164	0.0470	1.4014	0.0905	1.4919	0.3843	0.0866	0.4709		5,066.419 4	5,066.419 4	0.1094	0.8006	5,307.726 9
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0529	0.0351	0.4298	1.2900e-003	0.1643	7.8000e-004	0.1651	0.0436	7.2000e-004	0.0443		130.4521	130.4521	3.9100e-003	3.7800e-003	131.6763
Total	**0.2113**	**10.8039**	**2.8462**	**0.0482**	**1.5657**	**0.0913**	**1.6569**	**0.4279**	**0.0873**	**0.5152**		**5,196.871 5**	**5,196.871 5**	**0.1133**	**0.8044**	**5,439.403 2**

3.3 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3828	0.0000	0.3828	0.0580	0.0000	0.0580			0.0000			0.0000
Off-Road	2.7408	24.2060	22.9576	0.0521		1.0800	1.0800		1.0024	1.0024		5,027.773 2	5,027.773 2	1.4626		5,064.337 2
Total	**2.7408**	**24.2060**	**22.9576**	**0.0521**	**0.3828**	**1.0800**	**1.4628**	**0.0580**	**1.0024**	**1.0604**		**5,027.773 2**	**5,027.773 2**	**1.4626**		**5,064.337 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.5200e-003	0.2393	0.0537	1.0400e-003	0.0311	2.0100e-003	0.0332	8.5400e-003	1.9200e-003	0.0105		112.5871	112.5871	2.4300e-003	0.0178	117.9495
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0476	0.0316	0.3868	1.1600e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		117.4068	117.4068	3.5200e-003	3.4000e-003	118.5087
Total	**0.0511**	**0.2709**	**0.4405**	**2.2000e-003**	**0.1790**	**2.7100e-003**	**0.1817**	**0.0478**	**2.5700e-003**	**0.0503**		**229.9939**	**229.9939**	**5.9500e-003**	**0.0212**	**236.4582**

3.3 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1723	0.0000	0.1723	0.0261	0.0000	0.0261			0.0000			0.0000
Off-Road	0.6239	2.7037	29.2071	0.0521		0.0832	0.0832		0.0832	0.0832	0.0000	5,027.773 2	5,027.773 2	1.4626		5,064.337 2
Total	**0.6239**	**2.7037**	**29.2071**	**0.0521**	**0.1723**	**0.0832**	**0.2555**	**0.0261**	**0.0832**	**0.1093**	**0.0000**	**5,027.773 2**	**5,027.773 2**	**1.4626**		**5,064.337 2**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.5200e-003	0.2393	0.0537	1.0400e-003	0.0311	2.0100e-003	0.0332	8.5400e-003	1.9200e-003	0.0105		112.5871	112.5871	2.4300e-003	0.0178	117.9495
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0476	0.0316	0.3868	1.1600e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		117.4068	117.4068	3.5200e-003	3.4000e-003	118.5087
Total	**0.0511**	**0.2709**	**0.4405**	**2.2000e-003**	**0.1790**	**2.7100e-003**	**0.1817**	**0.0478**	**2.5700e-003**	**0.0503**		**229.9939**	**229.9939**	**5.9500e-003**	**0.0212**	**236.4582**

3.4 Mobilization - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2269	2.3243	2.6793	4.5600e-003		0.1029	0.1029		0.0947	0.0947		441.4686	441.4686	0.1428		445.0381
Total	**0.2269**	**2.3243**	**2.6793**	**4.5600e-003**	**0.0000**	**0.1029**	**0.1029**	**0.0000**	**0.0947**	**0.0947**		**441.4686**	**441.4686**	**0.1428**		**445.0381**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0132	8.7600e-003	0.1075	3.2000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		32.6130	32.6130	9.8000e-004	9.5000e-004	32.9191
Total	**0.0132**	**8.7600e-003**	**0.1075**	**3.2000e-004**	**0.0411**	**2.0000e-004**	**0.0413**	**0.0109**	**1.8000e-004**	**0.0111**		**32.6130**	**32.6130**	**9.8000e-004**	**9.5000e-004**	**32.9191**

3.4 Mobilization - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0557	0.2414	2.9919	4.5600e-003		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003	0.0000	441.4686	441.4686	0.1428		445.0381
Total	**0.0557**	**0.2414**	**2.9919**	**4.5600e-003**	**0.0000**	**7.4300e-003**	**7.4300e-003**	**0.0000**	**7.4300e-003**	**7.4300e-003**	**0.0000**	**441.4686**	**441.4686**	**0.1428**		**445.0381**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0132	8.7600e-003	0.1075	3.2000e-004	0.0411	2.0000e-004	0.0413	0.0109	1.8000e-004	0.0111		32.6130	32.6130	9.8000e-004	9.5000e-004	32.9191
Total	**0.0132**	**8.7600e-003**	**0.1075**	**3.2000e-004**	**0.0411**	**2.0000e-004**	**0.0413**	**0.0109**	**1.8000e-004**	**0.0111**		**32.6130**	**32.6130**	**9.8000e-004**	**9.5000e-004**	**32.9191**

3.5 Remedial Soil Cleanup - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6946	0.0000	6.6946	3.3890	0.0000	3.3890			0.0000			0.0000
Off-Road	2.0606	17.9167	15.9035	0.0446		0.7349	0.7349		0.6762	0.6762		4,318.890 4	4,318.890 4	1.3968		4,353.810 8
Total	**2.0606**	**17.9167**	**15.9035**	**0.0446**	**6.6946**	**0.7349**	**7.4296**	**3.3890**	**0.6762**	**4.0652**		**4,318.890 4**	**4,318.890 4**	**1.3968**		**4,353.810 8**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3114	21.1687	4.7500	0.0923	2.7547	0.1779	2.9326	0.7554	0.1702	0.9256		9,959.191 4	9,959.191 4	0.2149	1.5737	10,433.53 58
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0396	0.0263	0.3223	9.7000e-004	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		97.8390	97.8390	2.9300e-003	2.8400e-003	98.7572
Total	**0.3510**	**21.1950**	**5.0723**	**0.0933**	**2.8779**	**0.1785**	**3.0564**	**0.7881**	**0.1707**	**0.9588**		**10,057.03 05**	**10,057.03 05**	**0.2179**	**1.5766**	**10,532.29 30**

3.5 Remedial Soil Cleanup - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0126	0.0000	3.0126	1.5251	0.0000	1.5251			0.0000			0.0000
Off-Road	0.5480	2.3744	23.2681	0.0446		0.0731	0.0731		0.0731	0.0731	0.0000	4,318.890 4	4,318.890 4	1.3968		4,353.810 8
Total	**0.5480**	**2.3744**	**23.2681**	**0.0446**	**3.0126**	**0.0731**	**3.0856**	**1.5251**	**0.0731**	**1.5981**	**0.0000**	**4,318.890 4**	**4,318.890 4**	**1.3968**		**4,353.810 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3114	21.1687	4.7500	0.0923	2.7547	0.1779	2.9326	0.7554	0.1702	0.9256		9,959.191 4	9,959.191 4	0.2149	1.5737	10,433.53 58
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0396	0.0263	0.3223	9.7000e-004	0.1232	5.9000e-004	0.1238	0.0327	5.4000e-004	0.0332		97.8390	97.8390	2.9300e-003	2.8400e-003	98.7572
Total	**0.3510**	**21.1950**	**5.0723**	**0.0933**	**2.8779**	**0.1785**	**3.0564**	**0.7881**	**0.1707**	**0.9588**		**10,057.03 05**	**10,057.03 05**	**0.2179**	**1.5766**	**10,532.29 30**

3.6 Soil Import - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2714	0.0000	0.2714	0.0411	0.0000	0.0411			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2714**	**0.0000**	**0.2714**	**0.0411**	**0.0000**	**0.0411**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5940	40.3834	9.0615	0.1761	5.2551	0.3394	5.5944	1.4411	0.3247	1.7658		18,999.0729	18,999.0729	0.4101	3.0022	19,903.9760
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5940**	**40.3834**	**9.0615**	**0.1761**	**5.2551**	**0.3394**	**5.5944**	**1.4411**	**0.3247**	**1.7658**		**18,999.0729**	**18,999.0729**	**0.4101**	**3.0022**	**19,903.9760**

3.6 Soil Import - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1221	0.0000	0.1221	0.0185	0.0000	0.0185			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1221**	**0.0000**	**0.1221**	**0.0185**	**0.0000**	**0.0185**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5940	40.3834	9.0615	0.1761	5.2551	0.3394	5.5944	1.4411	0.3247	1.7658		18,999.0729	18,999.0729	0.4101	3.0022	19,903.9760
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5940**	**40.3834**	**9.0615**	**0.1761**	**5.2551**	**0.3394**	**5.5944**	**1.4411**	**0.3247**	**1.7658**		**18,999.0729**	**18,999.0729**	**0.4101**	**3.0022**	**19,903.9760**

3.7 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.7152	35.7048	30.9730	0.0753		1.4552	1.4552		1.3388	1.3388		7,290.0991	7,290.0991	2.3578		7,349.0433
Total	**3.7152**	**35.7048**	**30.9730**	**0.0753**	**9.2036**	**1.4552**	**10.6588**	**3.6538**	**1.3388**	**4.9926**		**7,290.0991**	**7,290.0991**	**2.3578**		**7,349.0433**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0608	0.0403	0.4943	1.4800e-003	0.1889	9.0000e-004	0.1898	0.0501	8.3000e-004	0.0509		150.0199	150.0199	4.5000e-003	4.3500e-003	151.4277
Total	**0.0608**	**0.0403**	**0.4943**	**1.4800e-003**	**0.1889**	**9.0000e-004**	**0.1898**	**0.0501**	**8.3000e-004**	**0.0509**		**150.0199**	**150.0199**	**4.5000e-003**	**4.3500e-003**	**151.4277**

3.7 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	0.9232	4.0005	38.9264	0.0753		0.1231	0.1231		0.1231	0.1231	0.0000	7,290.0991	7,290.0991	2.3578		7,349.0432
Total	**0.9232**	**4.0005**	**38.9264**	**0.0753**	**4.1416**	**0.1231**	**4.2647**	**1.6442**	**0.1231**	**1.7673**	**0.0000**	**7,290.0991**	**7,290.0991**	**2.3578**		**7,349.0432**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0608	0.0403	0.4943	1.4800e-003	0.1889	9.0000e-004	0.1898	0.0501	8.3000e-004	0.0509		150.0199	150.0199	4.5000e-003	4.3500e-003	151.4277
Total	**0.0608**	**0.0403**	**0.4943**	**1.4800e-003**	**0.1889**	**9.0000e-004**	**0.1898**	**0.0501**	**8.3000e-004**	**0.0509**		**150.0199**	**150.0199**	**4.5000e-003**	**4.3500e-003**	**151.4277**

3.8 Underground Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4823	12.2339	16.1912	0.0375		0.5053	0.5053		0.4649	0.4649		3,629.6306	3,629.6306	1.1739		3,658.9780
Total	**1.4823**	**12.2339**	**16.1912**	**0.0375**		**0.5053**	**0.5053**		**0.4649**	**0.4649**		**3,629.6306**	**3,629.6306**	**1.1739**		**3,658.9780**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0365	2.4826	0.5571	0.0108	0.3231	0.0209	0.3439	0.0886	0.0200	0.1086		1,167.9758	1,167.9758	0.0252	0.1846	1,223.6051
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0476	0.0316	0.3868	1.1600e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		117.4068	117.4068	3.5200e-003	3.4000e-003	118.5087
Total	**0.0841**	**2.5141**	**0.9439**	**0.0120**	**0.4709**	**0.0216**	**0.4925**	**0.1278**	**0.0206**	**0.1484**		**1,285.3826**	**1,285.3826**	**0.0287**	**0.1880**	**1,342.1137**

3.8 Underground Utilities - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4597	1.9922	21.9329	0.0375		0.0613	0.0613		0.0613	0.0613	0.0000	3,629.6306	3,629.6306	1.1739		3,658.9780
Total	**0.4597**	**1.9922**	**21.9329**	**0.0375**		**0.0613**	**0.0613**		**0.0613**	**0.0613**	**0.0000**	**3,629.6306**	**3,629.6306**	**1.1739**		**3,658.9780**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0365	2.4826	0.5571	0.0108	0.3231	0.0209	0.3439	0.0886	0.0200	0.1086		1,167.9758	1,167.9758	0.0252	0.1846	1,223.6051
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0476	0.0316	0.3868	1.1600e-003	0.1479	7.0000e-004	0.1486	0.0392	6.5000e-004	0.0399		117.4068	117.4068	3.5200e-003	3.4000e-003	118.5087
Total	**0.0841**	**2.5141**	**0.9439**	**0.0120**	**0.4709**	**0.0216**	**0.4925**	**0.1278**	**0.0206**	**0.1484**		**1,285.3826**	**1,285.3826**	**0.0287**	**0.1880**	**1,342.1137**

3.8 Underground Utilities - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3829	10.6302	16.0692	0.0375		0.4265	0.4265		0.3924	0.3924		3,629.7913	3,629.7913	1.1740		3,659.1400
Total	**1.3829**	**10.6302**	**16.0692**	**0.0375**		**0.4265**	**0.4265**		**0.3924**	**0.3924**		**3,629.7913**	**3,629.7913**	**1.1740**		**3,659.1400**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0363	2.4742	0.5579	0.0106	0.3231	0.0208	0.3439	0.0886	0.0199	0.1085		1,146.5305	1,146.5305	0.0254	0.1812	1,201.1619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0284	0.3628	1.1200e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		113.4700	113.4700	3.2000e-003	3.1900e-003	114.5006
Total	**0.0811**	**2.5026**	**0.9207**	**0.0117**	**0.4710**	**0.0215**	**0.4924**	**0.1278**	**0.0205**	**0.1484**		**1,260.0005**	**1,260.0005**	**0.0286**	**0.1844**	**1,315.6626**

3.8 Underground Utilities - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4597	1.9922	21.9329	0.0375		0.0613	0.0613		0.0613	0.0613	0.0000	3,629.7913	3,629.7913	1.1740		3,659.1400
Total	**0.4597**	**1.9922**	**21.9329**	**0.0375**		**0.0613**	**0.0613**		**0.0613**	**0.0613**	**0.0000**	**3,629.7913**	**3,629.7913**	**1.1740**		**3,659.1400**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0363	2.4742	0.5579	0.0106	0.3231	0.0208	0.3439	0.0886	0.0199	0.1085		1,146.5305	1,146.5305	0.0254	0.1812	1,201.1619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0284	0.3628	1.1200e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		113.4700	113.4700	3.2000e-003	3.1900e-003	114.5006
Total	**0.0811**	**2.5026**	**0.9207**	**0.0117**	**0.4710**	**0.0215**	**0.4924**	**0.1278**	**0.0205**	**0.1484**		**1,260.0005**	**1,260.0005**	**0.0286**	**0.1844**	**1,315.6626**

3.9 Jack and Bore Prep - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4367	4.1408	7.3024	0.0118		0.1717	0.1717		0.1580	0.1580		1,142.5753	1,142.5753	0.3695		1,151.8136
Total	**0.4367**	**4.1408**	**7.3024**	**0.0118**		**0.1717**	**0.1717**		**0.1580**	**0.1580**		**1,142.5753**	**1,142.5753**	**0.3695**		**1,151.8136**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0248	0.0158	0.2016	6.2000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		63.0389	63.0389	1.7800e-003	1.7700e-003	63.6115
Total	**0.0248**	**0.0158**	**0.2016**	**6.2000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**63.0389**	**63.0389**	**1.7800e-003**	**1.7700e-003**	**63.6115**

3.9 Jack and Bore Prep - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1701	1.6789	8.4793	0.0118		0.0193	0.0193		0.0193	0.0193	0.0000	1,142.575 3	1,142.575 3	0.3695		1,151.813 6
Total	**0.1701**	**1.6789**	**8.4793**	**0.0118**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**1,142.575 3**	**1,142.575 3**	**0.3695**		**1,151.813 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0248	0.0158	0.2016	6.2000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		63.0389	63.0389	1.7800e-003	1.7700e-003	63.6115
Total	**0.0248**	**0.0158**	**0.2016**	**6.2000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**63.0389**	**63.0389**	**1.7800e-003**	**1.7700e-003**	**63.6115**

3.10 Jack and Bore - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7408	6.3052	9.4452	0.0227		0.2557	0.2557		0.2433	0.2433		2,180.329 2	2,180.329 2	0.5289		2,193.551 1
Total	**0.7408**	**6.3052**	**9.4452**	**0.0227**		**0.2557**	**0.2557**		**0.2433**	**0.2433**		**2,180.329 2**	**2,180.329 2**	**0.5289**		**2,193.551 1**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0248	0.0158	0.2016	6.2000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		63.0389	63.0389	1.7800e-003	1.7700e-003	63.6115
Total	**0.0248**	**0.0158**	**0.2016**	**6.2000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**63.0389**	**63.0389**	**1.7800e-003**	**1.7700e-003**	**63.6115**

3.10 Jack and Bore - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2640	1.1439	12.9118	0.0227		0.0352	0.0352		0.0352	0.0352	0.0000	2,180.3292	2,180.3292	0.5289		2,193.5511
Total	**0.2640**	**1.1439**	**12.9118**	**0.0227**		**0.0352**	**0.0352**		**0.0352**	**0.0352**	**0.0000**	**2,180.3292**	**2,180.3292**	**0.5289**		**2,193.5511**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0248	0.0158	0.2016	6.2000e-004	0.0822	3.7000e-004	0.0825	0.0218	3.4000e-004	0.0221		63.0389	63.0389	1.7800e-003	1.7700e-003	63.6115
Total	**0.0248**	**0.0158**	**0.2016**	**6.2000e-004**	**0.0822**	**3.7000e-004**	**0.0825**	**0.0218**	**3.4000e-004**	**0.0221**		**63.0389**	**63.0389**	**1.7800e-003**	**1.7700e-003**	**63.6115**

3.11 Jack and Bore Final - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2696	2.9192	4.0430	6.6400e-003		0.1118	0.1118		0.1029	0.1029		642.2374	642.2374	0.2077		647.4302
Total	**0.2696**	**2.9192**	**4.0430**	**6.6400e-003**		**0.1118**	**0.1118**		**0.1029**	**0.1029**		**642.2374**	**642.2374**	**0.2077**		**647.4302**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0199	0.0126	0.1612	5.0000e-004	0.0657	3.0000e-004	0.0660	0.0174	2.7000e-004	0.0177		50.4311	50.4311	1.4200e-003	1.4200e-003	50.8892
Total	**0.0199**	**0.0126**	**0.1612**	**5.0000e-004**	**0.0657**	**3.0000e-004**	**0.0660**	**0.0174**	**2.7000e-004**	**0.0177**		**50.4311**	**50.4311**	**1.4200e-003**	**1.4200e-003**	**50.8892**

3.11 Jack and Bore Final - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1066	1.4036	4.5613	6.6400e-003		0.0108	0.0108		0.0108	0.0108	0.0000	642.2374	642.2374	0.2077		647.4302
Total	**0.1066**	**1.4036**	**4.5613**	**6.6400e-003**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**642.2374**	**642.2374**	**0.2077**		**647.4302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0199	0.0126	0.1612	5.0000e-004	0.0657	3.0000e-004	0.0660	0.0174	2.7000e-004	0.0177		50.4311	50.4311	1.4200e-003	1.4200e-003	50.8892
Total	**0.0199**	**0.0126**	**0.1612**	**5.0000e-004**	**0.0657**	**3.0000e-004**	**0.0660**	**0.0174**	**2.7000e-004**	**0.0177**		**50.4311**	**50.4311**	**1.4200e-003**	**1.4200e-003**	**50.8892**

3.12 Off-Site Street Improvements - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0931	10.4280	16.2042	0.0296		0.4895	0.4895		0.4503	0.4503		2,861.1707	2,861.1707	0.9254		2,884.3047
Paving	3.4112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.5043**	**10.4280**	**16.2042**	**0.0296**		**0.4895**	**0.4895**		**0.4503**	**0.4503**		**2,861.1707**	**2,861.1707**	**0.9254**		**2,884.3047**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0284	0.3628	1.1200e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		113.4700	113.4700	3.2000e-003	3.1900e-003	114.5006
Total	**0.0447**	**0.0284**	**0.3628**	**1.1200e-003**	**0.1479**	**6.7000e-004**	**0.1485**	**0.0392**	**6.2000e-004**	**0.0398**		**113.4700**	**113.4700**	**3.2000e-003**	**3.1900e-003**	**114.5006**

3.12 Off-Site Street Improvements - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3640	1.5772	20.3571	0.0296		0.0485	0.0485		0.0485	0.0485	0.0000	2,861.170 7	2,861.170 7	0.9254		2,884.304 7
Paving	3.4112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7752**	**1.5772**	**20.3571**	**0.0296**		**0.0485**	**0.0485**		**0.0485**	**0.0485**	**0.0000**	**2,861.170 7**	**2,861.170 7**	**0.9254**		**2,884.304 7**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0284	0.3628	1.1200e-003	0.1479	6.7000e-004	0.1485	0.0392	6.2000e-004	0.0398		113.4700	113.4700	3.2000e-003	3.1900e-003	114.5006
Total	**0.0447**	**0.0284**	**0.3628**	**1.1200e-003**	**0.1479**	**6.7000e-004**	**0.1485**	**0.0392**	**6.2000e-004**	**0.0398**		**113.4700**	**113.4700**	**3.2000e-003**	**3.1900e-003**	**114.5006**

3.13 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.745 2	2,206.745 2	0.7137		2,224.587 8
Paving	4.8732					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.7884**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.745 2**	**2,206.745 2**	**0.7137**		**2,224.587 8**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4223	28.7473	6.4827	0.1234	3.7539	0.2419	3.9958	1.0295	0.2315	1.2609		13,321.59 29	13,321.59 29	0.2948	2.1054	13,956.35 75
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0373	0.0237	0.3023	9.4000e-004	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		94.5583	94.5583	2.6700e-003	2.6600e-003	95.4172
Total	**0.4595**	**28.7710**	**6.7850**	**0.1244**	**3.8771**	**0.2425**	**4.1196**	**1.0621**	**0.2320**	**1.2941**		**13,416.15 12**	**13,416.15 12**	**0.2975**	**2.1080**	**14,051.77 47**

3.13 Paving - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	4.8732					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**5.1537**	**1.2154**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4223	28.7473	6.4827	0.1234	3.7539	0.2419	3.9958	1.0295	0.2315	1.2609		13,321.5929	13,321.5929	0.2948	2.1054	13,956.3575
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0373	0.0237	0.3023	9.4000e-004	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		94.5583	94.5583	2.6700e-003	2.6600e-003	95.4172
Total	**0.4595**	**28.7710**	**6.7850**	**0.1244**	**3.8771**	**0.2425**	**4.1196**	**1.0621**	**0.2320**	**1.2941**		**13,416.1512**	**13,416.1512**	**0.2975**	**2.1080**	**14,051.7747**

3.14 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7523	7.3511	10.6031	0.0159		0.3310	0.3310		0.3064	0.3064		1,532.4543	1,532.4543	0.4510		1,543.7295
Total	**0.7523**	**7.3511**	**10.6031**	**0.0159**		**0.3310**	**0.3310**		**0.3064**	**0.3064**		**1,532.4543**	**1,532.4543**	**0.4510**		**1,543.7295**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9100e-003	0.4581	0.1385	1.9400e-003	0.0674	2.6600e-003	0.0701	0.0194	2.5500e-003	0.0220		206.9011	206.9011	2.9100e-003	0.0310	216.2224
Worker	0.0894	0.0568	0.7256	2.2500e-003	0.2957	1.3400e-003	0.2971	0.0784	1.2400e-003	0.0797		226.9400	226.9400	6.4100e-003	6.3800e-003	229.0013
Total	**0.0993**	**0.5149**	**0.8640**	**4.1900e-003**	**0.3632**	**4.0000e-003**	**0.3672**	**0.0979**	**3.7900e-003**	**0.1017**		**433.8411**	**433.8411**	**9.3200e-003**	**0.0374**	**445.2237**

3.14 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1904	0.8250	11.2966	0.0159		0.0254	0.0254		0.0254	0.0254	0.0000	1,532.4543	1,532.4543	0.4510		1,543.7295
Total	**0.1904**	**0.8250**	**11.2966**	**0.0159**		**0.0254**	**0.0254**		**0.0254**	**0.0254**	**0.0000**	**1,532.4543**	**1,532.4543**	**0.4510**		**1,543.7295**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9100e-003	0.4581	0.1385	1.9400e-003	0.0674	2.6600e-003	0.0701	0.0194	2.5500e-003	0.0220		206.9011	206.9011	2.9100e-003	0.0310	216.2224
Worker	0.0894	0.0568	0.7256	2.2500e-003	0.2957	1.3400e-003	0.2971	0.0784	1.2400e-003	0.0797		226.9400	226.9400	6.4100e-003	6.3800e-003	229.0013
Total	**0.0993**	**0.5149**	**0.8640**	**4.1900e-003**	**0.3632**	**4.0000e-003**	**0.3672**	**0.0979**	**3.7900e-003**	**0.1017**		**433.8411**	**433.8411**	**9.3200e-003**	**0.0374**	**445.2237**

3.14 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7523	7.3511	10.6031	0.0159		0.3310	0.3310		0.3064	0.3064		1,532.4543	1,532.4543	0.4510		1,543.7295
Total	**0.7523**	**7.3511**	**10.6031**	**0.0159**		**0.3310**	**0.3310**		**0.3064**	**0.3064**		**1,532.4543**	**1,532.4543**	**0.4510**		**1,543.7295**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7200e-003	0.4567	0.1366	1.9000e-003	0.0674	2.6500e-003	0.0701	0.0194	2.5300e-003	0.0220		203.1058	203.1058	2.9100e-003	0.0305	212.2593
Worker	0.0845	0.0517	0.6852	2.1800e-003	0.2957	1.2800e-003	0.2970	0.0784	1.1800e-003	0.0796		219.9409	219.9409	5.8600e-003	6.0300e-003	221.8841
Total	**0.0942**	**0.5084**	**0.8218**	**4.0800e-003**	**0.3632**	**3.9300e-003**	**0.3671**	**0.0979**	**3.7100e-003**	**0.1016**		**423.0467**	**423.0467**	**8.7700e-003**	**0.0365**	**434.1433**

3.14 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1904	0.8250	11.2966	0.0159		0.0254	0.0254		0.0254	0.0254	0.0000	1,532.4543	1,532.4543	0.4510		1,543.7295
Total	**0.1904**	**0.8250**	**11.2966**	**0.0159**		**0.0254**	**0.0254**		**0.0254**	**0.0254**	**0.0000**	**1,532.4543**	**1,532.4543**	**0.4510**		**1,543.7295**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7200e-003	0.4567	0.1366	1.9000e-003	0.0674	2.6500e-003	0.0701	0.0194	2.5300e-003	0.0220		203.1058	203.1058	2.9100e-003	0.0305	212.2593
Worker	0.0845	0.0517	0.6852	2.1800e-003	0.2957	1.2800e-003	0.2970	0.0784	1.1800e-003	0.0796		219.9409	219.9409	5.8600e-003	6.0300e-003	221.8841
Total	**0.0942**	**0.5084**	**0.8218**	**4.0800e-003**	**0.3632**	**3.9300e-003**	**0.3671**	**0.0979**	**3.7100e-003**	**0.1016**		**423.0467**	**423.0467**	**8.7700e-003**	**0.0365**	**434.1433**

3.15 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**37.2792**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2062	0.1310	1.6729	5.1800e-003	0.6818	3.0900e-003	0.6849	0.1809	2.8500e-003	0.1837		523.2227	523.2227	0.0148	0.0147	527.9752
Total	**0.2062**	**0.1310**	**1.6729**	**5.1800e-003**	**0.6818**	**3.0900e-003**	**0.6849**	**0.1809**	**2.8500e-003**	**0.1837**		**523.2227**	**523.2227**	**0.0148**	**0.0147**	**527.9752**

3.15 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**37.1381**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2062	0.1310	1.6729	5.1800e-003	0.6818	3.0900e-003	0.6849	0.1809	2.8500e-003	0.1837		523.2227	523.2227	0.0148	0.0147	527.9752
Total	**0.2062**	**0.1310**	**1.6729**	**5.1800e-003**	**0.6818**	**3.0900e-003**	**0.6849**	**0.1809**	**2.8500e-003**	**0.1837**		**523.2227**	**523.2227**	**0.0148**	**0.0147**	**527.9752**

3.15 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**37.2792**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1948	0.1192	1.5798	5.0200e-003	0.6818	2.9500e-003	0.6848	0.1809	2.7100e-003	0.1836		507.0860	507.0860	0.0135	0.0139	511.5660
Total	**0.1948**	**0.1192**	**1.5798**	**5.0200e-003**	**0.6818**	**2.9500e-003**	**0.6848**	**0.1809**	**2.7100e-003**	**0.1836**		**507.0860**	**507.0860**	**0.0135**	**0.0139**	**511.5660**

3.15 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	37.1084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**37.1381**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1948	0.1192	1.5798	5.0200e-003	0.6818	2.9500e-003	0.6848	0.1809	2.7100e-003	0.1836		507.0860	507.0860	0.0135	0.0139	511.5660
Total	**0.1948**	**0.1192**	**1.5798**	**5.0200e-003**	**0.6818**	**2.9500e-003**	**0.6848**	**0.1809**	**2.7100e-003**	**0.1836**		**507.0860**	**507.0860**	**0.0135**	**0.0139**	**511.5660**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.7435	6.9109	51.8933	0.1165	14.1075	0.0837	14.1912	3.7576	0.0782	3.8358		11,868.4726	11,868.4726	0.6859	0.5992	12,064.1870
Unmitigated	4.7435	6.9109	51.8933	0.1165	14.1075	0.0837	14.1912	3.7576	0.0782	3.8358		11,868.4726	11,868.4726	0.6859	0.5992	12,064.1870

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	1,989.40	1,989.40	1989.40	6,698,310	6,698,310
Total	1,989.40	1,989.40	1,989.40	6,698,310	6,698,310

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	9.25	4.80	5.70	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Other Asphalt Surfaces	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Other Non-Asphalt Surfaces	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Parking Lot	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Single Family Housing	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
NaturalGas Unmitigated	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	21463	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Total		**0.2315**	**1.9780**	**0.8417**	**0.0126**		**0.1599**	**0.1599**		**0.1599**	**0.1599**		**2,525.0609**	**2,525.0609**	**0.0484**	**0.0463**	**2,540.0661**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	21.463	0.2315	1.9780	0.8417	0.0126		0.1599	0.1599		0.1599	0.1599		2,525.0609	2,525.0609	0.0484	0.0463	2,540.0661
Total		**0.2315**	**1.9780**	**0.8417**	**0.0126**		**0.1599**	**0.1599**		**0.1599**	**0.1599**		**2,525.0609**	**2,525.0609**	**0.0484**	**0.0463**	**2,540.0661**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.1863	2.8648	17.9305	0.0179		0.3091	0.3091		0.3091	0.3091	0.0000	3,440.6890	3,440.6890	0.0946	0.0625	3,461.6859
Unmitigated	220.2461	4.2439	288.8723	0.5133		38.5663	38.5663		38.5663	38.5663	4,136.8027	1,284.1126	5,420.9153	5.1442	0.2919	5,636.5090

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3217					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.0439					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	210.3725	4.0506	272.0786	0.5124		38.4733	38.4733		38.4733	38.4733	4,136.8027	1,253.8235	5,390.6263	5.1150	0.2919	5,605.4894
Landscaping	0.5081	0.1933	16.7937	8.9000e-004		0.0931	0.0931		0.0931	0.0931		30.2890	30.2890	0.0292		31.0196
Total	**220.2461**	**4.2439**	**288.8723**	**0.5133**		**38.5663**	**38.5663**		**38.5663**	**38.5663**	**4,136.8027**	**1,284.1126**	**5,420.9153**	**5.1442**	**0.2919**	**5,636.5090**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3217					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.0439					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3126	2.6715	1.1368	0.0171		0.2160	0.2160		0.2160	0.2160	0.0000	3,410.4000	3,410.4000	0.0654	0.0625	3,430.6663
Landscaping	0.5081	0.1933	16.7937	8.9000e-004		0.0931	0.0931		0.0931	0.0931		30.2890	30.2890	0.0292		31.0196
Total	**10.1863**	**2.8648**	**17.9305**	**0.0179**		**0.3091**	**0.3091**		**0.3091**	**0.3091**	**0.0000**	**3,440.6890**	**3,440.6890**	**0.0946**	**0.0625**	**3,461.6859**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

IPQ-35 Existing Uses

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.50	1000sqft	0.03	1,500.00	0
General Light Industry	3.00	1000sqft	0.07	3,000.00	0
Unrefrigerated Warehouse-No Rail	13.00	1000sqft	0.30	13,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Model for existing project site land use operations only--no construction.
Run 4: Updated operaitonal yeat, new CalEEMod version.

Land Use - Existing "Pick-n-Pull" business buildings.

Construction Phase - No construction this model.

Off-road Equipment - No construction this model.

Trips and VMT - No construction this model.

Vehicle Trips - Existing use (Pick-n-Pull) daily trips of 920 per Transportation Impact Analysis (Fehr & Peers 2020).

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Water Mitigation - 20% potable water/waste water reduction per 2019 CALGreen, not included in defaults.

Waste Mitigation - 25% solid waste diversion per AB 341 not included in defaults.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	ST_TR	2.21	613.33
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	SU_TR	0.70	613.33
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblVehicleTrips	WD_TR	9.74	613.33
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0775	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.1000e-004	3.1000e-004	0.0000	0.0000	3.3000e-004
Energy	7.4000e-004	6.7400e-003	5.6700e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	17.0321	17.0321	1.7100e-003	3.2000e-004	17.1715
Mobile	0.3357	0.4257	3.1883	7.0500e-003	0.8114	5.2000e-003	0.8166	0.2168	4.8500e-003	0.2216	0.0000	675.8095	675.8095	0.0400	0.0338	686.8842
Waste						0.0000	0.0000		0.0000	0.0000	3.5199	0.0000	3.5199	0.2080	0.0000	8.7203
Water						0.0000	0.0000		0.0000	0.0000	1.2584	2.0388	3.2972	0.1296	3.0900e-003	7.4581
Total	**0.4139**	**0.4324**	**3.1941**	**7.0900e-003**	**0.8114**	**5.7100e-003**	**0.8171**	**0.2168**	**5.3600e-003**	**0.2221**	**4.7783**	**694.8806**	**699.6589**	**0.3793**	**0.0372**	**720.2345**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0775	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.1000e-004	3.1000e-004	0.0000	0.0000	3.3000e-004
Energy	7.4000e-004	6.7400e-003	5.6700e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	17.0321	17.0321	1.7100e-003	3.2000e-004	17.1715
Mobile	0.3357	0.4257	3.1883	7.0500e-003	0.8114	5.2000e-003	0.8166	0.2168	4.8500e-003	0.2216	0.0000	675.8095	675.8095	0.0400	0.0338	686.8842
Waste						0.0000	0.0000		0.0000	0.0000	2.6399	0.0000	2.6399	0.1560	0.0000	6.5402
Water						0.0000	0.0000		0.0000	0.0000	1.0067	1.6310	2.6378	0.1037	2.4700e-003	5.9665
Total	**0.4139**	**0.4324**	**3.1941**	**7.0900e-003**	**0.8114**	**5.7100e-003**	**0.8171**	**0.2168**	**5.3600e-003**	**0.2221**	**3.6466**	**694.4729**	**698.1195**	**0.3014**	**0.0366**	**716.5628**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**23.68**	**0.06**	**0.22**	**20.54**	**1.67**	**0.51**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/1/2020	5	1	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3357	0.4257	3.1883	7.0500e-003	0.8114	5.2000e-003	0.8166	0.2168	4.8500e-003	0.2216	0.0000	675.8095	675.8095	0.0400	0.0338	686.8842
Unmitigated	0.3357	0.4257	3.1883	7.0500e-003	0.8114	5.2000e-003	0.8166	0.2168	4.8500e-003	0.2216	0.0000	675.8095	675.8095	0.0400	0.0338	686.8842

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
General Office Building	920.00	920.00	920.00	2,198,561	2,198,561
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	920.00	920.00	920.00	2,198,561	2,198,561

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Unrefrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
General Office Building	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Unrefrigerated Warehouse-No Rail	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	9.6900	9.6900	1.5700e-003	1.9000e-004	9.7858
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	9.6900	9.6900	1.5700e-003	1.9000e-004	9.7858
NaturalGas Mitigated	7.4000e-004	6.7400e-003	5.6700e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	7.3421	7.3421	1.4000e-004	1.3000e-004	7.3857
NaturalGas Unmitigated	7.4000e-004	6.7400e-003	5.6700e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	7.3421	7.3421	1.4000e-004	1.3000e-004	7.3857

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	80880	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3161	4.3161	8.0000e-005	8.0000e-005	4.3417
General Office Building	35385	1.9000e-004	1.7300e-003	1.4600e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.8883	1.8883	4.0000e-005	3.0000e-005	1.8995
Unrefrigerated Warehouse-No Rail	21320	1.1000e-004	1.0500e-003	8.8000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1377	1.1377	2.0000e-005	2.0000e-005	1.1445
Total		**7.4000e-004**	**6.7400e-003**	**5.6700e-003**	**4.0000e-005**		**5.1000e-004**	**5.1000e-004**		**5.1000e-004**	**5.1000e-004**	**0.0000**	**7.3421**	**7.3421**	**1.4000e-004**	**1.3000e-004**	**7.3857**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	80880	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3161	4.3161	8.0000e-005	8.0000e-005	4.3417
General Office Building	35385	1.9000e-004	1.7300e-003	1.4600e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.8883	1.8883	4.0000e-005	3.0000e-005	1.8995
Unrefrigerated Warehouse-No Rail	21320	1.1000e-004	1.0500e-003	8.8000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1377	1.1377	2.0000e-005	2.0000e-005	1.1445
Total		**7.4000e-004**	**6.7400e-003**	**5.6700e-003**	**4.0000e-005**		**5.1000e-004**	**5.1000e-004**		**5.1000e-004**	**5.1000e-004**	**0.0000**	**7.3421**	**7.3421**	**1.4000e-004**	**1.3000e-004**	**7.3857**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	25950	2.4010	3.9000e-004	5.0000e-005	2.4247
General Office Building	21840	2.0207	3.3000e-004	4.0000e-005	2.0407
Unrefrigerated Warehouse-No Rail	56940	5.2683	8.5000e-004	1.0000e-004	5.3204
Total		**9.6900**	**1.5700e-003**	**1.9000e-004**	**9.7858**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	25950	2.4010	3.9000e-004	5.0000e-005	2.4247
General Office Building	21840	2.0207	3.3000e-004	4.0000e-005	2.0407
Unrefrigerated Warehouse-No Rail	56940	5.2683	8.5000e-004	1.0000e-004	5.3204
Total		**9.6900**	**1.5700e-003**	**1.9000e-004**	**9.7858**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0775	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.1000e-004	3.1000e-004	0.0000	0.0000	3.3000e-004
Unmitigated	0.0775	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.1000e-004	3.1000e-004	0.0000	0.0000	3.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.1300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.1000e-004	3.1000e-004	0.0000	0.0000	3.3000e-004
Total	**0.0775**	**0.0000**	**1.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.0000**	**3.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.1300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.1000e-004	3.1000e-004	0.0000	0.0000	3.3000e-004
Total	**0.0775**	**0.0000**	**1.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.0000**	**3.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.6378	0.1037	2.4700e-003	5.9665
Unmitigated	3.2972	0.1296	3.0900e-003	7.4581

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.69375 / 0	0.5674	0.0227	5.4000e-004	1.2951
General Office Building	0.266601 / 0.1634	0.2710	8.7200e-003	2.1000e-004	0.5511
Unrefrigerated Warehouse-No Rail	3.00625 / 0	2.4588	0.0982	2.3400e-003	5.6119
Total		**3.2972**	**0.1296**	**3.0900e-003**	**7.4581**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.555 / 0	0.4539	0.0181	4.3000e-004	1.0361
General Office Building	0.21328 / 0.13072	0.2168	6.9700e-003	1.7000e-004	0.4409
Unrefrigerated Warehouse-No Rail	2.405 / 0	1.9671	0.0786	1.8700e-003	4.4896
Total		**2.6378**	**0.1037**	**2.4700e-003**	**5.9665**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.6399	0.1560	0.0000	6.5402
Unmitigated	3.5199	0.2080	0.0000	8.7203

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	3.72	0.7551	0.0446	0.0000	1.8708
General Office Building	1.4	0.2842	0.0168	0.0000	0.7041
Unrefrigerated Warehouse-No Rail	12.22	2.4806	0.1466	0.0000	6.1455
Total		**3.5199**	**0.2080**	**0.0000**	**8.7203**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2.79	0.5663	0.0335	0.0000	1.4031
General Office Building	1.05	0.2131	0.0126	0.0000	0.5281
Unrefrigerated Warehouse-No Rail	9.165	1.8604	0.1100	0.0000	4.6091
Total		**2.6399**	**0.1560**	**0.0000**	**6.5402**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

IPQ-35 Existing Uses

Alameda County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.50	1000sqft	0.03	1,500.00	0
General Light Industry	3.00	1000sqft	0.07	3,000.00	0
Unrefrigerated Warehouse-No Rail	13.00	1000sqft	0.30	13,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Model for existing project site land use operations only--no construction.
Run 4: Updated operaitonal yeat, new CalEEMod version.

Land Use - Existing "Pick-n-Pull" business buildings.

Construction Phase - No construction this model.

Off-road Equipment - No construction this model.

Trips and VMT - No construction this model.

Vehicle Trips - Existing use (Pick-n-Pull) daily trips of 920 per Transportation Impact Analysis (Fehr & Peers 2020).

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Water Mitigation - 20% potable water/waste water reduction per 2019 CALGreen, not included in defaults.

Waste Mitigation - 25% solid waste diversion per AB 341 not included in defaults.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	ST_TR	2.21	613.33
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	SU_TR	0.70	613.33
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblVehicleTrips	WD_TR	9.74	613.33
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Energy	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100
Mobile	2.0700	2.1628	17.3552	0.0408	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,315.3660	4,315.3660	0.2262	0.1953	4,379.2166
Total	**2.4987**	**2.1998**	**17.3880**	**0.0411**	**4.6304**	**0.0314**	**4.6618**	**1.2334**	**0.0295**	**1.2628**		**4,359.7163**	**4,359.7163**	**0.2271**	**0.1961**	**4,423.8307**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Energy	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100
Mobile	2.0700	2.1628	17.3552	0.0408	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,315.3660	4,315.3660	0.2262	0.1953	4,379.2166
Total	**2.4987**	**2.1998**	**17.3880**	**0.0411**	**4.6304**	**0.0314**	**4.6618**	**1.2334**	**0.0295**	**1.2628**		**4,359.7163**	**4,359.7163**	**0.2271**	**0.1961**	**4,423.8307**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/1/2020	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.0700	2.1628	17.3552	0.0408	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,315.3660	4,315.3660	0.2262	0.1953	4,379.2166
Unmitigated	2.0700	2.1628	17.3552	0.0408	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,315.3660	4,315.3660	0.2262	0.1953	4,379.2166

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
General Office Building	920.00	920.00	920.00	2,198,561	2,198,561
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	920.00	920.00	920.00	2,198,561	2,198,561

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
General Office Building	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Unrefrigerated Warehouse-No Rail	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100
NaturalGas Unmitigated	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	221.589	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0693	26.0693	5.0000e-004	4.8000e-004	26.2242
General Office Building	96.9452	1.0500e-003	9.5000e-003	7.9800e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004		11.4053	11.4053	2.2000e-004	2.1000e-004	11.4731
Unrefrigerated Warehouse-No Rail	58.411	6.3000e-004	5.7300e-003	4.8100e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004		6.8719	6.8719	1.3000e-004	1.3000e-004	6.9127
Total		**4.0700e-003**	**0.0370**	**0.0310**	**2.2000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**		**44.3465**	**44.3465**	**8.5000e-004**	**8.2000e-004**	**44.6100**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.221589	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0693	26.0693	5.0000e-004	4.8000e-004	26.2242
General Office Building	0.0969452	1.0500e-003	9.5000e-003	7.9800e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004		11.4053	11.4053	2.2000e-004	2.1000e-004	11.4731
Unrefrigerated Warehouse-No Rail	0.058411	6.3000e-004	5.7300e-003	4.8100e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004		6.8719	6.8719	1.3000e-004	1.3000e-004	6.9127
Total		**4.0700e-003**	**0.0370**	**0.0310**	**2.2000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**		**44.3465**	**44.3465**	**8.5000e-004**	**8.2000e-004**	**44.6100**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Unmitigated	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0500					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3745					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Total	**0.4247**	**2.0000e-005**	**1.7800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8300e-003**	**3.8300e-003**	**1.0000e-005**		**4.0800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0500					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3745					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Total	**0.4247**	**2.0000e-005**	**1.7800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8300e-003**	**3.8300e-003**	**1.0000e-005**		**4.0800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

IPQ-35 Existing Uses

Alameda County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.50	1000sqft	0.03	1,500.00	0
General Light Industry	3.00	1000sqft	0.07	3,000.00	0
Unrefrigerated Warehouse-No Rail	13.00	1000sqft	0.30	13,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Model for existing project site land use operations only--no construction.
Run 4: Updated operaitonal yeat, new CalEEMod version.

Land Use - Existing "Pick-n-Pull" business buildings.

Construction Phase - No construction this model.

Off-road Equipment - No construction this model.

Trips and VMT - No construction this model.

Vehicle Trips - Existing use (Pick-n-Pull) daily trips of 920 per Transportation Impact Analysis (Fehr & Peers 2020).

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Water Mitigation - 20% potable water/waste water reduction per 2019 CALGreen, not included in defaults.

Waste Mitigation - 25% solid waste diversion per AB 341 not included in defaults.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	ST_TR	2.21	613.33
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	SU_TR	0.70	613.33
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	4.96	0.00
tblVehicleTrips	WD_TR	9.74	613.33
tblVehicleTrips	WD_TR	1.74	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Energy	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100
Mobile	1.8378	2.4634	18.7283	0.0386	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,078.8868	4,078.8868	0.2559	0.2120	4,148.4653
Total	**2.2666**	**2.5004**	**18.7611**	**0.0388**	**4.6304**	**0.0314**	**4.6619**	**1.2334**	**0.0295**	**1.2628**		**4,123.2372**	**4,123.2372**	**0.2568**	**0.2128**	**4,193.0794**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Energy	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100
Mobile	1.8378	2.4634	18.7283	0.0386	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,078.8868	4,078.8868	0.2559	0.2120	4,148.4653
Total	**2.2666**	**2.5004**	**18.7611**	**0.0388**	**4.6304**	**0.0314**	**4.6619**	**1.2334**	**0.0295**	**1.2628**		**4,123.2372**	**4,123.2372**	**0.2568**	**0.2128**	**4,193.0794**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/1/2020	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.8378	2.4634	18.7283	0.0386	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,078.8868	4,078.8868	0.2559	0.2120	4,148.4653
Unmitigated	1.8378	2.4634	18.7283	0.0386	4.6304	0.0286	4.6590	1.2334	0.0267	1.2600		4,078.8868	4,078.8868	0.2559	0.2120	4,148.4653

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
General Office Building	920.00	920.00	920.00	2,198,561	2,198,561
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	920.00	920.00	920.00	2,198,561	2,198,561

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
General Office Building	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374
Unrefrigerated Warehouse-No Rail	0.572127	0.056462	0.177932	0.111691	0.020543	0.005283	0.014601	0.013006	0.000784	0.000540	0.024304	0.000352	0.002374

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100
NaturalGas Unmitigated	4.0700e-003	0.0370	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003		44.3465	44.3465	8.5000e-004	8.1000e-004	44.6100

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	221.589	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0693	26.0693	5.0000e-004	4.8000e-004	26.2242
General Office Building	96.9452	1.0500e-003	9.5000e-003	7.9800e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004		11.4053	11.4053	2.2000e-004	2.1000e-004	11.4731
Unrefrigerated Warehouse-No Rail	58.411	6.3000e-004	5.7300e-003	4.8100e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004		6.8719	6.8719	1.3000e-004	1.3000e-004	6.9127
Total		**4.0700e-003**	**0.0370**	**0.0310**	**2.2000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**		**44.3465**	**44.3465**	**8.5000e-004**	**8.2000e-004**	**44.6100**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.221589	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0693	26.0693	5.0000e-004	4.8000e-004	26.2242
General Office Building	0.0969452	1.0500e-003	9.5000e-003	7.9800e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004		11.4053	11.4053	2.2000e-004	2.1000e-004	11.4731
Unrefrigerated Warehouse-No Rail	0.058411	6.3000e-004	5.7300e-003	4.8100e-003	3.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004		6.8719	6.8719	1.3000e-004	1.3000e-004	6.9127
Total		**4.0700e-003**	**0.0370**	**0.0310**	**2.2000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**		**44.3465**	**44.3465**	**8.5000e-004**	**8.2000e-004**	**44.6100**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Unmitigated	0.4247	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0500					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3745					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Total	**0.4247**	**2.0000e-005**	**1.7800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8300e-003**	**3.8300e-003**	**1.0000e-005**		**4.0800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0500					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3745					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8300e-003	3.8300e-003	1.0000e-005		4.0800e-003
Total	**0.4247**	**2.0000e-005**	**1.7800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8300e-003**	**3.8300e-003**	**1.0000e-005**		**4.0800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Construction Energy Use

Off-Road Construction Equipment Energy Use												
Activity	Equipment	Fuel	HP	Load Factor	Equipment Count	Hours/Day	Work Days	Gallons /HP-Hr	Gallons /Hour	Gallons /Day	Total Gallons	Total kBtu
Pick-n-Pull Inventory Removal	Concrete/Industrial Saws	Diesel	81	0.73	1	8.0	88	0.041843088	2.47418	19.793	1,741.8	242,114
	Cranes	Diesel	231	0.29	2	8.0	88	0.014889117	0.99742	15.959	1,404.4	195,207
	Excavators	Diesel	158	0.38	3	8.0	88	0.019761453	1.18648	28.475	2,505.8	348,312
	Rubber Tired Dozers	Diesel	247	0.4	2	8.0	88	0.02048249	2.02367	32.379	2,849.3	396,056
Demolition	Concrete/Industrial Saws	Diesel	81	0.73	1	8.0	45	0.0418431	2.47418	19.793	890.7	123,808
	Excavators	Diesel	158	0.38	3	8.0	45	0.0197615	1.18648	28.475	1,281.4	178,114
	Off-Road Trucks	Diesel	402	0.38	1	8.0	45	0.0197786	3.02138	24.171	1,087.7	151,190
	Rubber Tired Dozers	Diesel	247	0.4	2	8.0	45	0.0204825	2.02367	32.379	1,457.0	202,529
Mobilization	Cranes	Diesel	231	0.29	1	2.0	5	0.0148891	0.99742	1.995	10.0	1,386
	Tractors/Loaders/Backhoes	Diesel	97	0.37	1	8.0	5	0.0191272	0.68647	5.492	27.5	3,817
Remedial Soil Cleanup	Excavators	Diesel	158	0.38	2	8.0	31	0.0197615	1.18648	18.984	588.5	81,801
	Off-Road Trucks	Diesel	402	0.38	1	8.0	31	0.0197786	3.02138	24.171	749.3	104,153
	Rubber Tired Dozers	Diesel	247	0.4	1	8.0	31	0.0204825	2.02367	16.189	501.9	69,760
	Rubber Tired Loaders	Diesel	203	0.36	2	8.0	31	0.0186644	1.36399	21.824	676.5	94,039
Grading	Excavators	Diesel	158	0.38	2	8.0	107	0.0197615	1.18648	18.984	2,031.2	282,344
	Graders	Diesel	187	0.41	1	8.0	107	0.0211573	1.62213	12.977	1,388.5	193,007
	Off-Road Trucks	Diesel	402	0.38	1	8.0	107	0.0197786	3.02138	24.171	2,586.3	359,496
	Rubber Tired Dozers	Diesel	247	0.4	1	8.0	107	0.0204825	2.02367	16.189	1,732.3	240,784
	Scrapers	Diesel	367	0.48	2	8.0	107	0.0250067	4.40518	70.483	7,541.7	1,048,292
	Tractors/Loaders/Backhoes	Diesel	97	0.37	2	8.0	107	0.0191272	0.68647	10.984	1,175.2	163,359
Underground Utilities	Cranes	Diesel	231	0.29	1	2.0	244	0.0148891	0.99742	1.995	486.7	67,657
	Excavators	Diesel	158	0.38	2	8.0	244	0.0197615	1.18648	18.984	4,632.0	643,849
	Off-Road Trucks	Diesel	402	0.38	1	8.0	244	0.0197786	3.02138	24.171	5,897.7	819,785
	Rubber Tired Loaders	Diesel	203	0.36	1	8.0	244	0.0186644	1.36399	10.912	2,662.5	370,090
	Tractors/Loaders/Backhoes	Diesel	97	0.37	2	8.0	244	0.0191272	0.68647	10.984	2,680.0	372,519
Jack and Bore Preparation	Cranes	Diesel	231	0.29	1	2.0	6	0.0148891	0.99742	1.995	12.0	1,664
	Excavators	Diesel	158	0.38	1	8.0	6	0.0197615	1.18648	9.492	57.0	7,916
	Skid Steer Loaders	Diesel	65	0.37	1	8.0	6	0.0190577	0.45834	3.667	22.0	3,058
	Tractors/Loaders/Backhoes	Diesel	97	0.37	1	8.0	6	0.0191272	0.68647	5.492	33.0	4,580
Jack and Bore	Bore/Drill Rigs	Diesel	221	0.5	1	8.0	30	0.0257791	2.84859	22.789	683.7	95,029
	Cranes	Diesel	231	0.29	1	2.0	30	0.0148891	0.99742	1.995	59.8	8,318
	Excavators	Diesel	158	0.38	1	8.0	30	0.0197615	1.18648	9.492	284.8	39,581
	Pumps	Diesel	84	0.74	1	8.0	30	0.0156472	0.97263	7.781	233.4	32,447
Jack and Bore Cleanup	Cranes	Diesel	231	0.29	1	2.0	6	0.0148891	0.99742	1.995	12.0	1,664
	Skid Steer Loaders	Diesel	65	0.37	1	8.0	6	0.0190577	0.45834	3.667	22.0	3,058
	Tractors/Loaders/Backhoes	Diesel	97	0.37	1	8.0	6	0.0191272	0.68647	5.492	33.0	4,580
Off-Site Street Improvements	Pavers	Diesel	130	0.42	2	8.0	10	0.0215282	1.17544	18.807	188.1	26,142
	Paving Equipment	Diesel	132	0.36	2	8.0	10	0.0183244	0.87077	13.932	139.3	19,366
	Rollers	Diesel	80	0.38	2	8.0	10	0.0194117	0.59012	9.442	94.4	13,124
	Surfacing Equipment	Diesel	263	0.3	1	8.0	10	0.0156178	1.23224	9.858	98.6	13,703
Paving	Pavers	Diesel	130	0.42	2	8.0	7	0.0215282	1.17544	18.807	131.6	18,299
	Paving Equipment	Diesel	132	0.36	2	8.0	7	0.0183244	0.87077	13.932	97.5	13,556
	Rollers	Diesel	80	0.38	2	8.0	7	0.0194117	0.59012	9.442	66.1	9,187
Building Construction	Cranes	Diesel	231	0.29	1	2.0	152	0.0148891	0.99742	1.995	303.2	42,147
	Forklifts	Diesel	89	0.2	3	8.0	152	0.0103808	0.18478	4.435	674.1	93,696
	Generator Sets	Diesel	84	0.74	1	2.0	152	0.0156472	0.97263	1.945	295.7	41,100
	Tractors/Loaders/Backhoes	Diesel	97	0.37	3	7.0	152	0.0191272	0.68647	14.416	2,191.2	304,580
Architectural Coating	Air Compressors	Diesel	78	0.48	1	6.0	130	0.0156472	0.58583	3.515	456.9	63,516
										Project Construction Off-Road Total	**46,274.0**	**6,432,090**

On-Road Construction Energy Use												
Phase	Trip Type (Fleet Mix)	Trips	Distance (miles)		Work Days	Total VMT	gallons diesel/VMT		Total diesel gallons	gallons gas/VMT	Total gasoline gallons	Total kBtu
Pick-n-Pull Inventory Removal	Worker (LDA, LDT1, LDT2)	20	10.8		88	19008.0						
	Hauling (HHDT)	7040	20		-	140800.0						
Demolition	Worker (LDA, LDT1, LDT2)	18	10.8		45	8748.0	8.48959E-05		0.74	0.036574575	319.95	39,778
	Hauling (HHDT)	80	20		45	1600.0	0.144267669		230.83	0.000040525	0.06	32,093
Mobilization	Worker (LDA, LDT1, LDT2)	2	10.8		5	108.0						
Remedial Soil Cleanup	Worker (LDA, LDT1, LDT2)	15	10.8		31	5022.0						
	Hauling (HHDT)	4875	20		-	97500.0						
Soil Import	Hauling (HHDT)	31500	20		-	630000.0						
Grading	Worker (LDA, LDT1, LDT2)	23	10.8		107	26578.8	8.48959E-05		2.26	0.036574575	972.11	120,855
Underground Utilities	Worker (LDA, LDT1, LDT2)	18	10.8		244	47433.6	8.48959E-05		4.03	0.036574575	1,734.86	215,683
Jack and Bore Preparation	Worker (LDA, LDT1, LDT2)	10	10.8		6	648.0	8.48959E-05		0.06	0.036574575	23.70	2,946
Jack and Bore	Worker (LDA, LDT1, LDT2)	10	10.8		30	3240.0	8.48959E-05		0.28	0.036574575	118.50	14,732
Jack and Bore Cleanup	Worker (LDA, LDT1, LDT2)	8	10.8		6	518.4	8.48959E-05		0.04	0.036574575	18.96	2,357
Off-Site Street Improvements	Worker (LDA, LDT1, LDT2)	18	10.8		10	1944.0						
Paving	Worker (LDA, LDT1, LDT2)	15	10.8		7	1134.0	8.48959E-05		0.10	0.036574575	41.48	5,156
	Hauling (HHDT)	1500	20		-	30000.0	0.144267669		4328.03	0.000040525	1.22	601,747
Building Construction	Worker (LDA, LDT1, LDT2)	36	10.8		152	59097.6	8.48959E-05		5.02	0.036574575	2,161.47	268,720
	Vendor (HHDT, MHDT)	11	6.6		152	11035.2	0.151238039		1668.94	0.007665746	84.59	242,472
Architectural Coating	Worker (LDA, LDT1, LDT2)	83	10.8		130	116532.0	8.48959E-05		9.89	0.036574575	4,262.11	529,877
					Project Construction On-Road Total	**1041139.6**			**6250.2**		**9739.0**	**2076416.7**

Notes:
1. Off-road equipment types and horsepower from CalEEMod defaults.
2. Off-road equipment count and hours from CalEEMod for the AQ/GHG report.
3. Off-road fuel consumption factors from CARB OFFROAD2021- Web Database, for Alameda, aggregate model years. https://arb.ca.gov/emfac/emissions-inventory/.
4. On-road fleet mix and trip distances from CalEEMod for the AQ/GHG report.
5. On-road fuel consumption factors weighted average for fleet mix from CARB EMFAC2021, for Alameda, aggregate model years, aggregate speeds. https://arb.ca.gov/emfac/emissions-inventory/
6. 1 Gallon of diesel = 139 kBtu; 1 gallon of gasoline = 124 kBtu.

Construction Energy Summary			
Source	Gallons Diesel	Gallons Gas	kBtu
Off-Road Construction Equipment	46,274	-	6,432,090
On-Road Construction Traffic	6,250	9,739	2,076,417
Project Construction Total	**52,524**	**9,739**	**8,508,507**

Annual Operational Energy Use

Project VMT
6,698,310

Project On-Road Project Operational Energy Use

Category	Mix	Diesel Gallons/VMT	Diesel Gallons	Gasoline Gallons/VMT	Gasoline Gallons	Natural Gas Gallons /VMT	Natural Gas Gallons	Electricity kWh/VMT	kWh Electricity	Total kBtu
LDA	57.2127%	0.000044	169.3	0.0274518	105,203.2	-	0.0	0.04502580	172,551.7	13,657,502
LDT1	5.6462%	0.000002	0.9	0.0372300	14,080.4	-	0.0	0.00312748	1,182.8	1,750,130
LDT2	17.7932%	0.000103	123.1	0.0373357	44,498.4	-	0.0	0.00579761	6,909.8	5,558,491
MDV	11.1691%	0.000495	370.5	0.0440944	32,988.8	-	0.0	0.00949122	7,100.8	4,166,337
LHDT1	2.0543%	0.021025	2,893.1	0.0621219	8,548.2	-	0.0	0.02026705	2,788.8	1,471,637
LHDT2	0.5283%	0.046015	1,628.4	0.0382443	1,353.4	-	0.0	0.02000207	707.8	396,573
MHDT	1.4601%	0.098942	9,676.7	0.0235036	2,298.7	0.0016199	158.4	0.02809963	2,748.2	1,653,995
HHDT	1.3006%	0.151287	13,179.8	0.0001011	8.8	0.0072702	633.4	0.02745601	2,391.9	1,899,267
OBUS	0.0784%	0.070683	371.2	0.0954364	501.2	0.0004798	2.5	0.01112339	58.4	114,172
UBUS	0.0540%	0.082522	298.5	0.0214994	77.8	0.0169160	61.2	0.02841386	102.8	57,089
MCY	2.4304%	-	0.0	0.0238047	3,875.3	-	0.0	-	0.0	480,537
SBUS	0.0352%	0.074356	175.3	0.0321518	75.8	0.0074812	17.6	0.01858938	43.8	35,535
MH	0.2356%	0.033428	527.5	0.1553794	2,452.1	-	0.0	-	0.0	377,385
	Annual Total		**29,414.5**		**215,961.9**		**873.1**		**196,586.9**	**31,618,649**

Project Electricity and Natural Gas

Type	Source	kWh	kBtu
Natural Gas	Hot Water, Heating	-	7,834,000
Electricity	Buildings, Lighting	679,532	983,185
	Total	**679,532**	**8,817,185**

Project Water and Wastewater Energy Use

Indoor (Mgal)	Outdoor (Mgal)	Supply (kWh/Mgal)	Treat Water (kWh/Mgal)	Distribute (kWh/Mgal)	Treat Wastewater (kWh/Mgal)	kWh	kBtu
10.581	11.33172	2,117	111	1,272	1,911	98,349	335,582

Notes:
1. VMT, electricity, and natural gas from project CalEEMod annual output.
2. Fleet mix from CalEEMod default for Alameda County
3. Fuel consumption factors weighted average for fleet mix from CARB EMFAC2021, for Almeda County, aggregate model years for 2027, aggregate speeds.
4. Electricity use includes reduction of 711,028 kWhr from solar generation to meet 2019 Title 24 requirements (estimated 405.8 kW).
4. Indoor and outdoor water use from project CalEEMod annual output. Water electricity intensity factors from CalEEMod default for Alameda County.
5. 1 Gallon of diesel = 139 kBtu; 1 gallon of gasoline = 124 KBtu; 1 gallon of natural gas = 91.6 KBtu; 1 kWh = 3.412142 kBtu.

Project Operational Total

Energy Type	Quantity	kBtu
Gasoline (Gallons)	215,962	26,779,277
Diesel (Gallons)	29,414	4,088,609
Natural Gas (kBtu)	7,913,980	7,913,980
Electricity (kWh)	974,468	3,325,024
	Total	**42,106,891**

Model Output: OFFROAD2021 (v1.0.2) Emissions Inventory
Region Type: County
Region: Alameda
Calendar Year: 2023
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy	Gallons/hp-hour
Alameda	2023	Construction and Mining - Bore/Drill Rigs	Aggregate	300	Diesel	12039.79	2223.42	6.79	467036.15	0.02577914
Alameda	2023	Construction and Mining - Cranes	Aggregate	300	Diesel	41833.82	12762.96	26.78	2809691.34	0.01488912
Alameda	2023	Construction and Mining - Excavators	Aggregate	175	Diesel	125011.20	43320.39	72.40	6326012.22	0.01976145
Alameda	2023	Construction and Mining - Graders	Aggregate	300	Diesel	157578.35	34655.89	45.21	7447959.68	0.02115725
Alameda	2023	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	50	Diesel	1839.60	1332.25	2.30	43964.25	0.04184309
Alameda	2023	Construction and Mining - Off-Highway Trucks	Aggregate	600	Diesel	378102.49	50866.43	36.88	19116736.51	0.01977861
Alameda	2023	Construction and Mining - Pavers	Aggregate	175	Diesel	16521.65	4861.31	12.45	767443.94	0.02152816
Alameda	2023	Construction and Mining - Paving Equipment	Aggregate	175	Diesel	6991.25	2622.28	5.64	381527.48	0.01832436
Alameda	2023	Construction and Mining - Rollers	Aggregate	100	Diesel	39873.79	23538.66	70.13	2054107.73	0.01941173
Alameda	2023	Construction and Mining - Rubber Tired Dozers	Aggregate	300	Diesel	5570.46	1246.10	1.75	271962.09	0.02048249
Alameda	2023	Construction and Mining - Rubber Tired Loaders	Aggregate	300	Diesel	297962.54	76594.70	71.05	15964216.17	0.01866440
Alameda	2023	Construction and Mining - Scrapers	Aggregate	600	Diesel	569170.37	53926.53	111.02	22760715.26	0.02500670
Alameda	2023	Construction and Mining - Skid Steer Loaders	Aggregate	75	Diesel	103233.65	76655.01	212.47	5416902.00	0.01905769
Alameda	2023	Construction and Mining - Surfacing Equipment	Aggregate	300	Diesel	1819.48	514.90	2.07	116500.62	0.01561780
Alameda	2023	Construction and Mining - Tractors/Loaders/Backhoes	Aggregate	100	Diesel	613242.42	385075.57	607.78	32061335.46	0.01912716
Alameda	2023	Industrial - Forklifts	Aggregate	100	Diesel	404016.25	472113.91	611.98	38919590.88	0.01038079
Alameda	2023	Portable Equipment - Non-Rental Compressor	Aggregate	100	Diesel	24577.61641	18680.07798	45.92500231	1570732.042	0.01564724
Alameda	2023	Portable Equipment - Non-Rental Generator	Aggregate	100	Diesel	56846.5843	38911.44089	28.67398621	3633011.027	0.01564724
Alameda	2023	Portable Equipment - Non-Rental Pump	Aggregate	100	Diesel	11470.49955	8290.376402	26.10964598	733068.6949	0.01564724

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: County
Region: Alameda
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/year for VMT, 1000 gallons/year for Fuel Consumption

2023 Construction Fleet Fuel Consumption								
Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	VMT	Fuel Consumption (1000 Gal.)	Gallons/VMT
Worker (LDA, LDT1, LDT2)								
Alameda	2023	LDA	Aggregate	Aggregate	Diesel	66808.063	1.579043456	
Alameda	2023	LDT1	Aggregate	Aggregate	Diesel	392.21892	0.016282409	
Alameda	2023	LDT2	Aggregate	Aggregate	Diesel	34133.244	1.070727905	
					Diesel Total	**101333.53**	**2.66605377**	**8.48959E-05**
Alameda	2023	LDA	Aggregate	Aggregate	Gasoline	20036783	679.7869826	
Alameda	2023	LDT1	Aggregate	Aggregate	Gasoline	1776790.8	71.47202017	
Alameda	2023	LDT2	Aggregate	Aggregate	Gasoline	9488897.9	397.3218402	
					Gas Total	**31302472**	**1148.580843**	**0.036574575**
					Total VMT	**31403805**		
Vendor (HHDT, MHDT)								
Alameda	2023	HHDT	Aggregate	Aggregate	Diesel	1780455.8	301.7362348	
Alameda	2023	MHDT	Aggregate	Aggregate	Diesel	593729.33	70.57694167	
					Diesel total	**2374185.1**	**372.3131765**	**0.151238039**
Alameda	2023	HHDT	Aggregate	Aggregate	Gasoline	943.51035	0.254330476	
Alameda	2023	MHDT	Aggregate	Aggregate	Gasoline	86640.775	18.61696846	
					Gas Total	**87584.286**	**18.87129893**	**0.007665746**
					Total VMT	**2461769.4**		
Hauling (HHDT)								
Alameda	2023	HHDT	Aggregate	Aggregate	Diesel	1780455.8	301.7362348	**0.144267669**
Alameda	2022	HHDT	Aggregate	Aggregate	Gasoline	311047.03	84.75779787	**4.05248E-05**
					Total VMT	**2091502.8**		

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: County
Region: Alameda
Calendar Year: 2027
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/year for VMT, kWh/year for Energy Consumption, 1000 gallons/year for Fuel Consumption

2028 Operational Fleet Fuel Consumption										
Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	VMT	Energy Consumption (kWh/day)	Fuel Consumption (1000 Gal.)	Gallons/VMT	kWh/VMT
LDA										
Alameda	2027	LDA	Aggregate	Aggregate	Gasoline	19781626	0	618.2575406	**0.027451827**	
Alameda	2027	LDA	Aggregate	Aggregate	Diesel	44768.62	0	1.014850406	**4.41818E-05**	
Alameda	2027	LDA	Aggregate	Aggregate	Electricity	2346894	906094.8214	0		
Alameda	2027	LDA	Aggregate	Aggregate	Plug-in Hybrid	796573.7	128141.6243	12.30714881		**0.0450258**
					Total VMT	**22969862**				
LDT1										
Alameda	2027	LDT1	Aggregate	Aggregate	Gasoline	1593983	0	59.87937524	**0.037229982**	
Alameda	2027	LDT1	Aggregate	Aggregate	Diesel	98.22508	0	0.003884131	**2.41096E-06**	
Alameda	2027	LDT1	Aggregate	Aggregate	Electricity	9824.765	3793.170034	0		
Alameda	2027	LDT1	Aggregate	Aggregate	Plug-in Hybrid	7126.091	1245.304306	0.09933072		**0.00312748**
					Total VMT	**1611032**				
LDT2										
Alameda	2027	LDT2	Aggregate	Aggregate	Gasoline	10086105	0	384.6277377	**0.037335738**	
Alameda	2027	LDT2	Aggregate	Aggregate	Diesel	37049.87	0	1.069921475	**0.00010332**	
Alameda	2027	LDT2	Aggregate	Aggregate	Electricity	95842.34	37003.05525	0		
Alameda	2027	LDT2	Aggregate	Aggregate	Plug-in Hybrid	136435.9	23033.70293	1.999987009		**0.00579761**
					Total VMT	**10355433**				
MDV										
Alameda	2027	MDV	Aggregate	Aggregate	Gasoline	5288362	0	243.1687909	**0.044094361**	
Alameda	2027	MDV	Aggregate	Aggregate	Diesel	71753.39	0	2.744522187	**0.000495212**	
Alameda	2027	MDV	Aggregate	Aggregate	Electricity	100785.9	38911.67408	0		
Alameda	2027	MDV	Aggregate	Aggregate	Plug-in Hybrid	81218.74	13689.83658	1.207463611		**0.00949122**
					Total VMT	**5542120**				
LHDT1										
Alameda	2027	LHDT1	Aggregate	Aggregate	Gasoline	718989	0	71.02846053	**0.062121851**	
Alameda	2027	LHDT1	Aggregate	Aggregate	Diesel	389003.8	0	24.03972492	**0.021025265**	
Alameda	2027	LHDT1	Aggregate	Aggregate	Electricity	35380.48	23172.80206	0	**0**	**0.02026705**
					Total VMT	**1143373**				
LHDT2										
Alameda	2027	LHDT2	Aggregate	Aggregate	Gasoline	94214.71	0	10.57763931	**0.038244296**	
Alameda	2027	LHDT2	Aggregate	Aggregate	Diesel	173789.8	0	12.72696734	**0.046015363**	
Alameda	2027	LHDT2	Aggregate	Aggregate	Electricity	8576.295	5532.18837	0	**0**	**0.02000207**
					Total VMT	**276580.8**				
MHDT										
Alameda	2027	MHDT	Aggregate	Aggregate	Gasoline	81359.69	0	16.7084085	**0.023503639**	
Alameda	2027	MHDT	Aggregate	Aggregate	Diesel	602923	0	70.33654565	**0.098942084**	
Alameda	2027	MHDT	Aggregate	Aggregate	Electricity	18346.39	19975.63536	0	**0**	**0.02809963**
Alameda	2027	MHDT	Aggregate	Aggregate	Natural Gas	8256.956	0	1.151596747	**0.001619946**	
					Total VMT	**710886**				
HHDT										
Alameda	2027	HHDT	Aggregate	Aggregate	Gasoline	761.8603	0	0.197495373	**0.000101094**	
Alameda	2027	HHDT	Aggregate	Aggregate	Diesel	1848369	0	295.5499283	**0.151286739**	
Alameda	2027	HHDT	Aggregate	Aggregate	Electricity	29202.91	53637.37146	0	**0**	**0.02745601**
Alameda	2027	HHDT	Aggregate	Aggregate	Natural Gas	75241.05	0	14.20286617	**0.007270194**	
					Total VMT	**1953575**				
OBUS										
Alameda	2027	OBUS	Aggregate	Aggregate	Gasoline	24797.76	0	5.054553565	**0.09543642**	
Alameda	2027	OBUS	Aggregate	Aggregate	Diesel	27430.87	0	3.743531572	**0.070682652**	
Alameda	2027	OBUS	Aggregate	Aggregate	Electricity	531.7729	589.1230009	0	**0**	**0.01112339**
Alameda	2027	OBUS	Aggregate	Aggregate	Natural Gas	202.1123	0	0.025413353	**0.000479837**	
					Total VMT	**52962.52**				
UBUS										
Alameda	2027	UBUS	Aggregate	Aggregate	Gasoline	21037.73	0	2.308286209	**0.02149942**	
Alameda	2027	UBUS	Aggregate	Aggregate	Diesel	72525.99	0	8.860028349	**0.082522468**	
Alameda	2027	UBUS	Aggregate	Aggregate	Electricity	1749.988	3050.655442	0		**0.02841386**
Alameda	2027	UBUS	Aggregate	Aggregate	Natural Gas	12051.33	0	1.816183563	**0.016915967**	
					Total VMT	**107365**				
MCY										
Alameda	2027	MCY	Aggregate	Aggregate	Gasoline	154393.4	0	3.675282088	**0.023804661**	
SBUS										
Alameda	2027	SBUS	Aggregate	Aggregate	Gasoline	5203.387	0	0.501252564	**0.032151774**	
Alameda	2027	SBUS	Aggregate	Aggregate	Diesel	9466.916	0	1.159224787	**0.074355996**	
Alameda	2027	SBUS	Aggregate	Aggregate	Electricity	275.1062	289.8121152	0	**0**	**0.01858938**
Alameda	2027	SBUS	Aggregate	Aggregate	Natural Gas	644.7894	0	0.116633708	**0.00748122**	
					Total VMT	**15590.2**				
MH										
Alameda	2027	MH	Aggregate	Aggregate	Gasoline	17051.33	0	3.857948061	**0.155379448**	
Alameda	2027	MH	Aggregate	Aggregate	Diesel	7777.877	0	0.829987082	**0.033427857**	
					Total VMT	**24829.2**				

Appendix C
Biological Resources
Technical Report

Mowry Village Project

Biological Resources Technical Report

Prepared for:

The Mowry Project Owner, LLC
2603 Camino Ramon, Suite 480
San Ramon, CA 94583

Prepared by:

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June 2022 | 00357.00035.001

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ACRONYMS AND ABBREVIATIONS

Ac	Acre
ACFC & WCD	Alameda County Flood Control & Water Conservation District
Act	McAteer-Petris Act
amsl	Above mean sea level
APN	Assessor's Parcel Number
BCDC	San Francisco Bay Conservation and Development Commission
BMP	Best Management Practice
BTR	Biological Resources Technical Report
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of Newark
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DBH	Diameter at breast height
FESA	Federal Endangered Species Act of 1973
HELIX	HELIX Environmental Planning, Inc.
HUC	Hydrologic Unit Code
IPaC	U.S. Fish and Wildlife Service Information for Planning and Consultation
ISA	International Society of Arboriculture
LID	Low Impact Development
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
NEPA	National Environmental Policy Act
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
Procedures	State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State
project	Mowry Village Project

ACRONYMS AND ABBREVIATIONS (cont.)

Rapanos & Carabell	*Rapanos v. United States* & *Carabell v. United States*
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
sf	square feet
SSC	Species of Special Concern
SWANCC	*Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, 531 U.S. 159 (2001)
SWRCB	State Water Resources Control Board
UPRR	Union Pacific Railroad
USACE	U.S. Army Corp of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WQC	Water Quality Certification (State of California)

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

HELIX Environmental Planning, Inc. (HELIX) prepared this Biological Resources Technical Report (BTR) for the proposed Mowry Village Project (proposed project, project) in the City of Newark (City), Alameda County, California. The purposes of the BTR are: (1) to document the environmental setting and existing biological conditions in the Study Area; (2) to evaluate the potential for any special-status plant or animal species or sensitive habitats to be present in or adjacent to the Study Area and/or be affected by the proposed project; (3) to document the relationship of the biological resources in the Study Area to applicable federal, state, and local laws and regulations; and (4) to describe measures to avoid, minimize, and/or mitigate potential impacts to all protected biological resources.

1.2 PROJECT LOCATION

The approximately 35.3-acre project site (hereafter referred to as Study Area) is located in southwestern Alameda County in the City of Newark, California (Appendix A - Figure 1, *Vicinity Map*), near the southern terminus of Mowry Avenue. The Study Area is comprised primarily of Assessor's Parcel Numbers (APNs) 537-0850-001-11, -13, and -002-00 as well as off-site improvements on adjacent lands. The Study Area is located on the U.S. Geological Survey (USGS) 7.5-minute "Newark, California" quadrangle map within Township 5 South, Range 1 W, Sections 7 and 8, as well as within un-sectioned lands not included in the Public Lands Survey (Appendix A - Figure 2, *Topographic Map*). The approximate center of the Study Area is at latitude 37.511991 N, longitude -122.011772 W, NAD 83, Mount Diablo Meridian. Figure 3, *Aerial Map*, in Appendix A is an aerial photograph of the Study Area.

1.3 PROJECT DESCRIPTION

The Study Area is proposed for construction of 203 single-family detached homes on the former Pick-N-Pull salvage yard site, resulting in a density of seven units per acre. The proposed single-family homes would be located on three typical lot sizes that are 3,375 square feet (sf), 3,600 sf, or 4,000 sf. The proposed project would provide 40,802 sf (0.94 acre) of common open space consisting of landscaping, bioretention areas, and a pocket park. Additional improvements would include on-street parking, drive aisles, underground utilities, Low Impact Development (LID) drainage and water quality treatment areas, lighting, sidewalks, and landscaping.

The project also includes off-site improvements including roadway improvements along Mowry Avenue and installation of a water line extension along the Union Pacific Railroad (UPRR) tracks. The Mowry Avenue extension consists entirely of developed roadway. The water line extension follows a gravel road in a southeasterly direction along the UPRR tracks and then turns to the northeast and crosses over the Alameda County Flood Control & Water Conservation District (ACFC & WCD) channel "Line D" before ultimately running along a planned gravel road adjacent to the channel. The current alignment of the ACFC & WCD channel "Line D" is within the Study Area; however, this channel is proposed to be realigned outside of the Study Area prior to implementation of the project. Appendix A - Figure 4, *Detailed Site Plan*, is a site plan.

2.0 REGULATORY SETTING

Policies, regulations, and plans pertaining to the protection of biological resources in the Study Area and vicinity are summarized in the following sections.

2.1 FEDERAL REQUIREMENTS

2.1.1 Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) enforces the provisions stipulated within the Federal Endangered Species Act of 1973 (FESA; 16 USC 1531 et seq.). Species identified as federally threatened or endangered (50 CFR 17.11, and 17.12) are protected from take, defined as direct or indirect harm, unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present in the study area and determine whether the proposed project will jeopardize the continued existence of or result in the destruction or adverse modification of critical habitat of such species (16 USC 1536 (a)[3], [4]). Other federal agencies designate species of concern (species that have the potential to become listed), which are evaluated during environmental review under the National Environmental Policy Act (NEPA) or CEQA although they are not otherwise protected under FESA.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. Section 16 U.S.C. 703–712 of the Act states “unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill” a migratory bird. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. Currently, there are 836 migratory birds protected nationwide by the Migratory Bird Treaty Act, of which 58 are legal to hunt.

2.2 STATE REQUIREMENTS

2.2.1 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2097) is similar to the FESA. The California Fish and Wildlife Commission is responsible for maintaining lists of threatened and endangered species under CESA. CESA prohibits the take of listed and candidate (petitioned to be listed) species. “Take” under California law means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch capture, or kill (California Fish and Game Code, Section 86). The California Department of Fish and Wildlife (CDFW) can authorize take of a state-listed species under Section 2081 of the California Fish and Game Code if the take is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, funding is ensured to implement and monitor mitigation measures, and CDFW determines that issuance would not jeopardize the continued existence of the species. A CESA permit must be obtained if a project will result in the “take” of listed species, either during construction or over the life of the project. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.2.2 California Code of Regulations and California Fish and Game Code

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 §670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as "fully protected animals." These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of fully protected species unless any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

2.2.3 California Environmental Quality Act

Under the California Environmental Quality Act of 1970 (CEQA; Public Resources Code Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special-status species (Public Resources Code Section 21001(c)). These "special-status" species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed under CEQA regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, 2A, 2B, and 3 are generally considered special-status species under CEQA.[1]

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., candidate species) would occur.

2.2.4 California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900-1913) empowers the Fish and Game Commission to list native plant species, subspecies, or varieties as endangered or rare following a public hearing. To the extent that the location of such plants is known, CDFW must notify property owners that a listed plant is known to occur on their property. Where a property owner has been so notified by CDFW, the owner must notify CDFW at least 10 days in advance of any change in land use (other than changing from one agricultural use to another), so that CDFW may

[1] The California Rare Plant Rank system can be found online at: < http://www.cnps.org/cnps/rareplants/ranking.php>

salvage listed plants that would otherwise be destroyed. Currently, 64 taxa of native plants have been listed as rare under the act.

2.2.5 Nesting Birds

California Fish and Game Code Subsections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Subsection 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.

2.3 JURISDICTIONAL WATERS

2.3.1 Federal Jurisdiction

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act, any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

“Waters of the U.S.” are defined as: “All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; the territorial sea; or wetlands adjacent to these waters (33 Code of Federal Regulations [CFR] Part 328).”

Within non-tidal waters that meet the definition cited above and, in the absence of adjacent wetlands, the indicator used by the USACE to determine the lateral extent of its jurisdiction is the ordinary high water mark – the line on the shore established by fluctuations of water and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, and/or the presence of litter and debris.

Wetlands are defined under the CFR Part 328.3 as those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The USACE has determined that not all features which meet the wetland definition are, in fact, considered to be waters of the U.S. Normally, features not considered as waters of the U.S. include (a) non-tidal drainage and irrigation ditches excavated on dry land; (b) artificially irrigated areas which would revert to upland if the irrigation ceased; (c) artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing, (d) artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons, and (e) waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). Other features may be excluded based on Supreme Court decisions (e.g., SWANCC and Rapanos & Carabell) or by regulation.

Federal and state regulations pertaining to waters of the U.S., including wetlands, are discussed below.

Clean Water Act (33 USC 1251-1376). The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. must obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the U.S. Environmental Protection Agency (USEPA) in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there is no practicable alternative that would have less adverse impacts.

2.3.2 State Jurisdiction

2.3.2.1 Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Federal CWA. Although the Clean Water Act is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE's permits for fill and dredge discharges within Waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Office of Administrative Law approved the Procedures on August 28, 2019, and the Procedures became effective May 28, 2020.

Under the Procedures and the State Water Code (Water Code §13050(e)), “Waters of the State” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires filing of an application under the Procedures.

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California’s statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, National Pollution Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

2.3.2.2 California Department of Fish and Wildlife

The CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will “substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of streambeds…except when the department has been notified pursuant to Section 1601.” Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submission of an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

2.4 LOCAL REQUIREMENTS

2.4.1 City of Newark Tree Ordinance

Under Chapter 8.16 of the City of Newark Municipal Code, it is unlawful to cut down, destroy, remove, or move any tree within the city limits on any parcel of land except a developed residential parcel 10,000 square feet or less in size unless a permit to do so has been obtained from the public works director. A tree is any live woody plant with at least one well defined perennial stem at least six inches in diameter measured four feet above ground level.

2.4.2 San Francisco Bay Conservation and Development Commission Jurisdiction

The San Francisco Bay Conservation and Development Commission (BCDC) is responsible for carrying out the San Francisco Bay Plan, which was developed in 1969 as a requirement of the McAteer-Petris Act (Act; California Government Code 66600-66682). Section 66610 of the Act specified the area and scope of BCDC's authority and established the permit system for the regulation of the Bay and shoreline. The BCDC's jurisdiction under the Act includes the San Francisco Bay, being all areas that are subject to tidal action from the south end of the Bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extended northeasterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level (amsl); tidelands (land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide). The BCDC's jurisdiction also includes a shoreline band consisting of all territory located between the shoreline of San Francisco Bay as defined above and a line 100 feet landward of and parallel with that line. Other areas under BCDC jurisdiction include salt ponds and managed wetlands diked off from the bay and certain other waterways tributary to San Francisco Bay, as specified in the Act. A permit is required from BCDC prior to undertaking work in the Bay or within 100 feet of the shoreline, including filling, dredging, dredged sediment disposal, shoreline development and other work (BCDC 2012).

The Study Area is in uplands outside of the bay margin and is not located within BCDC jurisdiction. Because Mowry Slough is a tidal waterway tributary to the San Francisco Bay that contains tidal marsh, we conclude that it is subject to BCDC jurisdiction between mean high tide and five feet amsl. The San Francisco Bay Plan South Bay Map (available at: <http://www.bcdc.ca.gov/plans/sfbay_plan>) indicates portions of Mowry Slough subject to BCDC jurisdiction. The BCDC's jurisdiction therefore also includes a shoreline band consisting of all territory located between the topographic contour line at five feet amsl and a line 100 feet landward of and parallel with that line. Areas along Mowry Slough believed to be subject to BCDC jurisdiction are approximately 0.5 mile southwest of the Study Area.

3.0 STUDY METHODS

Studies conducted in preparation of this BTR included a desktop evaluation and background research to identify special-status species and other biological resources (e.g., wetlands) with the potential to occur on the Study Area or be impacted by the proposed project and biological resources surveys. These methods are presented in the following sections.

3.1 SPECIAL-STATUS SPECIES EVALUATION

For the purposes of this report, special-status species are those that fall into one or more of the following categories, including those:

- Listed as endangered or threatened under the FESA (including candidates and species proposed for listing);
- Listed as endangered or threatened under the CESA; including candidates and species proposed for listing);
- Designated as rare, protected, or fully protected pursuant to California Fish and Game Code;

- Designated as Species of Special Concern (SSC) by the CDFW;
- Considered by CDFW to be a Watch List species with potential to become an SSC;
- Defined as rare or endangered under Section 15380 of the CEQA; or
- Having a CRPR of 1A, 1B, 2A, 2B, or 3.

To evaluate special-status species and/or their habitats with the potential to occur in the Study Area and/or be impacted by the proposed project, HELIX obtained lists of regionally occurring special-status species from the following information sources:

- California Department of Fish and Wildlife (CDFW). 2021. *California Natural Diversity Database* (CNDDB); For: *San Leandro, Hayward, Dublin, Redwood Point, Newark, Niles, Palo Alto, Mountain View, and Milpitas* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [November 8, 2021];
- California Native Plant Society (CNPS). 2021. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.39) For: *San Leandro, Hayward, Dublin, Redwood Point, Newark, Niles, Palo Alto, Mountain View, and Milpitas* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [November 8, 2021]; and
- U.S. Fish and Wildlife Service (USFWS). 2021. *Information for Planning and Consultation* (IPaC) *for the Proposed Project.* Accessed [November 8, 2021].

Appendix B includes these lists of special-status plant and animal species occurring in the project region and Appendix C includes an evaluation of the potential for these species to occur in the Study Area.

3.2 REVIEW OF EXISTING DOCUMENTATION

Information was incorporated into this BTR from the following sources that document previous biological and wetland studies conducted at the Study Area:

- *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013)*;* and
- *The Baylands and Climate Change: What We Can Do. Baylands Ecosystem Habitat Goals Science Update 2015 prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project* (Goals Project 2015)*.*

3.3 BIOLOGICAL RESOURCES SURVEYS

Biological surveys conducted at the Study Area for this BTR included a biological reconnaissance survey, special-status plant surveys, a burrowing owl habitat assessment and protocol surveys, an assessment of black rail and other special-status bird species with the potential to occur in adjacent marsh habitats, an arborist inventory, and a wetland delineation. These surveys are described in Table 1, *Biological Surveys Conducted for the Proposed Project*, below.

Table 1
BIOLOGICAL SURVEYS CONDUCTED FOR THE PROPOSED PROJECT

Survey Dates	Personnel	Tasks Performed
January 4, 2019	Stephen Stringer, M.S. Stephanie McLaughlin, M.S.	General biological survey, jurisdictional delineation, burrowing owl habitat assessment
April 16, 2019	George Aldridge, Ph.D. Stephanie McLaughlin, M.S.	Arborist inventory, botanical survey, burrowing owl survey
May 2, 2019	Patrick Martin, B.S. Stephanie McLaughlin, M.S.	Burrowing owl survey, marsh bird habitat assessment
May 8, 2019	George Aldridge, Ph.D.	Botanical survey
May 22, 2019	Stephen Stringer, M.S.	Botanical survey
May 23, 2019	Patrick Martin, B.S. Stephanie McLaughlin, M.S.	Burrowing owl survey
June 18, 2019	Patrick Martin, B.S.	Burrowing owl survey
July 3, 2019	Stephen Stringer, M.S.	Jurisdictional delineation
November 16, 2021	Stephen Stringer, M.S. Stephanie McLaughlin, M.S.	General biological survey, burrowing owl survey, and jurisdictional delineation of off-site improvement areas
December 8, 2021	Stephanie McLaughlin, M.S.	Arborist inventory (off-site improvements)
March 8, 2022	Stephen Stringer, M.S.	General biological survey, botanical survey, and wetland delineation update

3.3.1 Biological Reconnaissance

HELIX biologists conducted a general biological reconnaissance of the Study Area on January 4, 2019. Additional general biological reconnaissance surveys were conducted on November 16, 2021 to survey the revised project footprint, which consisted primarily of the off-site improvements along Mowry Avenue and the waterline extension area, and March 8, 2022 to check on current conditions. The surveys comprised 100-percent coverage of the site on foot and included habitat mapping and inventories of flora and fauna. Site photos are provided in Appendix D.

3.3.2 Special-Status Plant Surveys

HELIX biologists conducted focused surveys for special-status plant species identified as having potential to occur in the Study Area (Appendix C). The surveys were conducted on April 16, May 8, and May 22, 2019, which captured the blooming season of the target species. An additional survey was conducted on March 8, 2022 in conjunction with a biological and wetland reconnaissance survey to verify current site conditions. A list of all species observed during biological surveys of the Study Area is provided in Appendix E.

3.3.3 Burrowing Owl Habitat Assessment and Protocol Surveys

HELIX biologists assessed the suitability of the site as habitat for burrowing owl (*Athene cunicularia*) on January 4, 2019. The site was assessed for presence of suitable burrows and foraging habitat, abundance of prey, and sign of burrowing owl occupancy according to the guidelines prepared by CDFW in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Suitable burrows are holes or crevices greater than

3 inches diameter and are typically located on a mound, gentle slope, or near a post or other low perch. Suitable foraging habitat is open areas with sparse, low-growing vegetation that allows burrowing owls to see prey from low perches and hunt in low, horizontal flight. The most common prey associated with burrowing owl is California ground squirrel (*Otospermophilus beecheyi*). Signs of burrowing owl presence include pellets, bones, whitewash, and litter collected around burrow entrances and under perches. The habitat assessment consisted of one to two biologists walking transects over the site spaced to provide 100-percent visual coverage of the ground surface. All mounds, posts, hummocks, banks, debris piles, and other prominent features were closely inspected for sign of burrowing owl.

Four focused surveys were conducted during the breeding season (February 1 through August 31) in suitable habitat identified in the habitat assessment. Breeding season burrowing owl surveys were conducted according to the guidelines prepared by CDFW in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). The site was surveyed a total of four times during the burrowing owl breeding season (Table 1) by HELIX biologists with extensive experience at burrowing owl surveys. An additional survey was conducted outside of the burrowing owl breeding season (November 16, 2021), to evaluate the site for the presence of transient, non-breeding burrowing owl. During each survey, the site was surveyed on foot with meandering transects that provided 100-percent visual coverage of the site and suitable habitat off-site. All observed mammal burrows were searched for sign of recent use by burrowing owls such as excrement, feathers, and owl pellets. No burrowing owls or burrowing owl sign were observed on or adjacent to the Study Area during focused surveys.

3.3.4 Assessment of Black Rail and other Special-Status Bird Species with Potential to Occur in Adjacent Marsh Habitats

HELIX biologists conducted a focused habitat assessment for black rail and other special-status bird species that inhabit salt marsh and other aquatic habitats that are present on lands adjacent to the Study Area. These species include tri-colored blackbird (*Agelaius tricolor*), Alameda song sparrow (*Melospiza melodia pusillula*), Ridgway's rail (*Rallus obsoletus obsoletus*), yellow rail (*Coturnicops noveboracensis*), California black rail (*Laterallus jamaicensis coturniculus*), and salt marsh common yellowthroat (*Geothlypis trichas sinuosus*).

The habitat assessment was conducted on May 2, 2019 by HELIX wildlife biologists Patrick Martin, B.S. and Stephanie McLaughlin, M.S. The California black rail depends on emergent wetland habitats for all stages of its life cycle. Essential habitat factors for California black rail include perennial standing or flowing water, dense vegetation, shallow (less than 1.25 inches) water zones, and a wetland size of 0.25 acre or larger (Richmond et al. 2010). The survey was focused on the wetland area to the southeast of the Study Area, which consists of freshwater emergent wetland, freshwater ponds, estuarine and marine wetland, and irrigated agricultural land (USFWS 2021). A levee road abuts the southeastern boundary of the Study Area, separating the Study Area from the neighboring wetlands.

The habitat assessment was conducted by walking along the levee road and characterizing the habitat for black rail and other marsh birds. Two rounds of call-playback techniques were used to check for the presence of any black rails during the site visit. The playback sequence consisted of the "kic-kic-kerr" (hereafter kkk) and "grr" vocalizations of black rails played on a portable game caller amplified through a small speaker (FoxPro Patriot and TX433 remote control), capable of broadcasting to a maximum of 108 decibels as measured at one meter. The playback sequence consisted of two minutes of silent listening, two sets of kkk calls lasting 30 seconds followed by 30 seconds of listening between sets, two sets of grr calls lasting 30 seconds each followed by 30 seconds of listening between sets, and two minutes of silent listening. During the habitat assessment, an inventory of all bird species observed in adjacent marsh habitats was conducted.

3.3.5 Arborist Inventory

HELIX Certified Arborist/Senior Botanist George Aldridge, Ph.D. (International Society of Arboriculture [ISA] Certification No. WE-11778A) conducted an arborist inventory of the Study Area on April 16, 2019. An additional survey was conducted on December 8, 2021 by ISA Certified Arborist Stephanie McLaughlin, M.S. (WE-12922A) to record trees affected by the updated and expanded project footprint. All live plants meeting the City of Newark's definition of tree (i.e., woody plants with at least one well defined stem at least six inches diameter at four feet above ground level) were identified, mapped, and assessed for trunk diameter, dripline radius, and overall condition. Condition was assessed based on visual inspection of root crown, trunk, major branches, and foliage; no excavation of roots, aerial examination of canopy, microscopic examination of tissue, or invasive examination of the trunk interior was performed. The arborist report is included as Appendix F. Field data from the arborist inventory are provided in Attachment C of Appendix F.

3.3.6 Jurisdictional Delineation of Wetlands and Other Waters

HELIX Principal Biologist Stephen Stringer, M.S. conducted a jurisdictional delineation of the Study Area on July 3, 2019. Mr. Stringer and Ms. McLaughlin conducted an additional site visit for the jurisdictional delineation on November 16, 2021 to evaluate off-site improvement areas and Mr. Stringer conducted a final visit on March 8, 2022 to update the delineation and verify current conditions. The delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0; USACE 2008). The three-parameter method was used to determine the presence of wetlands based on indicators of hydrophytic vegetation, hydric soils, and wetland hydrology as defined by the U.S. Army Corps of Engineers (USACE 2008). The complete jurisdictional delineation report is included as Appendix G.

4.0 RESULTS: ENVIRONMENTAL SETTING

4.1 EXISTING LAND USE

The northern one-third of the main portion of the Study Area is undeveloped ruderal/disturbed habitat; the remainder of the main portion of the site is developed as an auto parts and scrap metal salvage yard (Pick-N-Pull). Runoff from the salvage yard is collected in two detention basins in the southern tip and along the southeastern side of the Study Area. There are two stands of large eucalyptus trees near the northern corner of the site, as well as ornamental trees in the parking area of the Pick-N-Pull salvage yard where it fronts Mowry Avenue. The Study Area also includes off-site improvement areas along Mowry Avenue to allow for roadway improvements, along the UPRR tracks to allow for the installation of a water line extension, and a storm drain discharge southward into the ACFC & WCD channel "Line D." The Mowry Avenue extension consists entirely of developed roadway. The water line extension follows a gravel road in a southeasterly direction along the UPRR tracks and then turns to the northeast and crosses over the ACFC & WCD channel "Line D" before ultimately running along a planned gravel road adjacent to the channel. The current alignment of the ACFC & WCD channel "Line D" is within the Study Area; however, this channel is proposed to be realigned outside of the Study Area prior to implementation of the project. The storm drain discharge is within developed areas along Mowry Avenue frontage.

4.2 TOPOGRAPHY

The Study Area is flat and level, with a gentle slope to the southwest. Elevation on the site ranges from approximately 12 feet amsl in the north to approximately two feet amsl in the south.

4.3 HYDROLOGY

The Study Area is situated adjacent to Mowry Slough in the Plummer Creek – Frontal San Francisco Bay Estuaries Hydrologic Unit (HUC12: 180500040702). Mowry Slough is a tidal channel south of the Study Area that is connected to the San Francisco Bay.

The detention basins along the southeastern site boundary are constructed, with the majority of the ponding water resulting from direct precipitation and storm water runoff collected from the adjacent upland areas, including the auto parts and scrap metal salvage yard. Both detention basins drain into the alkali salt marsh complex located on the neighboring site, that abuts the eastern boundary of the Study Area, through gravel lined spillways. The alkali salt marsh complex is connected to the Mowry Slough through a culvert, which then drains into the San Francisco Bay.

The constructed storm drain was built to route stormwater runoff away from the outdoor athletic facilities at the George M. Silliman Recreation Complex, located north of the Study Area into the ACFC & WCD channel “Line D”, which is a constructed storm water management channel.

4.4 SOILS

Three soil types are mapped within the Study Area: Omni silt clay loam, strongly saline (132), Omni silt clay loam, drained (131), and Pescadero clay, drained (133) (Natural Resources Conservation Service [NRCS] 2021). A soil map is included as Figure 5, *Soils Map*, in Appendix A.

Omni silt clay loam, strongly saline (132) is found on toeslopes and floodplains and consists of alluvium derived from sedimentary rock. A typical soil profile is silty clay loam from 0 to 6 inches, clay from 6 to 52 inches, and stratified clay loam to silty clay from 52 to 60 inches. Omni silt clay loam, strongly saline is a poorly drained soil with a frequency of ponding of “none” and a depth to water table of 48 to 72 inches (NRCS 2021). Omni silt clay loam, strongly saline is rated as a hydric soil (NRCS 2016).

Omni silt clay loam, drained (131) is found on toeslopes and floodplains and consists of alluvium derived from sedimentary rock. A typical soil profile is silty clay loam from 0 to 6 inches, clay from 6 to 52 inches, and stratified clay loam to silty clay from 52 to 60 inches. Omni silt clay loam, drained is a poorly drained soil with a frequency of ponding of “none” and a depth to water table of more than 80 inches (NRCS 2021). Omni silt clay loam, drained is rated as a hydric soil (NRCS 2016).

Pescadero clay, drained (133) is found on toeslopes and rims and consists of alluvium derived from sedimentary rock. A typical soil profile is clay loam from 0 to 2 inches, clay from 2 to 30 inches, and clay loam from 30 to 60 inches. Pescadero clay, drained is a poorly drained soil with a frequency of ponding of “none” and a depth to water table of 48 to 72 (NRCS 2021). Pescadero clay, drained is rated as a hydric soil (NRCS 2016).

4.5 VEGETATION COMMUNITIES AND LAND COVER

Vegetation communities/land covers in the Study Area consist of developed land, ruderal/disturbed habitat, constructed stormwater detention basins, a constructed storm drain, and a segment of the ACFC & WCD channel "Line D" (Table 2, *Vegetation Communities and Land Cover Types in the Study Area*; Appendix A – Figure 6, *Habitat Map*). None of these land cover types are described in treatments of natural vegetation communities used by CDFW or CNPS (e.g., California Wildlife Habitat Relationships and the Manual of California Vegetation Second Edition).

4.5.1 Developed

Developed land refers to areas where permanent structures, pavement, hardscape, or other land uses prevent the establishment of vegetation, or where vegetation is associated with maintained landscaping. Approximately 22.36 acres within the Study Area are classified as developed land, which includes the auto parts and scrap metal salvage yard, portions of Mowry Avenue and road frontage along Mowry Avenue, and a segment of the UPRR tracks. Developed land generally lacks significant habitat value for plants and wildlife. Wildlife within developed areas is comprised of species that can tolerate regular human disturbance.

4.5.2 Ruderal/Disturbed

Ruderal/disturbed habitat refers to land that retains a soil substrate but is subject to recent or on-going disturbance that prevents the formation of natural vegetation communities. Vegetation in ruderal/disturbed areas is dominated by naturalized or invasive non-native species and ruderal native annuals. The species composition is determined by local colonization potential or past introductions. Ruderal/disturbed areas include dirt roads, trails, parking areas, weedy open areas, abandoned fields, and other places where the natural vegetation has been removed.

Approximately 11.74 acres of the Study Area are comprised of ruderal/disturbed habitat dominated by introduced species such as wild oats (*Avena fatua*), Italian ryegrass (*Festuca perennis*), yellow star thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). Ruderal/disturbed areas include a disked field next to the auto wrecking and scrap metal salvage yard, and small strips of habitat adjacent to Mowry Avenue, the UPRR tracks, and the ACFC & WCD channel "Line D." The ruderal/disturbed habitat in the Study Area provides marginal nesting and foraging habitat for bird species in the region as well as habitat for disturbance-tolerant wildlife. Striped skunk (*Mephitis mephitis*) and black-tailed jackrabbit (*Lepus californicus*) were observed in the ruderal/disturbed habitat along with numerous bird species including red-tailed hawk (*Buteo jamaicensis*) and red-shouldered hawk (*Buteo lineatus*).

4.5.3 Stormwater Detention Basins

There are two constructed stormwater detention basins on the eastern boundary of the Study Area. These basins are routinely maintained to remove vegetation for the purpose of maintaining capacity. Between maintenance events, the basins support patches of narrow-leaved cattail (*Typha latifolia*) and other rapidly colonizing wetland plants surrounding reaches of open water. The total area of these basins is approximately 0.90 acre.

4.5.4 Constructed Storm Drain 1

The Constructed Storm Drain 1 is a constructed, unlined earthen channel that terminates in the southeastern portion of the Study Area, along the narrow strip of developed land that will be used for the installation of a water line extension. This storm drain was constructed to route stormwater runoff away from the outdoor athletic facilities at the George M. Silliman Recreation Complex, located north of the Study Area. Vegetation in the constructed storm drain consists of non-native grasses and forbs, and the drain contained vegetative debris from a nearby Mexican fan palm (*Washingtonia robusta*) at the time of the surveys. The total area of the constructed storm drain falling within the bounds of the Study Area is approximately 0.01 acre.

4.5.5 ACFC & WCD Channel "Line D"

A 0.29-acre segment of the ACFC & WCD channel "Line D" falls within the Study Area at the time of report preparation but is planned for realignment prior to project implementation. The channel is a managed storm water channel with earthen bed and banks. Water was present in the channel to a depth of several inches at the time of the survey in November 2021. The banks of the channel support ruderal upland vegetation and the bed of the channel supports salt marsh species.

Table 2
VEGETATION COMMUNITIES AND LAND COVER TYPES IN THE STUDY AREA

Vegetation Community/Land Cover Type	Area (ac.)
Developed Land	22.36
Ruderal/Disturbed Habitat	11.74
Stormwater Detention Basin	0.90
Constructed Storm Drain	0.01
ACFC & WCD Channel "Line D"	0.29
TOTAL	**35.3**

4.6 WILDLIFE

Due to the disturbed nature of the Study Area, only marginal habitat value for wildlife limited to species tolerant of regular human disturbance is provided. Wildlife observed in the Study Area during biological surveys includes common bird species such as Canada goose (*Branta canadensis*), Red-tailed hawk (*Buteo jamaicensis*), great-tailed grackle (*Quiscalus mexicanus*), American crow (*Corvus brachyrhynchos*), killdeer (*Charadrius vociferus*), red-winged blackbird (*Agelaius phoeniceus*), and gulls. A complete list of wildlife observed in the site is provided in Appendix E.

5.0 DISCUSSION: EVALUATION OF BIOLOGICAL RESOURCES

5.1 SENSITIVE NATURAL COMMUNITIES

No sensitive natural communities are present in the Study Area. Developed lands and ruderal/disturbed areas are not considered sensitive and have low potential to support special-status species. The emergent marsh vegetation in the stormwater detention basins is removed routinely to maintain capacity and does not form a stable natural community. The constructed storm drain drains stormwater from the adjacent Silliman Recreation Complex and does not contain habitat for special-status species and the ACFC & WCD channel “Line D” is a managed stormwater channel with marginal habitat for sensitive plants and wildlife. However, salt marsh habitats adjacent to the southern tip of the site are considered sensitive natural communities.

Potential indirect impacts to off-site wetland and salt marsh habitats could include hydrologic alteration and water quality impacts. The addition of impervious surfaces through the construction of buildings and roadways and the compaction of soil could potentially alter the amount, location, quality, and velocity of stormwater runoff flowing into adjacent wetland habitats. Stormwater discharged into natural habitats could potentially result in impacts related to water quality.

An analysis of pre- and projected post-development flows was conducted to determine if there would be a significant change in flows entering the off-site wetlands along the southeastern boundary of the project from outfalls in the storm water detention basins upon completion of development. Based on the analysis conducted by CBG Engineering, there would be a slight decrease in post-project flows of 0.60 cubic feet per second (CFS); pre-project flows are 19.65 CFS and post-development flows would be 19.05 CFS. Based on this analysis, alteration of flows due to development would not have a significant impact on sensitive natural communities off-site. Potential indirect impacts to off-site sensitive natural communities in the form of water quality impacts would be a significant impact. Mitigation measures are proposed in Chapter 6.1 to reduce impacts to off-site sensitive natural communities to less than significant.

In addition, the proposed project could include an increase in non-native invasive species and urban-adapted native species, and an increase in domestic animals such as cats and dogs. Invasive plant species could spread into adjacent salt marsh habitats and reduce the habitat quality for native species and domestic animals or urban adapted species that were attracted by the proposed development could prey on more sensitive native species in the adjacent salt marsh habitats. This would be a significant impact. Mitigation measures are proposed in Chapter 6.1 and 6.4 to reduce impacts to off-site sensitive natural communities to less than significant.

5.2 REGIONAL PLANNING DOCUMENTS: TIDAL MARSH RECOVERY PLAN AND BAYLANDS ECOSYSTEM HABITAT GOALS SCIENCE UPDATE 2015

The Study Area is in the Central/South San Francisco Bay Recovery Unit of the Tidal Marsh Recovery Plan. The Study Area is in an area identified by the recovery plan as within the potential sea level zone by the year 2100 (USFWS 2013). The Tidal Marsh Recovery Plan does not identify any tidal marsh or wetland habitats in the Study Area (USFWS 2013). Additionally, there are no areas in the Study Area that are mapped as having any potential for future tidal restoration or ecotone restoration (USFWS 2013). Therefore, the proposed project will not affect any areas proposed for restoration or any areas mapped as existing wetlands in the Tidal Marsh Recovery Plan.

The Study Area mostly falls outside of the boundary of the Baylands Ecosystem Habitat Goals Science Update 2015 (Goals Project 2015), which identifies areas adjacent to the Study Area as mostly developed land, agricultural/undeveloped land, (Cargill) salt ponds, other managed ponds, and diked wetlands (Goals Project 2015). The Study Area is located adjacent to Segment Q of the Baylands

Ecosystem Habitat Goals Science Update (Goals Project 2015). Historically, Segment Q of the Baylands report consisted primarily of tidal salt marsh, which is now mostly managed ponds, including the Cargill salt ponds (Goals Project 2015). The Baylands Ecosystem Habitat Goals Science Update identifies Segment Q as having large opportunities to restore historic tidal salt marsh habitat with upland transition zones and associated vernal pool habitat at the upper ends of Newark, Plummer, Mowry, and Albrae Sloughs. The Study Area is located in uplands adjacent to Mowry Slough, but it is located outside of the area considered in the Baylands report (Goals Project 2015). Most of the prospective restoration areas that include ecotone and tidal marsh restoration areas are in the Cargill salt ponds and other areas closer to the refuge (USFWS 2013). Therefore, the proposed project will not affect any areas proposed for restoration in the Baylands report.

The Study Area is located approximately one mile north of the Don Edwards San Francisco National Wildlife Refuge which consists largely of tidal salt marsh and adjacent upland habitat. The Don Edwards San Francisco National Wildlife Refuge supports populations of Ridgeway's rail (Goals Project 2015) and salt marsh harvest mouse in addition to other special-status species that utilize the salt marsh habitat and upland ecotone. A levee and a diked portion of Mowry Slough separates the Don Edwards San Francisco National Wildlife Refuge from the Study Area and the project will have no direct impacts on the Refuge. However, potential indirect effects of development could include an increase in non-native and urban-adapted native plant and wildlife species, and an increase in domestic animals such as cats and dogs, that could prey on more sensitive native species in the adjacent habitats. Mitigation measures in Chapter 6.1 would reduce this potential impact to less than significant.

5.3 JURISDICTIONAL WATERS OF THE U.S. AND STATE

The results of the jurisdictional delineation are included in Appendix G and summarized in this section. The segment of the ACFC & WCD channel "Line D" that currently falls within the Study Area may be subject to jurisdiction under Section 404 and 401 of the Clean Water Act because it is a relatively permanent, non-navigable tributary of a traditionally navigable water indirectly by means of other tributaries. Tributaries include natural, man-altered, or man-made water bodies that carry flow directly or indirectly into a traditional navigable water (USACE and USEPA 2008). The channel is tributary to Mowry Slough approximately 0.5 mile downstream (west) of the project site and Mowry Slough is tributary to San Francisco Bay. If work were to occur within the ACFC & WCD channel "Line D", such work would require permits from the USACE and San Francisco Bay RWQCB and would also likely be subject to notification to the CDFW under Section 1602 of the Fish and Game Code. Currently the ACFC & WCD channel "Line D" is planned to be re-routed prior to implementation of the proposed project and would therefore not be impacted by the proposed project.

The stormwater detention basins in the auto salvage yard are stormwater control features constructed in uplands (prior converted farmland and auto salvage yard) that drain upland areas in the auto salvage yard and are excluded from federal jurisdiction. The USACE has previously declined jurisdiction over these detention basins in a Jurisdictional Determination issued on October 11, 2007 (USACE File No. 2006-400075S). The constructed storm drain located in the eastern portion of the Study Area, along the narrow strip for land adjacent to the railroad, is a man-made feature constructed in upland to drain runoff from the George M. Silliman Recreation Complex.

Stormwater control features are not considered waters of the State, and therefore are not under the jurisdiction of the RWQCB. The stormwater detention basins and the constructed storm drain do not meet the definition of lake or stream and are not subject to notification to the CDFW under Section 1602 of the Fish and Game Code.

Because the ACFC & WCD channel “Line D” is planned to be re-routed prior to implementation of the proposed project and the stormwater detention basins and constructed storm drain are not considered waters of the U.S. or waters of the State, no direct impacts or loss of wetlands or other waters of the U.S. or waters of the State are anticipated as a result of the proposed project and no mitigation is necessary. Potential indirect impacts to waters of the U.S. and waters of the State offsite associated with water quality degradation are discussed in Chapter 5.1 and mitigation is included in Chapter 6.1.

5.4 SPECIAL-STATUS SPECIES

5.4.1 Special-Status Plants

No special-status plant species were observed on the site during botanical surveys conducted during the blooming season, and the Study Area does not provide suitable habitat for any special-status plant species. Therefore, special-status plants are considered to be absent from the Study Area. No potential impacts to special-status plant species would result from the proposed project.

5.4.2 Special-Status Animals

The habitat affinities of each regionally-occurring special-status species were compared to the habitats present in the Study Area to determine the potential for each of these species to occur in the Study Area and/or be impacted by the proposed project (Appendix C). The following special-status animal species were determined to have the potential to occur in the Study Area: northern harrier, white-tailed kite, pallid bat, and Townsend’s big-eared bat (Table 3, *Regionally-Occurring Special-Status Species with Potential to Occur in the Study Area*). Burrowing owl is also discussed because there is suitable habitat on the site, and it is a highly mobile species. Although it was not found in the Study Area during focused surveys, it could occupy suitable habitat within the ruderal/disturbed areas on the site in the future. Additionally, salt marsh harvest mouse was also evaluated, despite the lack of suitable habitat on the site, due to the presence of adjacent salt marsh habitat.

Table 3

REGIONALLY-OCCURRING SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR IN THE STUDY AREA**

Scientific Name Common Name	FESA/CESA/CRPR or Other State Status*	Habitat Suitability
Antrozous pallidus *pallid bat*	--/--/SSC	Structures and trees in the Study Area provide roosting habitat for bats.
Athene cunicularia burrowing owl	--/--/SSC	There is suitable habitat with mammal burrows in the ruderal/disturbed portion of the Study Area.
Circus hudsonius northern harrier	--/--/SSC	There is suitable nesting and foraging habitat in the Study Area and surrounding area.
Corynorhinus townsendii Townsend's big-eared bat	--/--/SSC	Structures and trees in the Study Area provide roosting habitat for bats.
Elanus leucurus white-tailed kite	--/--/FP	There is suitable nesting and foraging habitat in the Study Area and surrounding area.
Reithrodontomys raviventris salt marsh harvest mouse**	FE/SE/--	There is no suitable habitat in the Study Area. Nearby tidal salt marsh habitat may provide habitat.

* FESA=Federal Endangered Species Act; CESA=California Endangered Species Act; FE – FESA endangered; FT – FESA threatened; SE – CESA endangered; ST – CESA threatened; FP=State fully protected; SSC – state species of special concern; CRPR – CNPS California Rare Plant Rank designation.

** Salt Marsh Harvest Mouse has no potential to occur on the site but is evaluated here due to the presence of salt marsh habitat in the vicinity.

5.4.2.1 Pallid Bat (***Antrozous pallidus***)

FESA Status – None
CESA Status – None
Other – CDFW Species of Special Concern

Species Description

Occurs throughout California except for the high Sierra Nevada and the northern Coast Ranges. Habitats include grasslands, shrublands, woodlands, and forests from sea level to 6,000 feet. Most common in open, dry habitats with rocky areas for roosting; roosts also include cliffs, abandoned buildings, bird boxes, hollow trees and under bridges (Bolster ed. 1998). This species is primarily a crevice dweller, but recent studies have shown that they are also dependent upon tree roosts (Bolster ed. 1998). Particularly, in northern California pallid bat is more dependent upon oak woodland and oak savannah in lower elevations and may be found in coniferous forest, including redwoods at mid to higher elevations (Bolster ed. 1998). This is species is also intolerant of roost disturbance and it has a high loyalty to roosting sites. If this species experiences frequent disturbance at a roost site, they will abandon the roost (Bolster ed. 1998).

Survey History

No pallid bat or other bat species were observed on site during any of the biological surveys. The nearest CNDDB reported occurrence of pallid bat is located approximately seven miles east of the study area in in the coastal mountains (CDFW 2021). The record is dated 2001 and the site is confidential (CDFW 2021). The site is located at approximately 400 feet elevation in riparian, coastal oak woodland, and non-native annual grassland (CDFW 2021).

Habitat Suitability/Potential to Occur in the Study Area

Ruderal habitat dominated by annual grasses and forbs in the Study Area provides potential foraging habitat for pallid bat and tall eucalyptus trees in the Study Area with woodpecker cavities provide possible roosting habitat. Pallid bat could also utilize crevices in structures at the Pick-n-Pull auto salvage wrecking yard, although any roost site would be subject to constant disturbance as a result of daily activities associated with wrecking and salvaging vehicles. Due to the presence of marginally suitable habitat on the Study Area and adjacent to the site, pallid bat has the potential to occupy the site prior to construction.

Potential Project Impacts

The project has potential for adverse effects to pallid bat through disturbance of day roosts or maternity colonies in structures or eucalyptus trees leading to destruction of maternity colonies and/or abandonment of roost sites if this species were to roost or nest in or adjacent to the Study Area prior to construction. Removal of these structures would result in injury or mortality to individual bats and/or maternity colonies. Construction activities near active roosts sites may result in roost abandonment. If roost abandonment occurs during daylight hours when bats are vulnerable, bats would be subject to a higher degree of predation risk. Destruction of bats and maternity colonies would be a violation of the Fish and Game Code and a significant impact. Mitigation measures proposed in Chapter 6.2.2.1 would reduce impacts to pallid bat to less than significant.

5.4.2.2 Townsend's Big-Eared Bat (***Corynorhinus townsendii***)

FESA Status – None
CESA Status – None
Other – CDFW Species of Special Concern

Species Description

Widely distributed throughout California except alpine and subalpine habitats. This species eats moths, beetle, and other insects which it catches on the wing or by gleaning from vegetation. Typically found near water since it is poor at concentrating its urine. This species uses caves, mines, tunnels, buildings, and human made structures for roosting. Maternity roosts are typically in warm sites. Hibernation sites are typically cold, but not freezing. This species is very sensitive to disturbance and may abandon its roost after one visit (Zeiner et al. 1990).

Survey History

No Townsend's big-eared bat or other bat species were observed on site during any of the biological surveys The nearest reported occurrence of the species is 14.2 miles west of the Study Area in Portola Valley (CDFW 2021).

Habitat Suitability/Potential to Occur in the Study Area

Ruderal habitat dominated by annual grasses and forbs in the Study Area provides potential foraging habitat for Townsend's big-eared bat and tall eucalyptus trees in the Study Area with woodpecker cavities provide possible roosting habitat. Townsend's big-eared bat could also utilize crevices in structures at the Pick-n-Pull auto salvage wrecking yard, although any roost site would be subject to constant disturbance as a result of daily activities associated with wrecking and salvaging vehicles. Due to the presence of marginally suitable habitat on the Study Area and adjacent to the site, Townsend's big-eared bat has the potential to occupy the site prior to construction.

Potential Project Impacts

The project has potential for adverse effects to pallid bat through disturbance of day roosts or maternity colonies in structures or eucalyptus trees leading to destruction of maternity colonies and/or abandonment of roost sites if this species were to roost or nest in or adjacent to the Study Area prior to construction. Removal of these structures would result in injury or mortality to individual bats and/or maternity colonies. Construction activities near active roosts sites may result in roost abandonment. If roost abandonment occurs during daylight hours when bats are vulnerable, bats would be subject to a higher degree of predation risk. Destruction of bats and maternity colonies would be a violation of the Fish and Game Code and a significant impact. Implementation of the proposed mitigation in Chapter 6.2.2.1 would reduce impacts to Townsend's big-eared bat to a less than significant level.

5.4.2.3 Burrowing Owl (***Athene cunicularia***)

FESA Status – None
CESA Status – None
Other – CDFW Species of Special Concern

Species Description

Burrowing owls are often found in open, dry grasslands, agricultural and range lands, and desert habitats. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. Burrowing owls occur at elevations ranging from 200 feet below mean sea level to over 9,000 feet amsl. In California, the highest elevation where burrowing owls are known to occur is 5,300 feet amsl in Lassen County. In addition to natural habitats, burrowing owls can be found in urban habitats such as at the margins of airports and golf courses and in vacant urban lots. Burrowing owls nest in underground burrows and commonly perch on nearby fence posts or mounds. The owls also use ground squirrel burrows, badger dens, or artificial burrows such as abandoned pipes or culverts (CDFW 2012).

Although the more northern burrowing owl populations migrate seasonally, burrowing owls are year-round residents in much of California. The owls often form loose colonies with nest burrows 46 to 2,952 feet apart (ICF 2012). The nesting season for burrowing owl can begin as early as February 1 and continues through August 31. Burrowing owls forage in adjacent grasslands and other suitable habitats primarily for insects and small mammals and less often for reptiles, amphibians, and other small birds. Burrowing owls have been documented foraging up to 1.7 miles from their nest in Saskatchewan, Canada; however, these owls also showed an aversion to foraging in agricultural or other mixed-use areas (Haug and Oliphant 1990). In the southern Central Valley of California and Imperial Valley over 80 percent of foraging activity occurred within 600 meters of the burrow (Gervais et al. 2003). A study in Texas documented that foraging distances in an urban environment ranged from approximately 10 to 42 meters from the nest burrow (Chipman et al. 2008). The Texas study also noted that burrowing owls in urban settings tended to be more vigilant at the burrow and spend less time foraging (Chipman et al. 2008).

Survey History

All biological surveys included searching for burrowing owls. In addition, protocol burrowing owl surveys were conducted on April 16, May 2, May 23, and June 18, 2019. A non-breeding burrowing owl survey was conducted on November 16, 2021 and an additional biological reconnaissance survey was conducted on March 8, 2022. Burrowing owls, burrows, or sign were not observed on the Study Area during any of the surveys.

The nearest CNDDB recorded occurrences of burrowing owl are north of the Study Area on the Campus of Ohlone College near Cherry Street, dated 2005 (Occurrence No. 270). Two active burrows were observed at this location in 1998. Four adult pairs and nine juveniles were passively relocated in February 2005 (CDFW 2021). There are numerous reported occurrences of burrowing owl in the CNDDB in the western portions of the cities of Newark and Fremont (CDFW 2021); HELIX biologists have also observed burrowing owls on several occasions within two to three miles of the site. There is a small resident population of burrowing owl in the City of Newark and transient owls are frequently observed on undeveloped parcels in the region (HELIX, personal observations).

Habitat Suitability/Potential to Occur in the Study Area

The ruderal/disturbed areas of the Study Area, which occur within a largely urban area adjacent to an auto salvage yard, provide marginal nesting and foraging habitat for burrowing owl. However, this species has not been observed on the Study Area during numerous surveys. Based on the negative results of the surveys, burrowing owl is not expected to occur in the Study Area except as transient, non-breeding individuals.

The only vegetation community onsite that could provide habitat for burrowing owl is the ruderal/disturbed community in the northern 1/3 of the Pick-N-Pull property, which is dominated by wild oats, Italian ryegrass, yellow star thistle, and black mustard. Burrowing owl habitat typically consists of short, sparse vegetation with scattered and isolated shrubs in locally flat terrain in well-drained soil with mammal burrows or other refuge sites (CDFW 2012). Records of burrowing owl or observations of burrowing owl sign within the previous three years is considered evidence of occupied habitat (CDFW 2012). Because there are no records of burrowing owl in the Study Area and no burrowing owl sign was observed during numerous biological surveys including protocol surveys, the potentially suitable habitat in the Study Area is presumed to be unoccupied. Additionally, the site is regularly disked, and existing California ground squirrel burrows are disked and turned over. However, since California ground squirrel burrows can be extensive, ranging from 3 to 138 feet in length with up to 20 entrances (Zeiner et al. 1990), ground squirrel burrows were still occupied by ground squirrels after disking despite the heavy disruption of the soil. Due to the presence of ground squirrel burrows and suitable foraging habitat on and adjacent to the Study Area, burrowing owl has a low potential to occupy the site in the future.

Burrowing owls have been documented breeding at the nearby Don Edwards San Francisco Bay National Wildlife Refuge - Warm Springs Unit located approximately two miles east of the Study Area. This site has several pairs of breeding burrowing owls and is on land managed by the USFWS for conservation and to provide habitat for burrowing owl in addition to other listed species. The refuge encourages burrowing owls to occupy the site by providing both artificial burrows and natural California ground squirrel burrows on site and manages vegetation height and density through rotational grazing of the site and through management practices with volunteers. Burrowing owls from the Warm Springs Unit could use the site for nesting or foraging, however the conditions at the Warm Springs Unit are not present at the Study Area, which consists of tall annual grasses and forbs, disked soil, tall trees, and a developed auto wrecking yard. Burrowing owls were not observed over several site visits timed to coincide with the activity period of burrowing owls during the breeding season. The site is not favorable for burrowing owls compared to nearby sites and is unlikely to provide habitat for burrowing owl except as transient individuals moving through the site.

Potential Project Impacts

The project will result in the loss of 11.74 acres of ruderal/disturbed habitat that could potentially be used by burrowing owl for foraging. However, the nearest known populations of burrowing owl are two miles or more from the site and abundant higher quality habitat is present south of the Study Area closer to known populations of burrowing owl. Although burrowing owls have been documented foraging up to 1.7 miles from their nest in Saskatchewan, Canada, (Haug and Oliphant 1990) more recent studies in California and Texas have documented that the majority of foraging activity occurred within 600 meters of the burrow (Gervais et al. 2003) and that foraging distances in an urban environments ranged from approximately 10 to 42 meters from the nest burrow (Chipman et al. 2008). Because burrowing owl has not been observed using the site, the habitat value of the site is low, and known populations of burrowing owl are two miles or more from the Study Area, the loss of ruderal/disturbed habitat in the Study Area is not anticipated to have any impact on the regional burrowing owl population.

Although unlikely, if burrowing owl were to occupy the site prior to development, the project would have potential for adverse effects through injury or mortality, displacement, and loss of habitat. Injury or mortality to individual adults and young, or mortality of eggs and chicks due to forced nest abandonment by adults, would be a violation of the Fish and Game Code and a significant impact. Loss of occupied habitat including nesting burrows, satellite burrows, foraging habitat, dispersal habitat, wintering habitat, and linkages is considered a potentially significant impact to the local and regional populations of burrowing owl (CDFW 2012). Implementation of the proposed mitigation in Chapter 6.2.2.2 would reduce impacts to burrowing owl to a less than significant level .

5.4.2.4 Northern Harrier (***Circus hudsonius***)

FESA Status – None
CESA Status – None
Other – CDFW Species of Special Concern

Species Description

Northern harrier is widespread throughout North America from southern Canada to northern Mexico and is a year-round resident in California. Some harriers will migrate into California while others will migrate to Central America and South America (Zeiner et al. 1990). Northern harriers breed in a variety of open habitats including marshes, wet meadows, weedy shorelines, grasslands, weed fields, pastures, sagebrush flats, desert sinks, and croplands (Zeiner et al. 1990). Northern harriers typically nest on the ground in patches of dense, tall vegetation in undisturbed areas. Breeding occurs from March to August. Northern harriers feed on a wide variety of vertebrate prey, including rodents, songbirds, waterfowl, and lizards (Zeiner et al. 1990).

Survey History

Northern harrier was not observed on site during any of the biological surveys. The nearest CNDDB reported occurrence of northern harrier documents two nests located approximately three miles southwest of the study area in salt marsh habitat (CDFW 2021). The record is dated 1971 and documents two pairs of breeding northern harriers, each nest with six eggs (CDFW 2021). HELIX biologists have observed foraging northern harrier on numerous occasions in the project region, but no nests have been documented (HELIX, personal observations).

Habitat Suitability/Potential to Occur in the Study Area

Ruderal habitat dominated by annual grasses and forbs in the Study Area provides potential nesting and foraging habitat for northern harrier. Freshwater marsh and salt marsh habitat on surrounding parcels provide suitable nesting habitat. In addition, small mammal prey is abundant and could support this species. Due to the presence of suitable habitat on and adjacent to the site, northern harrier has the potential to occupy the site prior to construction.

Potential Project Impacts

The project has potential for adverse effects to northern harrier through nest disturbance leading to destruction of eggs or nestlings if this species were to nest in or adjacent to the Study Area prior to construction. Non-breeding adults could readily avoid contact with construction equipment or personnel by moving out of the construction area. Displacement of non-breeding adults would not be a significant impact. However, eggs and young still dependent on the nest would be susceptible to injury or mortality through physical contact or through nest abandonment caused by displacement of adults. Destruction of eggs or young would be a violation of the Fish and Game Code and a significant impact. Implementation of the proposed mitigation in Chapter 6.2.2.3 would reduce impacts to northern harrier to a less than significant level.

5.4.2.5 White-tailed Kite (***Elanus leucurus***)

FESA Status – None
CESA Status – None
Other – State Fully Protected

Species Description

White-tailed kite is a year-round resident in coastal and valley lowlands, where it inhabits herbaceous and open stages of most habitat types. Individuals forage in grasslands, farmlands, and wetlands, preying mostly on small diurnal mammals. Nests are built near the top of dense tree stands, usually near open foraging areas (Zeiner et al. 1990).

Survey History

White-tailed kite was observed foraging in the vicinity of the Study Area during several of the biological surveys. No white-tailed kite nests were observed in or adjacent to the Study Area, although suitable nest trees are present in the Study Area. The nearest CNDDB reported occurrence of white-tailed kite is dated 1971 and documents a nesting pair located approximately 3.3 miles northwest of the Study Area (CDFW 2021). The record documents a nest in a willow or sycamore tree; however, the area has since been developed.

Habitat Suitability/Potential to Occur in the Study Area

Suitable nesting and foraging habitat for white-tailed kite is present in the Study Area. Several large eucalyptus trees that provide suitable nesting habitat are present along Mowry Avenue in the northern portion of the site adjacent to the ruderal/disturbed habitat. Open areas in the ruderal/disturbed habitat in and adjacent to the Study Area provide suitable foraging habitat for white-tailed kite. Due to the presence of suitable habitat on and adjacent to the site, white-tailed kite has the potential to occupy the site prior to construction.

Potential Project Impacts

The project has potential for adverse effects to white-tailed kite through nest disturbance leading to destruction of eggs or nestlings if this species were to nest in or adjacent to the Study Area prior to construction. Non-breeding adults could readily avoid contact with construction equipment or personnel by moving out of the construction area. Displacement of non-breeding adults would not be a significant impact. However, eggs and young still dependent on the nest would be susceptible to injury or mortality through physical contact or through nest abandonment caused by displacement of adults. Destruction of eggs or young would be a violation of the Fish and Game Code and a significant impact. Implementation of the proposed mitigation in Chapter 6.2.2.3 would reduce impacts to white-tailed kite to a less than significant level.

5.4.2.6 Salt Marsh Harvest Mouse

FESA Status – Endangered
CESA Status – Endangered
Other – None

Species Description

The salt marsh harvest mouse was federally listed as endangered in its entire range on October 13, 1970 (Federal Register 35: 16047). Critical habitat has not been designated for this species. This mouse is also state listed as endangered. A recovery plan for the salt marsh harvest mouse was prepared in 1984 and is currently under revision.

The federal and state listed salt marsh harvest mouse is endemic to tidal and brackish marsh habitats of the San Francisco Bay region. Salt marsh harvest mice are primarily found in the salt marshes along northern San Pablo Bay, surrounding Suisun Bay, and along southern San Francisco Bay (USFWS 1984). The acreage believed to be necessary to sustain a healthy salt marsh harvest mouse population is 150 acres or more (USFWS 2010). The salt marsh harvest mouse is critically dependent on dense cover and its preferred habitat is considered to be pickleweed dominated salt marsh wetlands. Studies have found salt marsh harvest mice occur not only in tidal wetlands dominated by pickleweed, but also in wetlands with little or no pickleweed, in diked wetlands, and in transition zones dominated by annual grasses. However, the extent to which salt marsh harvest mice depend upon these habitats has not been explicitly quantified (Sustaita et al. 2011). Recent studies have also shown that salt marsh harvest mice are more flexible in habitat use and, in their diet, than previously thought (Smith and Kelt 2019). Salt marsh harvest mice will use non-native plant species, such as rabbitsfoot grass (*Polypogon monspeliensis*), in their diet (Smith and Kelt 2019) in addition to other native species and are not tied exclusively to pickleweed dominated wetlands but will also use other mixed vegetation wetlands (Sustaita et al. 2011). This shows that salt marsh harvest mice may use mixed vegetation salt marsh habitat (Sustaita et al. 2011; Smith et al. 2014).

In marshes with an upper zone of halophytes in the intertidal zone, salt marsh harvest mice will use the tall vegetation to escape high tides, and may also move into adjoining grasslands during the highest winter tides especially in areas with shorter emergent salt marsh habitat (Sustaita et al. 2011; Smith et al. 2014). During a live trapping study that used radio telemetry, the study found that salt marsh harvest mice rarely used upland areas with annual grasses but preferred to stay in taller vegetation in the intertidal zone during high tide (Smith et al. 2014). The best type of pickleweed association for the species has: 100 percent vegetative cover with a cover depth of 30 to 50 centimeters at summer maximum, at least 60 percent cover of pickleweed, and additional halophytes such as fat hen (*Atriplex patula*) and alkali heath (*Frankenia salina*). The amount of salt grass, brass buttons (*Cotula coronopifolia*), alkali bulrush (*Bolboschoenus maritimus*), or other species (e.g., *Schoenoplectus* sp. or *Typha* sp.) should be low (USFWS 1984).

The Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan (USFWS 1984) lists five principal reasons for the decline of the salt marsh harvest mouse: (1) habitat loss, (2) fragmentation of the remaining marshes, (3) widespread loss of the high marsh zone as a result of backfilling, (4) land subsidence, and (5) vegetational change. It further points out that small marshes, separated by open land or dikes, have very low immigration, and that very few areas are likely to be recolonized.

Survey History

No suitable habitat for salt marsh harvest mouse is present on the Study Area, and no surveys have been conducted on the site for this species. The nearest CNDDB reported occurrence of salt marsh harvest mouse documents two individuals caught during a trapping survey approximately 1,500 feet south of the Study Area across the ACFC & WCD channel "Line D" (CDFW 2021). The record dates to 1985 and individuals were trapped on the edge of a salt marsh that abut a disked field (CDFW 2021). This record occurs within an expanse of salt marsh habitat.

Habitat Suitability/Potential to Occur in the Study Area

The study area does not contain suitable habitat for salt marsh harvest mouse. The ruderal/developed habitat in the main portion of the Study Area is located over 2,000 feet north of suitable marsh habitat that could support this species and is separated from this habitat by the ACFC & WCD channel "Line D", which is a barrier to dispersal for salt marsh harvest mouse. The southern tip of the site that contains auto wrecking yard and stormwater detention basins is located adjacent to salt marsh habitat that is suitable for use by salt marsh harvest mouse. However, the auto wrecking yard and stormwater detention basins themselves are developed and in active use and as such do not provide suitable habitat for salt marsh harvest mouse.

Potential Project Impacts

No potential adverse impacts to salt marsh harvest mouse would result from the proposed project. The Study Area does not provide suitable habitat for this species; therefore, no potential for direct impacts to salt marsh harvest mouse were identified. As the result of site management post-implementation of the project, potential indirect impacts to salt marsh habitat off-site are expected to be lower with the proposed project than the existing condition because salt marsh harvest mouse have been excluded from the site through installation of a mouse-proof fence to prevent any potential for this endangered species to enter the site and be harmed (see Section 6.5), water quality from stormwater runoff into the adjacent habitats will be improved, and general avoidance measures to reduce predators and invasive species from entering nearby sensitive habitats will be incorporated into the development as described in Section 6.1 of this BTR. No such measures exist currently with the wrecking yard; therefore, this will be an improvement over the current conditions.

In addition, an analysis of pre- and post-project flows was conducted to determine whether the stormwater input to the adjacent salt marsh habitat would significantly change. Pre-project flows were calculated at 19.65 CFS and post-development flows were calculated at 19.05 cubic feet per second with a differential (reduction in flow post-development) of only 0.60 cubic feet per second. Therefore, the proposed project will not result in a significant alteration of hydrology in adjacent salt marsh habitats.

5.4.2.7 Other Nesting Raptors and Migratory Birds

Native birds are generally protected by the Migratory Bird Treaty Act, which prohibits direct take of adults, nests, eggs, and chicks, as well as the California Fish and Game Code, which prohibits take or needless destruction of birds, bird parts, nests, and eggs. Disturbance that leads to nest abandonment can be considered take of eggs and chicks. Common bird species found on the Study Area include species that nest on all types of substrata, including bare ground, herbaceous and woody vegetation, pipes, debris, poles, and structures.

Project construction activities would potentially result in impacts to nesting birds if construction of the proposed project commences during the typical nesting period for passerines and other migratory birds. Red-tailed hawks have been observed nesting in the Eucalyptus trees along Mowry Avenue and could be impacted by construction. Construction activities and construction-related disturbance (noise, vibration and increased human activity) could adversely affect red-tailed hawks or other nesting birds if they were to nest in or adjacent to the project area. Potential effects include physical destruction of nests by construction equipment and/or nest abandonment. Implementation of the proposed mitigation in Chapter 6.2.2.3 would reduce impacts to nesting raptors and migratory birds to a less than significant level.

5.5 PROTECTED TREES

A total of 45 trees meeting the City of Newark definition of protected tree were identified in the arborist inventory. Most of these (33 trees) are blue gums (*Eucalyptus globulus*) growing along Mowry Avenue, along internal fence lines, and in the parking lot of the auto salvage yard. Most of the blue gums in the Study Area have not been properly maintained and are in poor structural condition. The remaining 12 protected trees in the site include three English walnuts (*Juglans regia*), four Mexican fan palms (*Washingtonia robusta*), one Canary Island date palm (*Phoenix canariensis*), one black locust (*Robinia pseudoacacia*), one ngaio tree (*Myoporum laetum*), one Peruvian pepper tree (*Schinus mole*), and one Fremont cottonwood (*Populus fremontii*). Removal or harm to protected trees would be considered a significant impact. Implementation of the proposed mitigation in Chapter 6.3 would reduce impacts to protected trees to a less than significant level.

6.0 DISCUSSION: AVOIDANCE AND MITIGATION RECOMMENDATIONS

6.1 SENSITIVE NATURAL COMMUNITIES AND JURISDICTIONAL WATERS OF THE U.S./STATE

No sensitive natural communities are present in the Study Area and the proposed project would not directly affect any sensitive natural communities. The ACFC & WCD channel “Line D” is a potential waters of the U.S. and State in the Study Area currently but is planned to be re-routed prior to implementation of the proposed project and would therefore not be impacted by the proposed project. Indirect impacts to sensitive natural communities and waters of the U.S. and State (wetland and marsh habitat) off-site could potentially occur as a result of the proposed project in the form of water quality impacts. The following mitigation measures are recommended to avoid indirect impacts to offsite sensitive natural communities and jurisdictional waters.

- Standard construction BMPs should be implemented throughout construction, in order to avoid and minimize adverse effects to the water quality within the Study Area and wetlands and marsh habitats offsite. Appropriate erosion control measures should be used (e.g., hay bales, filter fences, vegetative buffer strips or other accepted equivalents) to reduce siltation and contaminated runoff from leaving the Study Area. The integrity and effectiveness of the BMPs should be inspected on a daily basis by the resident engineer. Corrective actions and repairs should be carried out immediately.

- Construction by-products and pollutants such as petroleum products, chemicals, or other deleterious materials should not be allowed to enter into offsite wetlands or marsh habitats. A plan for the emergency clean-up of any spills of fuel or other materials should be available when construction equipment is in use.

- Construction vehicles and equipment should be maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease. Leaking vehicles and equipment should be removed from the site.

- Building materials storage areas containing hazardous or potentially toxic materials such as herbicides and petroleum products should have an impermeable membrane between the ground and the hazardous material and should be bermed to prevent the discharge of pollutants to ground water and runoff water.

- Equipment should be re-fueled and serviced at designated construction staging areas. All construction material and fill should be stored and contained in a designated area that is located away from aquatic habitats to prevent transport of materials into adjacent water bodies. The preferred distance is 100 feet from any wetlands or marsh habitats. In addition, a silt fence should be installed to collect any discharge, and adequate materials should be available for spill clean-up and during storm events.

- No litter, debris, or sidecast should be dumped or permitted to enter wetlands or marsh habitats. During project activities, all trash that may attract predators should be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris should be removed from work areas.

Indirect effects of development could include an increase in non-native and urban-adapted native species, and an increase in domestic animals such as cats and dogs, that could prey on more sensitive native species in the adjacent salt marsh. The following mitigation measures are recommended to avoid indirect impacts to offsite sensitive native species.

To reduce indirect effects of development on native species, a predator management program will be developed and implemented. This program will focus on education of occupants of the new residential areas regarding measures to minimize the potential for subsidizing predator species and to minimize the potential effects of pets on sensitive species and enforcement of the program's measures, and restrictions on certain activities that could increase predation of sensitive species. The program will include, at a minimum, the following:

- Minimize disturbance from the development by educating the public about the importance of preserving the ecological integrity of the adjacent natural areas instructing recreational users to stay on the levee tops out of sensitive habitats and keep dogs on leashes.

- To prevent the spread of invasive non-native plants into the nearby sensitive habitats, plants contained on the California Exotic Plant Pest Council List of Invasive Plants will be barred from use within the landscaping of the Mowry Village development area. A list of plants suitable for landscape use should be provided to property buyers.

- Feeding pets outdoors will be prohibited so that pet food does not attract or subsidize the diets of nuisance species.

- Pets will be prohibited from ranging freely (off-leash dogs will be prohibited in offsite wetland areas and no free-roaming outdoor cats will be permitted), to prevent their entry into sensitive species habitat.
- All food waste will be contained so that it does not attract or subsidize the diets of predators.

Any neighborhood association established for new residential areas will be responsible for disseminating this information, and the neighborhood association and City will be responsible for enforcing the program.

6.2 SPECIAL-STATUS SPECIES

6.2.1 Special-Status Plants

Since no special-status plant species were observed on the site during botanical surveys conducted during the blooming season for the proposed project, and the Study Area does not provide suitable habitat for any special-status plant species, special-status plants are considered to be absent from the Study Area. No potential impacts to special-status plant species were identified that would result from the proposed project, and no mitigation measures are necessary.

6.2.2 Special-Status Animals

6.2.2.1 Special-Status Bats

The project could result in significant impacts to nesting colonies of pallid bats and Townsend's big-eared bats, both California species of special concern. The following mitigation measures are recommended to avoid indirect impacts to these special-status bat species.

- A survey for roosting bats shall be completed prior to the removal of any building or tree with potential for day-roosting by bats, or prior to the initiation of any construction activities within 250 feet of such potential roost sites. The survey shall be completed by a qualified biologist. If suitable roost sites are found but a visual survey is not adequate to determine presence or absence of bats (which would be particularly likely in the case of potential roost trees), acoustical equipment could be used to determine occupancy. This survey shall be completed prior to the beginning of the breeding season (i.e., prior to 1 March) in the year in which construction or demolition in a given area is scheduled to occur so that adequate measures can be implemented, if necessary, to evict the bats during the non-breeding season. The survey results shall be provided to the Community Development Director for review and approval prior to the start any construction related activities.
- Because the initial surveys would be completed prior to the breeding season, several months may pass between that survey and the initiation of construction or demolition in a given area. Therefore, a second pre-demolition/pre-construction survey for roosting bats, following the methods described above, shall be completed within 15 days prior to the commencement of these activities in a given area to determine whether bats have occupied a roost in or near the development impact areas. This survey will be facilitated considerably by information (e.g., on potential roost trees) gathered during the previous survey. If bats are found to be roosting, additional mitigation as follows must be implemented.

- If a maternity roost of any special-status bat species is found, the bat biologist shall determine the extent of a construction-free buffer around the active roost that will be maintained. This buffer would be maintained from 1 March until the young are flying, typically after 31 August.

- If a roost of any kind is found in an area (e.g., a building or tree) that will not be disturbed by construction, or that can be avoided, the roost structure will not be impacted.

- If a day roost is found in a building, or in a tree that is to be completely removed or replaced, individual bats will be safely evicted under the direction of a qualified biologist. Eviction of bats will occur at dusk, so that bats will have less potential for predation compared to daytime roost abandonment. Eviction will occur between 1 September and 31 March, outside the maternity season, but will not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey is not available, or bats are in torpor. If a day roost is found within a building, eviction will occur by opening the roosting area to allow air flow through the cavity. Demolition may then follow no sooner than the following day (i.e., there must be no less than one night between initial disturbance for air flow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. If feasible, one-way doors will also be used to evict bats from tree roosts. If use of a one- way door is not feasible, or the exact location of the roost entrance in a tree is not known, the trees with roosts that need to be removed will first be disturbed by removal of some of the trees' limbs not containing the bats. Such disturbance will occur at dusk to allow bats to escape during the dark hours. These trees would then be removed the following day. All of these activities will be performed under the supervision of the qualified biologist.

- If a day roost for pallid bats or another rare bat will be impacted, an alternative bat roost structure will be provided. The design and placement of this structure will be determined by a qualified biologist based on the location of the original roost and which species is located. This bat structure will be erected at least one month (and preferably a year or more) prior to removal of the original roost structure. This structure will be checked during the breeding season for up the three years following completion of the development, or until it is found to be occupied by bats, to provide information for future development projects regarding the effectiveness of such structures in minimizing impacts to bats.

6.2.2.2 Burrowing Owl

Burrowing owl has the potential to nest and forage within the Study Area. The following mitigation measures are recommended to avoid indirect impacts to burrowing owl:

Pre-construction surveys for burrowing owls shall be completed in areas planned for fill placement and construction areas in general conformance with the California Burrowing Owl Consortium's and the CDFW Staff Report (2012) protocols. Because owls are known to occur in the vicinity, these surveys shall be completed no more than 15 days prior (rather than 30 days prior, as per the Consortium's protocol) to the start of importing fill and construction to minimize the probability of immigration of owls between the time surveys are completed and the initiation of grading. If the initial disturbance is followed by periods of inactivity exceeding 15 days, or if the development is phased spatially and/or temporally such that an area in which construction activities are to commence has not been disturbed by construction activities within the prior 15-day period, a new burrowing owl pre-construction survey will be completed prior to the start of disturbance. If burrowing owls are detected on or within 250 feet of the site, mitigation measures below shall be implemented.

- For burrowing owls located during the non-breeding season (generally 1 September to 31 January), a 150-foot buffer zone will be maintained around the occupied burrow(s) if practicable. If such a buffer is not practicable, then a buffer adequate to avoid injury or mortality of owls will be maintained, or the birds will be evicted as described below. During the breeding season (generally 1 February to 31 August), a 250-foot buffer, within which no new activity will be permissible, will be maintained between project activities and occupied burrows. Owls on site after 1 February will be assumed to be nesting unless direct observations indicate otherwise. This protected buffer area will remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently, or the nest is no longer active. Owls that are not nesting can be evicted using the methods below during the period from 1 February to 31 August.

- If construction will directly impact occupied burrows, eviction of owls may occur outside the nesting season (or during the nesting season if the owls are determined to be not nesting) to prevent injury or mortality of individual owls. No burrowing owls shall be evicted from burrows during the nesting season (1 February through 31 August) unless evidence indicates that nesting is not actively occurring (e.g., because the owls have not yet begun nesting early in the season, or because young have already fledged late in the season). Relocation of owls during the non-breeding season will be completed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least two nights. These one-way doors will then be removed, and the burrows backfilled immediately prior to the initiation of grading.

If resident burrowing owl(s) are found in the Study Area during pre-construction surveys and eviction is necessary to facilitate construction, the follow measures will be implemented. These measures do not apply to short-term use of the site by a burrowing owl for foraging, as a stop-over during migration, or temporary use of the site by wintering birds or dispersing juveniles.

- To reduce impacts of the project on the local (South Bay) burrowing owl population, habitat shall be preserved and managed for burrowing owls off-site if eviction of resident owls is required. California burrowing owl mitigation guidelines recommend that 6.5 acres of foraging habitat be preserved and managed per occupied burrowing owl burrow (whether by a pair or singly) in mitigation sites. Therefore, mitigation will be required for each pair or single resident burrowing owl that is evicted, up to a maximum of 13 acres. Mitigation may take the form of off-site habitat preservation and management (in which case all the monitoring and habitat requirements in the following paragraphs would apply) or the purchase of credits in an off-site mitigation bank. Because the nearest burrowing owl mitigation banks are currently located outside of the South Bay, this mitigation may occur outside the region.

- If off-site habitat is to be preserved, a mitigation and monitoring plan detailing the areas to be preserved for owls; the methods for managing habitat for owls and their prey; methods for enhancing burrow availability within the mitigation site (potentially including the provision of artificial burrows, although long-term management for ground squirrels will be important as well); and a monitoring program and adaptive management program shall be prepared by a qualified biologist and submitted to the City of Newark and the CDFW for review and approval. At least 50 percent of the mitigation area must consist of upland habitat suitable for use by burrowing mammals, and no wetlands supporting tall vegetation shall be included within the mitigation site. The mitigation area must be contiguous with habitat that is permanently preserved as open space to avoid having the site surrounded by development in the future. The mitigation area will be protected in perpetuity through a conservation easement, deed restriction, conveyance to a qualified land trust or the Don Edwards National Wildlife Refuge, or through equivalent means.

- Assuming burrowing owl habitat mitigation would occur off-site, some on-site enhancements shall also be made to reduce impacts of the project on the local (South Bay) burrowing owl population. Such enhancements shall include the provision of two artificial burrow complexes on the sides of the adjacent levees (if allowed by levee managers) and management of at least portions of levee side slopes around these burrow complexes to provide suitable conditions for burrowing owls and ground squirrels (e.g., periodic mowing to maintain short vegetation). Given the extent of natural habitat with short vegetation, and the continued presence of seasonal wetlands near the Study Area, providing and maintaining burrows for use by owls is expected to maintain some burrowing owl presence near the Study Area even if most or all of the owl habitat mitigation occurs off-site.

- Signage shall be placed in appropriate locations to prohibit individuals from entering areas where the artificial burrow complexes will be located. Signage will be placed along the levee slopes to instruct recreational users of these levees against leaving the levee tops to protect sensitive species such as the burrowing owl.

6.2.2.3 Northern harrier, white-tailed kite, and other nesting raptors and migratory birds

Northern harrier, white-tailed kite and other nesting birds and raptors including red-tailed hawk have the potential to nest and forage within and adjacent to the Study Area. The following mitigation measures are recommended to avoid impacts to nesting raptors and migratory birds:

If project activities such as vegetation removal activities commence during the avian breeding season (February 1 through August 31), a qualified biologist should conduct a pre-construction nesting bird survey no more than 14 days prior to initiation of project activities and again within 48 hours prior to initiation of project activities. The survey area should include suitable raptor nesting habitat within 500 feet of the project boundary (inaccessible areas outside of the project parcels can be surveyed from the parcel or from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project activities have been continuous since prior to February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season must be re-surveyed prior to resumption of project activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure should be implemented:

- A suitable buffer (e.g., 300 to 500 feet for northern harrier and white-tailed kite; 200 to 300 feet for common raptors; 50 to 100 feet for non-raptors) should be established by a qualified biologist around active nests and no construction activities within the buffer should be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest, or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer should be monitored by a qualified biologist to determine whether nesting birds are being impacted.

6.3 PROTECTED TREES

The proposed project would remove or otherwise affect up to 45 existing trees protected by the City's tree preservation ordinance. Of the 45 protected trees identified in the Study Area, 11 were rated in good condition. The following mitigation is recommended to reduce impacts to trees protected by the City's tree preservation ordinance to less than significant:

- Where feasible, existing trees should be preserved with emphasis on ordinance- size or larger native species and in good or better condition, to the maximum extent practicable, to the satisfaction of the City's Community Development Director.

- In locations where preservation of existing trees is not feasible due to site constraints, trees to be removed by the project shall be replaced at a 3:1 ratio unless the City's Community Development Director determines that a higher ratio is required. Trees greater than 18 inches in diameter shall not be removed unless a Tree Removal Permit, or equivalent, has first been approved for the removal of such trees.

- The species and exact number of trees to be planted on the site during the construction phase shall be determined in consultation with the City and to the satisfaction of the Community Development Director.

- In the event the developed portion of the development site does not have sufficient area to accommodate the required tree mitigation, one or more of the following measures shall be implemented at the development permit stage:

    - An alternative site(s) shall be identified for additional tree planting. Alternative sites may include local parks or schools, or installation of trees on adjacent properties for screening purposes, to the satisfaction of the City's Community Development Director.

    - The size of a 15-gallon replacement tree can be increased to 24-inch box and counted as two replacement trees.

- Prior to the issuance of any construction-phase permit, a construction- phase Tree Preservation Plan shall be prepared by a certified arborist to the satisfaction of the City's Community Development Director for all areas with trees. The construction-phase Tree Preservation Plan shall include the following tree protection measures which are based on guidelines established by the International Society of Arboriculture:

    - Establish Tree Protection Zones

    - Protect Tree Root Systems

    - Install Wood Bark Mulch

  - Install and Maintain Protection Zone Fencing
  - Prune Tree Roots and Crowns Only as Necessary
  - Irrigate Trees

- This Tree Protection Zone is established to protect the tree trunk, canopy, and root system from damage during construction activities and to ensure the long-term survival of the protected trees. The Tree Protection Zone shall: (1) ensure that no structures or buildings, that might restrict sunlight relative to the existing condition, will be constructed in close proximity to the trees; and (2) that no improvements are constructed on the ground around the tree within the Tree Protection Zone, thus ensuring that there is sufficient undisturbed native soil surrounding the tree to provide adequate moisture, soil nutrients and oxygen for healthy root growth.

- A certified arborist will monitor construction when work is done around any trees to be preserved. In areas where the construction-phase tree protection measures, described above are not feasible, all trees affected shall be replaced with 15-gallon replacement trees at a ratio based upon the size of the tree removed. The rationale for the replacement ratio is based upon the anticipated loss of tree canopy from tree removal.

6.4 INVASIVE SPECIES

The proposed project has the potential to introduce or result in the spread of invasive species in the Study Area, which could in turn spread into adjacent sensitive habitats. The following mitigation is recommended to reduce potential impacts from the introduction or spread of invasive species to less than significant:

- Prior to issuance of any building or grading permits, the project shall develop and implement an Invasive Species Management Plan to reduce the presence and spread of non-native, invasive plant species for the area to be developed. The Plan shall be developed prior to importing any fill material required to elevate building sites and prior to grading any areas on the Specific Plan site. The overarching goal of this mitigation is to halt the further expansion of existing invasive species and introduction of new invasive species into sensitive habitats on site. The Invasive Species Management Plan shall include, but not be limited to, the following, summarized below:

  - Prior to construction, map populations of invasive species within all areas proposed to be graded; quantify the extent and location of invasive populations in sensitive habitats.

  - Areas identified to have weed infestations shall be treated prior to ground disturbance according to weed control methods detailed below and Best Management Practices within all upland areas to be graded, after review and approval of methodologies by the City of Newark.

  - Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods approved for application. The timing of the weed control treatment shall be determined for each plant species with the goal of controlling populations before they start producing seeds and/or encroach into adjacent areas from rhizomatous shoots. Consultation with a City of Newark approved wildlife biologist or plant ecologist shall be required prior to weed control treatments in sensitive habitats with the intent of avoiding any adverse impacts to special-status species in the area.

- Surveying and monitoring for weed infestations shall occur annually while grading operations are occurring. Treatment of all identified weed populations shall occur at a minimum of once annually.
- During Project construction, all seeds and straw materials used on site shall be weed-free rice straw, and all gravel and fill material shall be certified weed free.
- During Project construction, vehicles and all equipment shall be washed before and after entering the Project area.

6.5 VOLUNTARY MEASURES TO PREVENT SALT MARSH SPECIES FROM ENTERING THE SITE DURING CONSTRUCTION

Since the Study Area does not contain suitable habitat to support salt marsh harvest mouse or salt marsh wandering shrew (shrew), but the project is located within 300 feet of potentially suitable habitat, a mouse-proof fence has been installed to prevent these species from entering the work area as a reasonable and prudent voluntary protective measure to avoid potentially affecting salt marsh harvest mouse or shrew prior to any development activity. The owner has installed mouse-proof fencing along the southern borders of the Study Area that are near suitable salt marsh habitat so that these salt marsh species cannot enter and be harmed on a site that is zoned for development.

The exclusion fence has been installed along the southern portion of the Study Area that borders any potential habitat. The fence is a durable species barrier designed to exclude sensitive species from a site where they could be harmed. The fence is the same design and construction as that approved by the USFWS for previous projects on adjacent properties. The woven geotextile fence is backed by steel mesh for added strength and wind resistance. A 14-inch metal climbing barrier is buried five inches below grade. The fence extends three feet above the ground and is supported by five-foot wood stakes every six feet with four screws per stake and every other stake is cross-braced. The fence is tethered by a 0.25-inch yellow polymer rope and zip-ties to provide additional support.

The exclusionary fencing is a voluntary, precautionary, pre-construction measure to prevent access to the Study Area by salt marsh species. It was installed outside of bird nesting season and located in upland disturbed areas to ensure that installation work will not affect any waters of the U.S. or state or harm any sensitive plant or animal species. The property owner has committed to verify the integrity of the exclusion fence and repair it as needed on a monthly basis.

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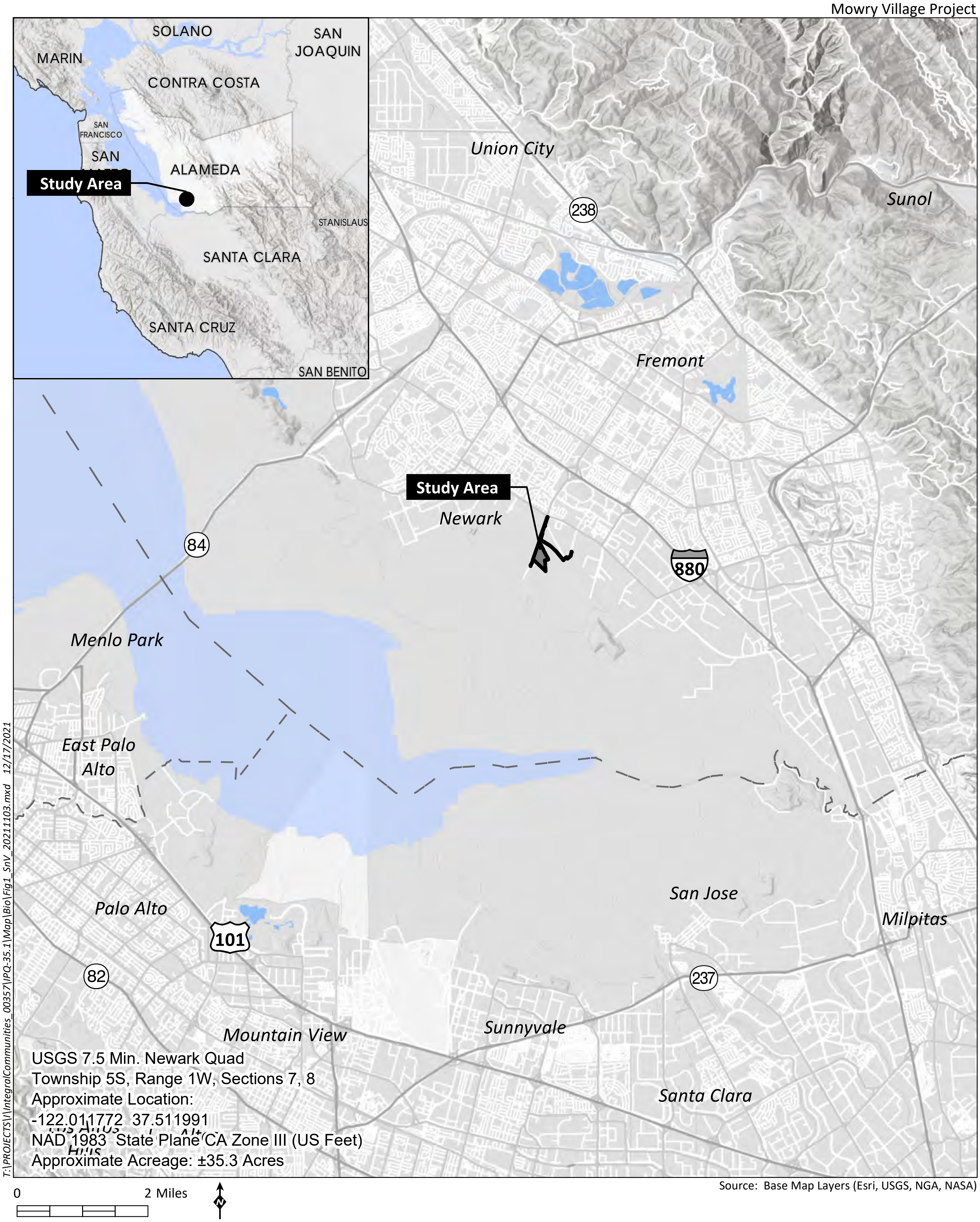
Appendix A

Figures

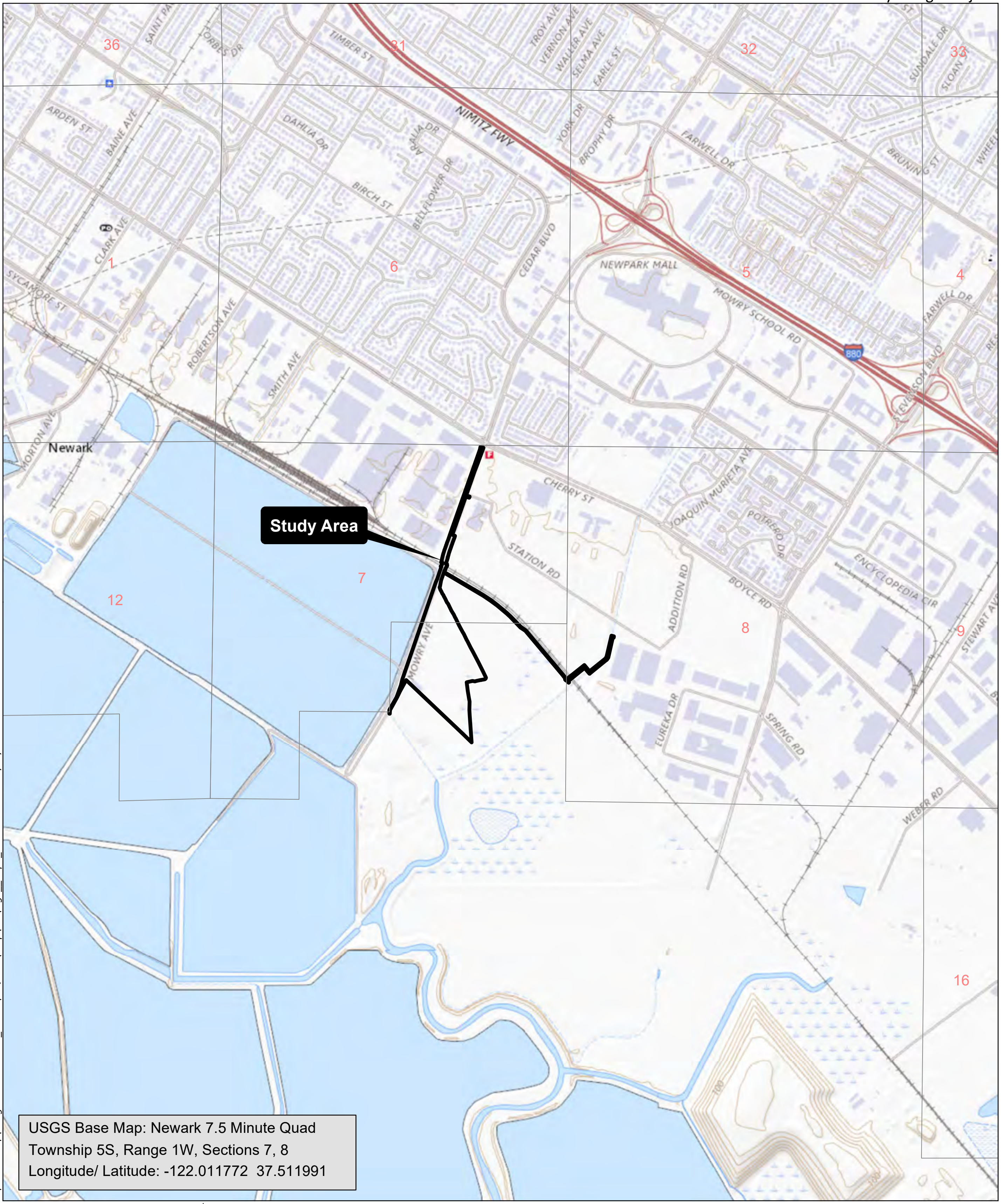


Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Vicinity Map

Figure 1



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Source: USGS National Map, 2020

HELIX Environmental Planning

Topographic Map

Figure 2

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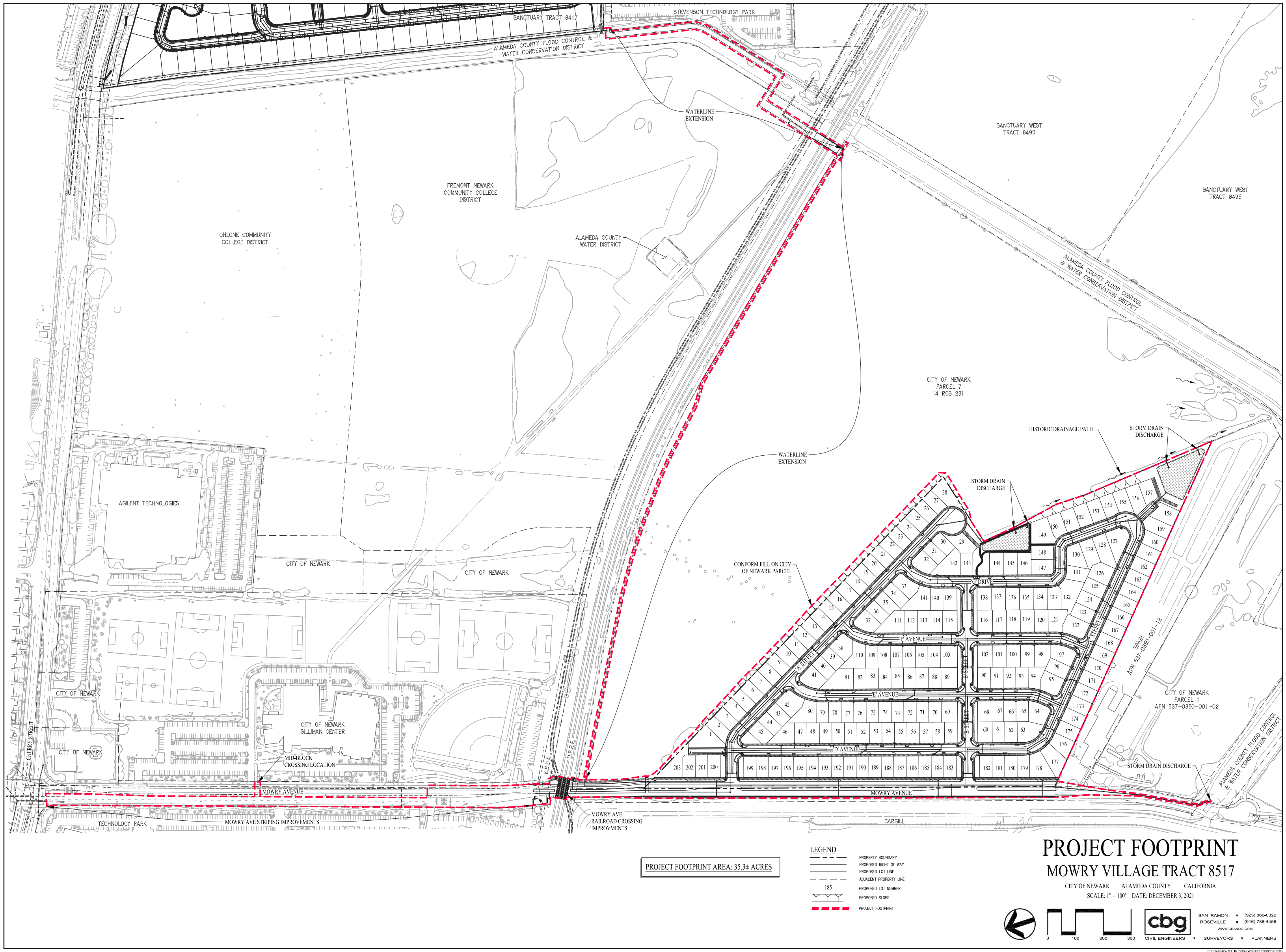
Source: DigitalGlobe, 11/4/2019

HELIX
Environmental Planning

Aerial Map

Figure 3



T:\PROJECTS\I\IntegralCommunities_00357\PQ-35.1\Map\Bio\Fig4_Siteplan.indd

Sources: cbg Civil Engineers, 2021

HELIX
Environmental Planning

Detailed Site Plan

Figure 4

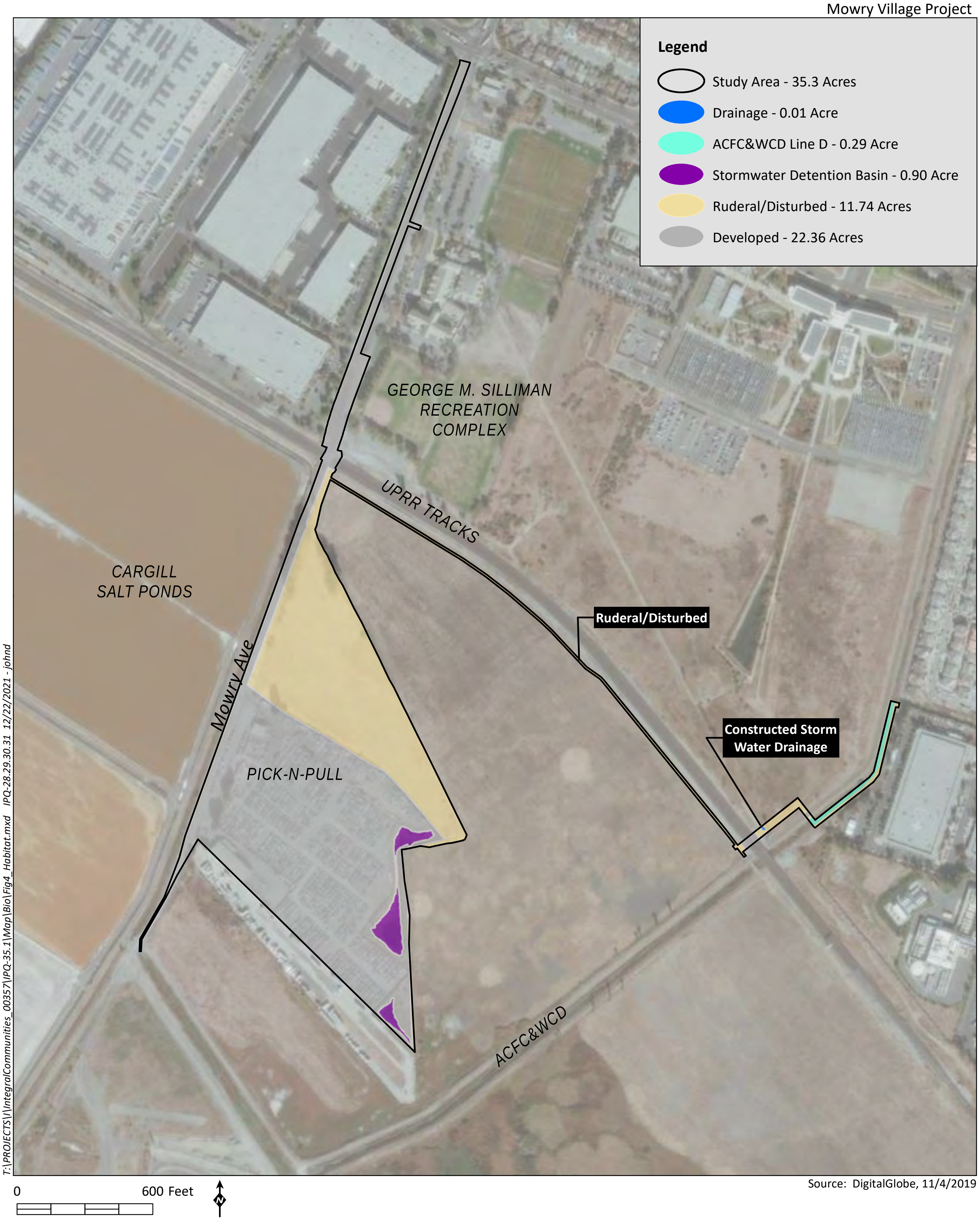
T:\PROJECTS\I\IntegralCommunities_00357\IPQ-35.1\Map\Bio\Fig5_SoilsMap.mxd IPQ-28.29.30.31 12/17/2021 - johnd

Source: NRCS, 2021; DigitalGlobe, 11/4/2019

HELIX Environmental Planning

Soils Map

Figure 5



T:\PROJECTS\I\IntegralCommunities_00357\IPQ-35.1\Map\Bio\Fig4_Habitat.mxd IPQ-28.29.30.31 12/22/2021 - johnd

Source: DigitalGlobe, 11/4/2019

HELIX Environmental Planning

Habitat Map

Figure 6

Appendix B

USFWS, CNDDB, and CNPS Lists of Regionally Occurring Special-Status Species

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Newark (3712251) OR San Leandro (3712262) OR Hayward (3712261) OR Dublin (3712168) OR Niles (3712158) OR Milpitas (3712148) OR Mountain View (3712241) OR Palo Alto (3712242) OR Redwood Point (3712252))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
adobe sanicle *Sanicula maritima*	PDAPI1Z0D0	None	Rare	G2	S2	1B.1
Alameda Island mole *Scapanus latimanus parvus*	AMABB02031	None	None	G5T1Q	SH	SSC
Alameda song sparrow *Melospiza melodia pusillula*	ABPBXA301S	None	None	G5T2?	S2S3	SSC
Alameda whipsnake *Masticophis lateralis euryxanthus*	ARADB21031	Threatened	Threatened	G4T2	S2	
alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1	None	None	G2T1	S1	1B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
Bay checkerspot butterfly *Euphydryas editha bayensis*	IILEPK4055	Threatened	None	G5T1	S1	
bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070	None	None	G3	S3	1B.2
big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061	None	None	G2	S2	1B.2
black skimmer *Rynchops niger*	ABNNM14010	None	None	G5	S2	SSC
black-crowned night heron *Nycticorax nycticorax*	ABNGA11010	None	None	G5	S4	
brittlescale *Atriplex depressa*	PDCHE042L0	None	None	G2	S2	1B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S3	SSC
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G3	S2	1B.2
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3T1	S1	FP
California giant salamander *Dicamptodon ensatus*	AAAAH01020	None	None	G3	S2S3	SSC

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
California horned lark *Eremophila alpestris actia*	ABPAT02011	None	None	G5T4Q	S4	WL
California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California Ridgway's rail *Rallus obsoletus obsoletus*	ABNME05011	Endangered	Endangered	G3T1	S1	FP
California seablite *Suaeda californica*	PDCHE0P020	Endangered	None	G1	S1	1B.1
California tiger salamander - central California DPS *Ambystoma californiense pop. 1*	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
chaparral harebell *Campanula exigua*	PDCAM020A0	None	None	G2	S2	1B.2
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3	S2	2B.2
Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061	None	None	G3T1Q	S1	1B.2
Congdon's tarplant *Centromadia parryi ssp. congdonii*	PDAST4R0P1	None	None	G3T1T2	S1S2	1B.1
Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered	None	G1	S1	1B.1
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G2	S1S2	
dark-eyed gilia *Gilia millefoliata*	PDPLM04130	None	None	G2	S2	1B.2
Diablo helianthella *Helianthella castanea*	PDAST4M020	None	None	G2	S2	1B.2
double-crested cormorant *Nannopterum auritum*	ABNFD01020	None	None	G5	S4	WL
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	Endangered	G3	S3	SSC
fountain thistle *Cirsium fontinale var. fontinale*	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0	None	None	G2	S2	1B.2
Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1	None	None	G5T2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
hairless popcornflower *Plagiobothrys glaber*	PDBOR0V0B0	None	None	GX	SX	1A
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G3G4	S4	
Hoover's button-celery *Eryngium aristulatum var. hooveri*	PDAPI0Z043	None	None	G5T1	S1	1B.1
Jepson's coyote-thistle *Eryngium jepsonii*	PDAPI0Z130	None	None	G2	S2	1B.2
Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043	None	None	G4T1?	S1?	1B.1
lesser saltscale *Atriplex minuscula*	PDCHE042M0	None	None	G2	S2	1B.1
Loma Prieta hoita *Hoita strobilina*	PDFAB5Z030	None	None	G2?	S2?	1B.1
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	
long-styled sand-spurrey *Spergularia macrotheca var. longistyla*	PDCAR0W062	None	None	G5T2	S2	1B.2
lost thistle *Cirsium praeteriens*	PDAST2E2B0	None	None	GX	SX	1A
Lum's micro-blind harvestman *Microcina lumi*	ILARA47050	None	None	G1	S1	
Marin knotweed *Polygonum marinense*	PDPGN0L1C0	None	None	G2Q	S2	3.1
Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G1	S1	1B.1
mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040	None	None	G2	S2	
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	Candidate	None	G4T2T3	S2S3	
most beautiful jewelflower *Streptanthus albidus ssp. peramoenus*	PDBRA2G012	None	None	G2T2	S2	1B.2
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S3	SSC
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern harrier *Circus hudsonius*	ABNKC11011	None	None	G5	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
northern slender pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091	None	None	G5T5	S2S3	2B.2
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G2G3	S1S2	
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
Pacific walker *Pomatiopsis californica*	IMGASJ9020	None	None	G1	S1	
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
prostrate vernal pool navarretia *Navarretia prostrata*	PDPLM0C0Q0	None	None	G2	S2	1B.2
robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060	None	None	G1	S1	1B.2
saline clover *Trifolium hydrophilum*	PDFAB400R5	None	None	G2	S2	1B.2
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T3	S3	SSC
salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
salt-marsh wandering shrew *Sorex vagrans halicoetes*	AMABA01071	None	None	G5T1	S1	SSC
San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0	None	None	G2	S2	1B.2
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Francisco gartersnake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S2	
San Joaquin spearscale *Extriplex joaquinana*	PDCHE041F3	None	None	G2	S2	1B.2
San Mateo thorn-mint *Acanthomintha duttonii*	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
Santa Clara red ribbons *Clarkia concinna ssp. automixa*	PDONA050A1	None	None	G5?T3	S3	4.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Santa Cruz black salamander *Aneides niger*	AAAAD01070	None	None	G3	S3	SSC
Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042	None	None	G4T1	S1	
Santa Cruz tarplant *Holocarpha macradenia*	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Serpentine Bunchgrass *Serpentine Bunchgrass*	CTT42130CA	None	None	G2	S2.2	
sharp-shinned hawk *Accipiter striatus*	ABNKC12020	None	None	G5	S4	WL
short-eared owl *Asio flammeus*	ABNSB13040	None	None	G5	S3	SSC
snowy egret *Egretta thula*	ABNGA06030	None	None	G5	S4	
steelhead - central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	None	G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
two-fork clover *Trifolium amoenum*	PDFAB40040	Endangered	None	G1	S1	1B.1
Valley Needlegrass Grassland *Valley Needlegrass Grassland*	CTT42110CA	None	None	G3	S3.1	
Valley Oak Woodland *Valley Oak Woodland*	CTT71130CA	None	None	G3	S2.1	
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G4	S3S4	
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western leatherwood *Dirca occidentalis*	PDTHY03010	None	None	G2	S2	1B.2
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G4G5T4	S3S4	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western ridged mussel *Gonidea angulata*	IMBIV19010	None	None	G3	S1S2	
western snowy plover *Charadrius nivosus nivosus*	ABNNB03031	Threatened	None	G3T3	S2	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
woodland woollythreads *Monolopia gracilens*	PDAST6G010	None	None	G3	S3	1B.2
yellow rail *Coturnicops noveboracensis*	ABNME01010	None	None	G4	S1S2	SSC
yellow warbler *Setophaga petechia*	ABPBX03010	None	None	G5	S3S4	SSC
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4	

Record Count: 108

Inventory of Rare and Endangered Plants of California

CALIFORNIA NATIVE PLANT SOCIETY

Search Results

60 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3712251:3712262:3712242:3712252:3712261:3712168:3712158:3712241:3712148**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	Apr-Jun	FE	CE	G1	S1	1B.1	No Photo Available
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G5T2	S2	1B.2	No Photo Available
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	None	None	G3	S3	1B.2	No Photo Available
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	None	None	G5? T3T4	S3S4	4.2	No Photo Available
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	No Photo Available
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	No Photo Available
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	No Photo Available
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	 ©1998 Dean Wm. Taylor
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	None	None	G4	S4	4.2	No Photo Available
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	Mar-May	None	None	G3?	S3?	4.2	No Photo Available
Campanula exigua	chaparral harebell	Campanulaceae	annual herb	May-Jun	None	None	G2	S2	1B.2	No Photo Available
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	None	None	G4T4	S3S4	4.2	No Photo Available

Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	None	None	G3T1T2	S1S2	1B.1	No Photo Available
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2	No Photo Available
Chorizanthe robusta var. robusta	robust spineflower	Polygonaceae	annual herb	Apr-Sep	FE	None	G2T1	S1	1B.1	No Photo Available
Cirsium fontinale var. fontinale	fountain thistle	Asteraceae	perennial herb	(Apr)May-Oct	FE	CE	G2T1	S1	1B.1	No Photo Available
Cirsium praeteriens	lost thistle	Asteraceae	perennial herb	Jun-Jul	None	None	GX	SX	1A	No Photo Available
Clarkia concinna ssp. automixa	Santa Clara red ribbons	Onagraceae	annual herb	(Apr)May-Jun(Jul)	None	None	G5?T3	S3	4.3	No Photo Available
Collinsia corymbosa	round-headed Chinese-houses	Plantaginaceae	annual herb	Apr-Jun	None	None	G1	S1	1B.2	No Photo Available
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	(Feb)Mar-May	None	None	G2	S2	1B.2	No Photo Available
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	None	None	G2	S2	1B.2	No Photo Available
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3	No Photo Available
Eriogonum umbellatum var. bahiiforme	bay buckwheat	Polygonaceae	perennial herb	Jul-Sep	None	None	G5T3	S3	4.2	No Photo Available
Eryngium aristulatum var. hooveri	Hoover's button-celery	Apiaceae	annual/perennial herb	(Jun)Jul(Aug)	None	None	G5T1	S1	1B.1	No Photo Available
Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	No Photo Available
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	No Photo Available
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2	No Photo Available
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	No Photo

										Available
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	FT	CT	G1	S1	1B.1	No Photo Available
Hoita strobilina	Loma Prieta hoita	Fabaceae	perennial herb	May-Jul(Aug-Oct)	None	None	G2?	S2?	1B.1	 © 2004 Janell Hillman
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	FT	CE	G1	S1	1B.1	No Photo Available
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G4T1?	S1?	1B.1	No Photo Available
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May(Jun)	None	None	G3	S3	4.2	No Photo Available
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	No Photo Available
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G4?	S4?	4.2	No Photo Available
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	No Photo Available
Leptosiphon grandiflorus	large-flowered leptosiphon	Polemoniaceae	annual herb	Apr-Aug	None	None	G3G4	S3S4	4.2	No Photo Available
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3	No Photo Available
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	No Photo Available
Lessingia tenuis	spring lessingia	Asteraceae	annual herb	May-Jul	None	None	G4	S4	4.3	No Photo Available
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial deciduous shrub	Apr-Sep	None	None	G2Q	S2	1B.2	 © 2017 Keir Morse
Monolopia gracilens	woodland woollythreads	Asteraceae	annual herb	(Feb)Mar-Jul	None	None	G3	S3	1B.2	No Photo Available

Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2	No Photo Available
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	None	None	G3	S3	4.2	No Photo Available
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcornflower	Boraginaceae	annual herb	Mar-Jun	None	None	G3T1Q	S1	1B.2	No Photo Available
Plagiobothrys chorisianus var. *hickmanii*	Hickman's popcornflower	Boraginaceae	annual herb	Apr-Jun	None	None	G3T3Q	S3	4.2	No Photo Available
Plagiobothrys glaber	hairless popcornflower	Boraginaceae	annual herb	Mar-May	None	None	GX	SX	1A	No Photo Available
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	None	None	G3G4	S2	2B.2	No Photo Available
Polygonum marinense	Marin knotweed	Polygonaceae	annual herb	(Apr)May-Aug(Oct)	None	None	G2Q	S2	3.1	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G3	S2	1B.2	No Photo Available
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	G4	S3	4.2	No Photo Available
Sanicula maritima	adobe sanicle	Apiaceae	perennial herb	Feb-May	None	CR	G2	S2	1B.1	No Photo Available
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	2B.2	No Photo Available
Spergularia macrotheca var. *longistyla*	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	G5T2	S2	1B.2	No Photo Available
Streptanthus albidus ssp. *peramoenus*	most beautiful jewelflower	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct)	None	None	G2T2	S2	1B.2	No Photo Available
Stuckenia filiformis ssp. *alpina*	northern slender pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	None	None	G5T5	S2S3	2B.2	 Dana York (2016)
Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	FE	None	G1	S1	1B.1	No Photo Available
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	No Photo Available

Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available

Showing 1 to 60 of 60 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website https://www.rareplants.cnps.org [accessed 8 November 2021].

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: April 14, 2022
Project Code: 2022-0031988
Project Name: Mowry Village Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Project Code: 2022-0031988
Event Code: None
Project Name: Mowry Village Project
Project Type: New Constr - Above Ground
Project Description: Residential development on 35 acres
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.5146302,-122.01033188190621,14z

Counties: Alameda County, California

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) *Masticophis lateralis euryxanthus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
California Seablite *Suaeda californica* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6310	Endangered
Contra Costa Goldfields *Lasthenia conjugens* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7058	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird *Selasphorus sasin* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

NAME	BREEDING SEASON
Black Oystercatcher *Haematopus bachmani* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Skimmer *Rynchops niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Black Turnstone *Arenaria melanocephala* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Nuttall's Woodpecker *Picoides nuttallii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20

NAME	BREEDING SEASON
Oak Titmouse *Baeolophus inornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird *Agelaius tricolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit *Chamaea fasciata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie *Pica nuttalli* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

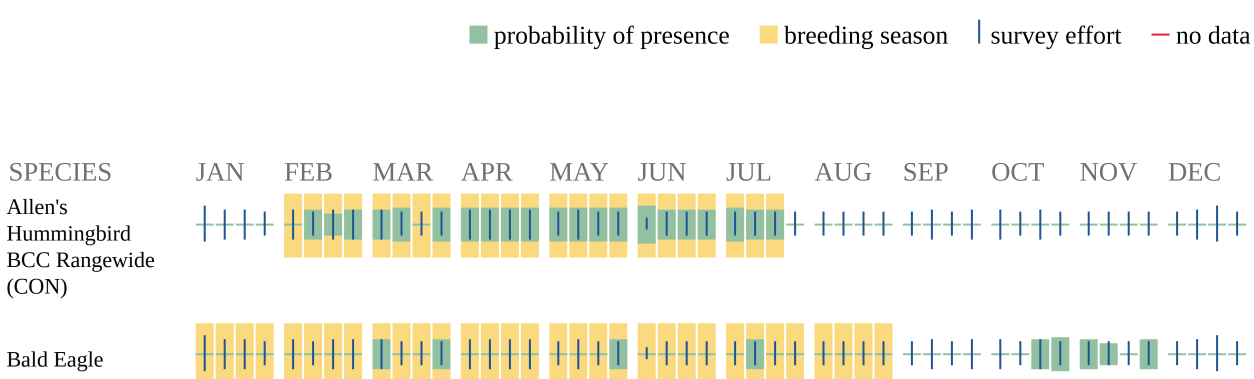
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Non-BCC
Vulnerable

Black Oystercatcher
BCC Rangewide
(CON)

Black Skimmer
BCC Rangewide
(CON)

Black Turnstone
BCC Rangewide
(CON)

California Thrasher
BCC Rangewide
(CON)

Clark's Grebe
BCC Rangewide
(CON)

Common
Yellowthroat
BCC - BCR

Golden Eagle
Non-BCC
Vulnerable

Long-eared Owl
BCC Rangewide
(CON)

Marbled Godwit
BCC Rangewide
(CON)

Nuttall's
Woodpecker
BCC - BCR

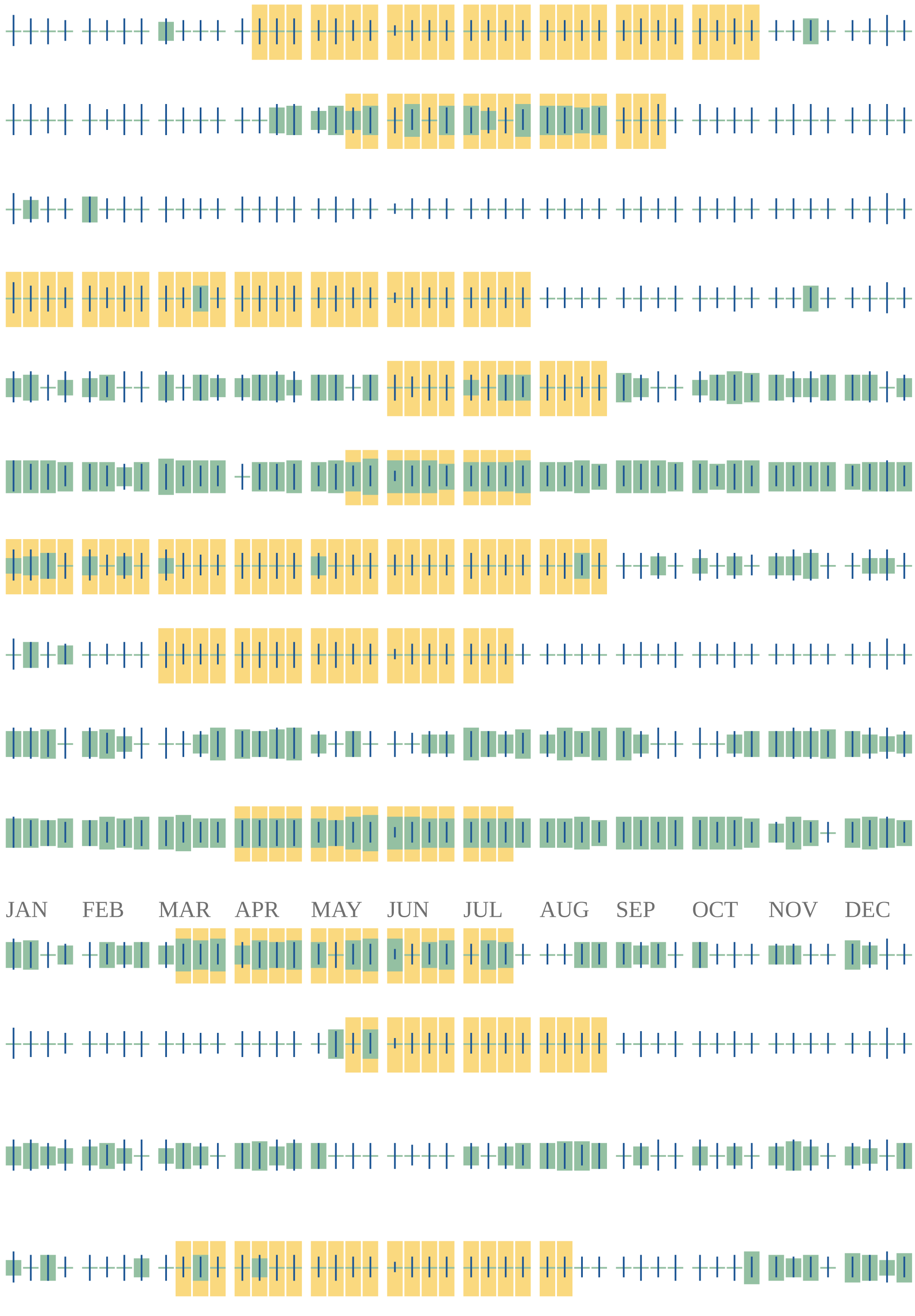
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

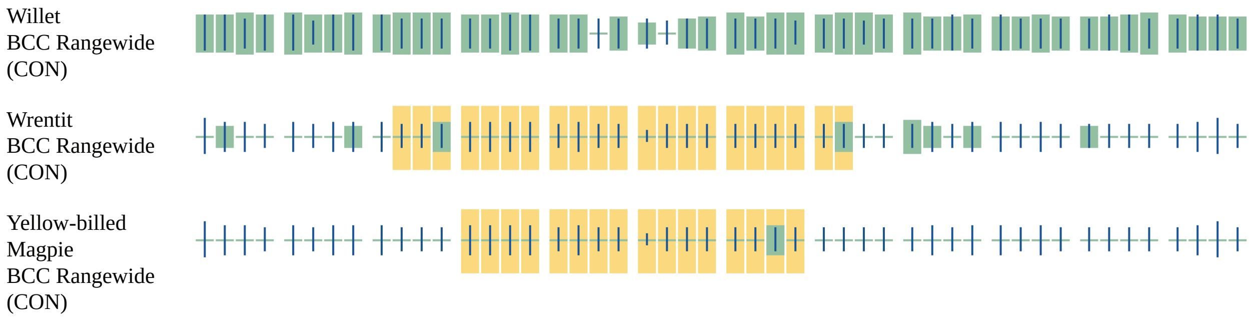
Oak Titmouse
BCC Rangewide
(CON)

Olive-sided
Flycatcher
BCC Rangewide
(CON)

Short-billed
Dowitcher
BCC Rangewide
(CON)

Tricolored
Blackbird
BCC Rangewide
(CON)





Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

Agency: HELIX Environmental Planning, Inc.
Name: Stephen Stringer
Address: 11 Natoma Street, Suite 155
City: Folsom
State: CA
Zip: 95630
Email stephens@helixepi.com
Phone: 9163658712

Appendix C

Potential for Regional Special-Status Species and Critical Habitats in the Region to Occur in the Study Area

Table C-1
Potential for Special-Status Species and Critical Habitats in the Region to Occur in the Study Area

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Invertebrates				
Bombus occidentalis western bumble bee	--/CCE/--	Occurs in grasslands, meadows, and chaparral habitats. Floral plants such as *Lupinus, Ceanothus, Centaurea, Rubus,* and *Trifolium* are necessary food sources. Queen establishes a colony within an abandoned rodent hole or other underground crevice.	Will not occur	There is no suitable meadow, grassland, or chaparral habitat in the Study Area.
Branchinecta lynchi vernal pool fairy shrimp	FT/--/--	Vernal pools ranging from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It is most frequently found in pools measuring less than 0.05 acre; although has been collected from vernal pools exceeding 25 acres. The known range within California includes the Central Valley and southern California (USFWS 2005a).	Will not occur	There is no suitable vernal pool habitat in the Study Area.
Danaus plexippus pop. 1 monarch - California overwintering population	FCE/--/--	The federal listing on December 17, 2020 was for overwintering populations of Monarch butterflies that roost in wind protected tree groves, especially with *Eucalyptus* sp., and species of pine or cypress with nectar and water sources nearby. Winter roost sites extend along the coast from Mendocino County to Baja California. As caterpillars, monarchs feed exclusively on the leaves of milkweed (*Asclepias* sp.) (Nial et al. 2019 and USFWS 2020). Monarch butterfly migration routes pass east over the Sierra Nevada in the fall and back to the California coast in the spring (USFWS 2020). The overwintering population is located along the Coast while summer breeding areas occur in interior California and North America with spring breeding areas located further east (USFWS 2020).	Will not occur	Although there are *Eucalyptus* trees in the Study Area, they do not provide a suitable protected grove.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Euphydryas editha bayensis Bay checkerspot butterfly	FT/--/--	Inhabits shallow, serpentine-derived soil with current populations in San Francisco, San Mateo and Santa Clara counties. Larvae require dwarf plantain (*Plantago erecta*) initially, and then transfer to exerted Indian paintbrush (*Castilleja exserta*) or purple owl's clover (*Castilleja exserta* spp. *exerta*). Adults emerge in early spring lay eggs during flight season from late February to early May (Black and Vaughan 2005).	Will not occur	The required host plants do not occur in the Study Area.
Lepidurus packardi vernal pool tadpole shrimp	FE/--/--	Vernal pools from 54 square feet to 89 acres, containing clear- to highly-turbid water. Its known range is within the Central Valley of California and in the San Francisco Bay area (USFWS 2005a).	Will not occur	There is no suitable vernal pool habitat in the Study Area.
Fishes				
Hypomesus transpacificus Delta smelt	FT/--/--	Delta smelt spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally-influenced backwater sloughs and channel edgewaters. Although spawning has not been observed in the wild, the eggs are thought to attach to substrates such as cattails, tules, tree roots and submerged branches. Delta smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties (USFWS 1995).	Will not occur	There is no suitable fresh or slightly brackish mixing zone habitat in the Study Area.
Oncorhynchus mykiss irideus central California coast steelhead	FT/--/--	Steelhead spawn in rivers and streams with cool, clear, water and suitable substrate. This distinct population segment includes all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers from the Russian River to Aptos Creek, Santa Cruz County and their tributaries, including drainages from the San Francisco and San Pablo Bays and their tributaries (NOAA 2006).	Will not occur	There is no suitable freshwater spawning habitat or access to suitable spawning streams in the Study Area. Critical habitat for central California coast steelhead is not located in the Study Area, but it is located in the San Francisco Bay approximately 2.9 miles south.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Spirinchus thaleichthys longfin smelt	FC/ST/--	The longfin smelt is a pelagic estuarine fish that spawns in freshwater and then moves downstream to brackish water to rear. They usually live for 2 years, spawn, and then die, although some individuals may spawn as 1- or 3-year-old fish before dying. They spend their adult life in bays, estuaries, and nearshore coastal areas, and migrate into freshwater rivers to spawn. Spawning occurs primarily from January through March, after which most adults die. Longfin smelt encounter a wide variety of water temperatures and salinities (freshwater to saltwater) during their life cycle but are rarely found in water temperatures greater than 22 degrees C. They are found slightly upstream from Rio Vista (on the Sacramento River in the Delta) including the Cache Slough region and Medford Island (on the San Joaquin River in the Delta) through Suisun Bay and Suisun Marsh as well as in San Pablo Bay and San Francisco Bay (CDFW 2017).	Will not occur	There is no suitable freshwater or brackish water habitat in the Study Area.
Amphibians				
Ambystoma californiense California tiger salamander	FT/--/SSC	Inhabits vernal pools and seasonal ponds, including constructed stock ponds, in grassland and oak savannah plant communities from sea level to 1,500 feet in central California. Spends the majority of its life in upland areas in the vicinity of suitable breeding ponds, in rodent burrows. Suitable breeding habitat must be present in combination with suitable upland habitat. In the Coastal region, populations are scattered from Sonoma County in the northern San Francisco Bay Area to Santa Barbara County (USFWS 2017).	Will not occur	There is no suitable freshwater breeding habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Aneides niger Santa Cruz black salamander	--/--/SSC	Occurs in deciduous woodlands, coniferous forests, grasslands. Typically found under surface debris such as logs, talus and other debris. Young develop in the egg directly to the terrestrial stage. Endemic to California in the San Francisco Peninsula to southern San Mateo county.	Will not occur	There is no suitable forest or grassland habitat in the Study Area.
Dicamptodon ensatus California giant salamander	--/--/SSC	Endemic to California and occurs in wet coastal forests near clear, cold perennial streams below 3,000 feet above msl. Larval stage transforms to adult stage after approximately 18-24 months. Typically found on the surface on rainy nights or wet days while foraging. Will eat anything that it can overpower and fit into its mouth, such as slugs, rodents, other amphibians and reptiles (Kucera 1997).	Will not occur	There is no suitable stream habitat in the Study Area.
Emys marmorata western pond turtle	--/--/SSC	Turtle that inhabits slow-moving water with dense submerged vegetation, abundant basking sites, gently sloping banks, and dry clay or silt soils in nearby uplands. Turtles will lay eggs up to 0.25-mile from water, but typically go no more than 600 feet (Jennings and Hayes 1994).	Will not occur	There is no suitable freshwater breeding habitat in the Study Area.
Rana boylii foothill yellow-legged frog	--/CE/SSC	The foothill yellow-legged frog occurs along the coast ranges from Oregon to Los Angeles and along the western side of the Sierra Nevada. This species uses perennial rocky streams in a wide variety of habitats up to 6,400 feet above msl. This species rarely ventures far from water, is usually found basking in the water, or under surface debris or underground within 165 feet of water. Eggs are laid in clusters attached to gravel or rocks along stream margins in flowing water. Tadpoles typically require up to four months to complete aquatic development. Breeding typically follows winter rainfall and snowmelt, which varies based upon location (Jennings and Hayes 1994).	Will not occur	There is no suitable stream habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Rana draytonii California red-legged frog	FT/--/SSC	Adults require dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow moving water. Associated with deep-water pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*). Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter. Aestivates in small mammal burrows and moist leaf litter. Have been found up to 100 feet from water in adjacent dense riparian vegetation. Studies have indicated that this species cannot inhabit water bodies that exceed 70° F, especially if there are no cool, deep portions (USFWS 2001).	Will not occur	There are no suitable deep, cool, slack, freshwater bodies in or near the Study Area.
Reptiles				
Anniella pulchra Northern California legless lizard	--/--/SSC	A fossorial species that occupies loose soil in stabilized dunes, coastal scrub, chaparral and oak woodlands. Found in loose friable (usually sandy) soils under leaf litter or other debris where vegetation is sparse along beaches, chaparral, pine-oak woodland, stream terraces and riparian. Highly dependent on soil moisture (Jennings and Hayes 1994).	Will not occur	There is no suitable chaparral, oak woodland, or scrub habitat in or near the Study Area.
Masticophis lateralis euryxanthus Alameda whipsnake	FT/CT/--	Inhabits chaparral and scrub communities and utilizes adjacent grasslands, oak savannah, and oak-bay woodlands. Favors sunny slopes with rock outcrops. Currently known from 5 populations, the nearest of which is in the Hayward-Pleasanton Ridge area (USFWS 2005b).	Will not occur	There is no suitable chaparral or other scrub habitat in or near the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/--/SSC	This species is widespread and inhabits a wide range of habitats in California with canopy closure and a dense understory such as oak woodlands or riparian forests. Builds nests that may be as large as 8 feet wide and 8 feet tall. Nests are typically built at the base of trees, stumps, shrubs or other structures. Woodrats will defend their nests from competitors. Diet consists mainly of vegetation, such as leaves, grasses, flowers, and acorns. May also eat fungi (Zeiner et al. 1990).	Will not occur	There is no suitable woodland or forest habitat in or near the Study Area.
Thamnophis sirtalis tetrataenia San Francisco gartersnake	FE/CE/FP	The San Francisco gartersnake prefers densely vegetated pond habitat near basking sites and rodent burrows. The species avoids brackish marsh areas and is frequently found in areas with emergent and bankside vegetation such as cattails (*Typha* spp.), bulrushes (*Scirpus* spp.) and spike rushes (*Juncus* spp. and *Eleocharis* spp.) (USFWS 2007b) .	Will not occur	There is no suitable freshwater habitat in the Study Area.
Birds				
Accipiter cooperii Cooper's hawk	--/--/WL	Nests in woodlands and urban trees. Preys on medium-sized birds and small mammals. Forages in open woodland and habitat edges (Zeiner et al. 1990).	Will not occur	There is no suitable woodland habitat in or near the Study Area.
Accipiter striatus sharp-shinned hawk	--/--/WL	Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers, but not restricted to, riparian habitats. North facing slopes, with plucking perches are critical requirements. Generally, nests relatively close to water (Zeiner et al. 1990).	Will not occur	There is no suitable riparian or forested habitat in or near the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Agelaius tricolor tri-colored blackbird	FC/ST/--	Common locally throughout central California. Nests and seeks cover in emergent wetland vegetation, specifically cattails and tules. Nesting area must be large enough to support a minimum colony of 50 pairs as they are a highly colonial species. Forages on ground in croplands, grassy fields, flooded land, and edges of ponds (Shuford and Gardali 2008).	Will not occur	There is no suitable tall, persistent, emergent freshwater marsh vegetation in the Study Area for nesting and the site lacks foraging habitat. This species has been documented foraging in the vicinity of the Study Area and it could nest in adjacent marsh habitat.
Aquila chrysaetos Golden eagle	--/--/FP	Typically occurs in rolling foothills, mountain areas, deserts and other open habitats up to 3,822 m amsl. Typically nests on cliff ledges or large trees in open areas in canyons. Will occasionally use other tall structures for nesting, such as electrical transmission towers. Prey consists mostly of rodents, carrion, birds, reptiles and occasionally small livestock (Zeiner et al. 1990).	Will not occur	Suitable large tree or cliff nesting habitat is not present in the Study Area.
Asio flammeus short-eared owl	--/--/SSC	Nests on the ground in tall herbaceous vegetation and feeds almost exclusively on voles (*Microtus* spp.). Range and abundance are linked closely to cycles in vole populations (Shuford and Gardali 2008). Will also use manmade structures for nesting or refuge, such as culverts.	Will not occur	There is no suitable meadow or grassland habitat in the Study Area.
Athene cunicularia burrowing owl	--/--/SSC	Inhabits open habitats including arid grasslands, pastures, disturbed areas, and deserts. Occupies burrows of small mammals, especially California ground squirrel (*Otospermophilus beecheyi*), or artificial burrows such as pipes and culverts. Hunts from low perches, fence posts, and mounds. Breeds from Marsh through August (CDFW 2012).	**Presumed absent**	**The ruderal areas on the site provide marginally suitable habitat for this species and this species was documented on property north of the site in the CNDDB in 2005 (CDFW 2021). This species was not observed during a series of four CDFW protocol surveys for burrowing owl, in addition to other surveys.**

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Charadrius nivosus nivosus western snowy plover	FT/--/SSC	Nests above the high tide line on dune-backed beaches, sand spits, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Nests less often on bluff-backed beaches, dredge spoil sites, salt pond levees, dry salt ponds, and river bars. Populations consist of both year-round residents and migrants. In San Francisco Bay, nests in dry salt ponds managed for wildlife by USFWS and various park districts (USFWS 2007a).	Will not occur	There is no suitable beach or salt pan habitat in the Study Area. The Study Area lacks suitable unvegetated substrates required by this species for nesting.
Circus hudsonius northern harrier	--/--/SSC	Inhabits a variety of treeless habitats including freshwater marsh, brackish- and saltwater marsh, wet meadows, lake margins, grasslands, croplands, desert sinks, and sagebrush flats. Builds nests on large mounds of vegetation between March and August. Forages in most open habitats (Shuford and Gardali 2008).	**May occur**	**There is suitable foraging and nesting habitat in the Study Area and in the surrounding marsh habitats. This species has been observed foraging in the area during HELIX surveys of the Study Area.**
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/CE/--	Occurs at isolated sites in Sacramento Valley in northern California, and along Kern and Colorado River systems in southern California. Frequents valley foothill and desert riparian habitats. Inhabits open woodlands with clearings, and riparian habitats with dense understory foliage along slow-moving drainages, backwaters, or seeps. Prefers dense willows for roosting but will use adjacent orchard in the Sacramento Valley. Typically requires expansive riparian habitat for nesting (Zeiner et al. 1990).	Will not occur	There is no suitable riparian or woodland habitat in or near the Study Area.
Coturnicops noveboracensis yellow rail	--/--/SSC	Winter resident of tidal marshes in the San Francisco/Suisun bay area; breeds in extreme northeastern California and northeast to Canada (Shuford and Gardali 2008).	Will not occur	There is no suitable tidal marsh habitat in the Study Area, but suitable wintering habitat may be present in salt marsh adjacent to the site.

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Elanus leucurus white-tailed kite	--/--/FP	Forages over open grasslands, savannahs, marshes, and cultivated fields. Nests in trees in a variety of locations including isolated trees, and edges and interior of stands (Zeiner *et al.* 1998).	**May occur**	**Suitable nesting and foraging habitat are present in the Study Area. This species has been observed during HELIX surveys of the Study Area.**
Eremophila alpestris actia California horned lark	--/--/WL	Occurs in coastal regions, chiefly from Sonoma County to San Diego County as well as in the main portion of the San Joaquin Valley and east to foothills. Prefers short grass prairie, bald hills, mountain meadows, open coastal plains, fallow grain fields and alkali flats. Nests on the ground in grass-lined hollows in cultivated areas, prairies, open fields, and urban areas. Usually uses the same nesting site year after year (Zeiner et al. 1990).	Will not occur	There is no suitable meadow or grassland habitat in the Study Area.
Geothlypis trichas sinuosus saltmarsh common yellowthroat	--/--/SSC	Breeds in brackish- and freshwater marsh and woody swamps between mid-March and late July. Inhabits breeding habitat year-round. Builds nests close to the ground in grasses, tules, cattails, or shrubs (Shuford and Gardali 2008).	Will not occur	There is no habitat for this species in the Study Area. However, this species is known to nest in the project region and has potential habitat in marsh adjacent to the southern end of the site.
Haliaeetus leucocephalus Bald eagle	FD/CE/FP	Requires large bodies of water with an abundant fish population. Feeds on fish, carrion, small mammals, and water-fowl. Nests are usually located within a 1-mile radius of water. Nests are most often situated in large trees with a commanding view of the area (Zeiner *et al.* 1990).	Will not occur	Habitat is present in San Francisco Bay with an abundant source of fish and large trees in the Study Area provide suitable nesting habitat. However, the surrounding area is largely developed, and this species is not expected to nest in an urban area.
Laterallus jamaicensis coturniculus California black rail	--/CT/FP	Inhabits brackish marsh, primarily in the upper marsh zone dominated by alkali heath (*Frankenia salina*), cattail, and rush (*Juncus* spp.); prefers lower salinity environments. In the Sierra Nevada foothills, black rail is a year-round resident along wetland	Will not occur	While there is no nesting habitat for this species in the Study Area; suitable nesting habitat is present in adjacent salt marsh in Mowry Slough. If individuals do

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
		edges where water is 1.2 inches or less (Richmond et al. 2010). Black rail is typically associated with perennial wetlands associated with flowing water such as irrigation canals, perennial streams and springs with dense vegetation in the Sierra Nevada foothills (Richmond et al. 2010). Forages on the ground, under cover of dense vegetation (Richmond et al. 2010).		occur onsite, they would likely be transient from the adjacent salt marsh foraging in the detention basins if the detention basins prior to their annual management. This species is more likely to occur in the adjacent salt marsh and is less likely to use the detention basins adjacent to the auto wrecking yard.
Melospiza melodia pusillula Alameda song sparrow	--/--/SSC	Endemic to the tidal salt marshes around the southern margins of San Francisco Bay, especially near Dumbarton Point in Alameda County. Inhabits tidally-influenced areas with vegetation tall enough to keep nests above high tides, and openings to allow foraging on the ground. Adapted to highly saline environments (Shuford and Gardali 2008).	Will not occur	There is no habitat for this species in the Study Area, but this species could be present in salt marsh adjacent to the site.
Phalacrocorax auritus double-crested cormorant	--/--/WL	A yearlong resident along the entire coast of California and on inland lakes, in fresh, salt and estuarine waters. Rests in daytime and roosts overnight beside water on offshore rocks, islands, steep cliffs, dead branches of tall trees, wharfs, jetties, or even transmission lines (Zeiner et al. 1998).	Will not occur	There is no suitable roosting habitat in the Study Area.
Rallus longirostris obsoletus Ridgeway's rail	FE/CE/FP	Inhabits tidal and brackish marsh with unrestricted daily tidal flows, well-developed tidal channel networks, and suitable upper marsh zone vegetation for nesting and cover during high tides. Currently restricted to the margins of San Francisco Bay. Nests are built on platforms in areas of intricate channels to allow young to escape predators (USFWS 2013).	Will not occur	There is no habitat for this species in the Study Area, but this species has a low likelihood of using the salt marsh and other aquatic habitats adjacent to the southern tip of the site.

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Riparia riparia bank swallow	--/CT/--	Primarily inhabits riparian and other lowland habitats west of the deserts during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. In California, bank swallow primarily nests from Siskiyou, Shasta and Lassen Counties south along the Sacramento River to Yolo County. Also nests locally across much of state (Zeiner *et al.* 1998).	Will not occur	There are no suitable vertical banks, bluffs, or cliffs with fine textured soil and holes in or near the Study Area.
Rynchops niger black skimmer	--/--/SSC	Nests unvegetated sites on gravel bars, low islets and sandy beaches. Nests in colonies of 200 individuals or less (Burger 1981).	Will not occur	There is no suitable gravel bar or beach habitat in or adjacent to the Study Area.
Setophaga petechia yellow warbler	--/--/SSC	Found in riparian areas in close proximity to water, also nests in montane shrubbery in open conifer forests in the Cascades and Sierra Nevada. Nests and forages in willow (*Salix* sp.) shrubs and thickets and in other riparian plants including cottonwoods (*Populus* sp.), sycamores (*Platanus* sp.), ash (*Fraxinus* sp.), and alders (*Alnus* sp.) (Browning 1994).	Will not occur	There is no suitable riparian or woodland habitat in or near the Study Area.
Sterna antillarum browni California least tern	FE/CE/--	Breeding season resident of California; typically present between April and August. Naturally nest in large colonies on sandy beaches and dunes, but often displaced to other bare areas such as mud and sand flats, landfills, and airports. Forages on fish from estuaries, lagoons, and nearshore ocean (USFWS 1985).	Will not occur	There is no suitable sandy beach, dune, or mudflat habitat in the Study Area.
Mammals				
Antrozous pallidus pallid bat	--/--/SSC	Occurs throughout California except for the high Sierra Nevada and the northern Coast Ranges. Habitats include grasslands, shrublands, woodlands, and forests from sea level to 6,000 feet. Most common in open, dry habitats with rocky areas for roosting; roosts also include cliffs, abandoned	**May Occur**	Structures and trees in the Study Area provide roosting habitat for bats. The nearest report occurrence is 7.1 miles northeast of the Study Area under a bridge over Alameda

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		buildings, bird boxes, and under bridges (Bolster, ed. 1998).		Creek in a riparian area (CDFW 2021).
Corynorhinus townsendii Townsend's big-eared bat	--/--/SSC	Widely distributed throughout California except alpine and subalpine habitats. This species eats moths, beetle and other insects which it catches on the wing or by gleaning from vegetation. Typically found near water since it is poor at concentrating its urine. This species uses caves, mines, tunnels, buildings and human made structures for roosting. Maternity roosts are typically in warm sites. Hibernation sites are typically cold, but not freezing. This species is very sensitive to disturbance and may abandon its roost after one visit (Zeiner et al. 1990).	**May Occur**	Structures and trees in the Study Area provide roosting habitat for bats. The nearest reported occurrence of the species is 14.2 miles west of the Study Area in Portola Valley (CDFW 2021).
Eumops perotis californicus western mastiff bat	--/--/SSC	Found throughout California and the southwestern U.S. to west Texas. Roosts in natural crevices in large outcrops of granite, sandstone, or basalt, on cliff faces, among boulders, and in appropriately proportioned cracks in buildings. Roosts are at least 10 feet above the ground (Bolster 1998).	Will not occur	Although structures and trees in the Study Area provide roosting habitat for bats, this species has only one reported occurrence in the vicinity, this occurrence was recorded in 1899 in an area 11.5 miles north of the Study Area that has since been developed as a shopping plaza (CDFW 2021).

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Reithrodontomys raviventris salt marsh harvest mouse	FE/CE/--	Endemic to tidal and brackish marsh habitat in the San Francisco Bay region. Favors dense (100-percent) cover of perennial marsh vegetation 30-50cm tall, at least 60-percent pickleweed (*Sarcocornia* sp.), fat hen (*Atriplex patula*), and alkali heath (*Frankenia salina*), without large amounts of saltgrass (*Distichlis spicata*), brass buttons (*Cotula coronopifolia*), or monocots (*Typha*, *Schoenoplectus*, or *Bolboschoenus*) which do not provide suitable vegetation structure (USFWS 1984). May utilize adjacent grasslands for foraging during spring and early summer. Populations require at least 150 acres of suitable habitat (USFWS 2010a).	Not expected	There is no suitable habitat in the Study Area, but this species is present in salt marsh adjacent to the site and along the project margin. There is a slight chance this species could utilize uplands in ruderal areas dominated by annual grasses and forbs; however, this area is routinely disked for fire safety. There is also a significant barrier between suitable marsh habitat and available grassland habitat in the Study Area.
Scapanus latimanus parvus Alameda Island mole	--/--/SSC	Only occurs on Alameda Island. Found in annual and perennial grasslands and prefers moist, friable soils and avoids flooded soils (Hall 1981).	Will not occur	The Study Area is outside the species known range. Additionally, there is no suitable grassland habitat in the Study Area.
Sorex vagrans halicoetes salt-marsh wandering shrew	--/--/SSC	Inhabits the middle zone of coastal salt marsh that is inundated only at high tide and is characterized by a dense cover of pickleweed (*Sarcocornia* sp.) 30-60cm tall, with driftwood and other debris lying directly on the vegetation. Uses high marsh as refuge from spring tides, and forages in low marsh only during low tide. Shares habitat affinities with salt marsh harvest mouse and California clapper rail, but uses a narrower range of habitats (Bolster, ed. 1998). Has not been documented in upland grassy areas adjacent to salt marsh habitat (USFWS 2010a).	Will not occur	There is no suitable habitat in or adjacent to the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Taxidea taxus American badger	--/--/SSC	Inhabits drier open stages of most shrub, forest, and herbaceous habitats with loose, friable soils. Preys on a wide variety of mammals, reptiles, birds, and carrion, and hunts mostly by digging out fossorial prey. Occasionally takes prey on the surface. Not tolerant of cultivation. No longer occur in the Central Valley except in the extreme western edge (Williams 1986).	Will not occur	There is no suitable habitat in the Study Area.
Vulpes macrotis mutica San Joaquin kit fox	FE/CT/--	Inhabits grasslands, agricultural areas, playas, and scrublands. Formerly widespread in the Central Valley; now primarily found in foothills at the margins of the Central Valley and in the interior Coast Ranges. Uses natural and artificial burrows with entrances between 8 and 10 inches in diameter and occupies many different burrows in a single season (USFWS 2010b).	Will not occur	There is no suitable grassland habitat in the Study Area. The only known occurrence in the vicinity is 15.6 miles northeast of the Study Area and is from 1975 (CDFW 2021).
Plants				
Acanthomintha duttonii San Mateo thorn-mint	FE/CE/1B.1	An annual herb found in serpentinite soil in chaparral, and valley and foothill grassland from 50 - 300 meters elevation. Blooms April – June (CNPS 2021).	Will not occur	There is no suitable soils or grassland habitat in the Study Area.
Allium peninsulare var. *franciscanum* Franciscan onion	--/--/1B.2	A perennial bulbiferous herb found on clay, volcanic, often serpentinite soils in cismontane woodlands, and valley and foothill grasslands from 52 – 305 meters elevation. Blooms (April) May – June (CNPS 2021).	Will not occur	There is no suitable soils or grassland habitat in the Study Area.
Amsinckia lunaris bent-flowered fiddleneck	--/--/1B.2	An annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland from 3 – 500 meters elevation. Blooms March – June (CNPS 2021).	Will not occur	There is no suitable coastal scrub, woodland, or grassland habitat in the Study Area.

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Astragalus tener var. *tener* alkali milk vetch	--/--/1B.2	An annual herb found in alkaline playas, clay soils in valley and foothill grasslands, and vernal pools, from 1 to 60 meters in elevation. Currently known to occur in Alameda, Napa, Solano, and Yolo counties. Blooms March to June (CNPS 2021).	Will not occur	There is no suitable playa, grassland, or vernal pool habitat in the Study Area.
Atriplex depressa brittlescale	--/--/1B.2	An annual herb found on alkaline, clay soils in chenopod scrub, meadows, seeps, playas, vernal pools, and valley and foothill grasslands from 1 – 320 meters elevation. Blooms April – October (CNPS 2021).	Will not occur	There is no suitable playa, grassland, meadow, seep, or vernal pool habitat in the Study Area.
Atriplex minuscula lesser saltscale	--/--/1B.1	An annual herb found on sandy alkaline soils in chenopod scrub, playas, and valley and foothill grasslands in the Central Valley from 15 – 200 meters elevation. Blooms May – October (CNPS 2021).	Will not occur	There is no suitable playa, grassland, or scrub habitat in the Study Area.
Balsamorhiza macrolepis big-scale balsamroot	--/--/1B.2	A perennial herb found on slopes in chaparral, cismontane woodland, and valley and foothill grassland, sometimes in serpentine soil. Elevation range 45 – 1,555 meters. Blooms March – June (CNPS 2021).	Will not occur	There is no suitable chaparral, grassland, or woodland habitat in the Study Area.
Campanula exigua chaparral harebell	--/--/1B.2	An annual herb found on rocky, usually serpentine, soils in chaparral from 275 – 1,250 meters elevation in the Diablo Range. Blooms May – June (CNPS 2021).	Will not occur	There is no suitable soils or chaparral habitat in the Study Area.
Centromadia parryi ssp. *congdonii* Congdon's tarplant	--/--/1B.1	An annual herb found in valley and foothill grassland (alkaline), from 0 to 230 meters in elevation. Currently known to occur in Alameda, Contra Costa, Monterey, San Luis Obispo, Santa Clara, and San Mateo counties. Blooms May to November (CNPS 2018b).	Presumed absent	There is no suitable grassland habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Chloropyron maritimum ssp. *palustre* Point Reyes salty bird's-beak	--/--/1B.2	An annual hemiparasitic herb found in coastal, salt-water marshes and swamps from 0 – 10 meters elevation. Formerly known from locations in the interior Bay Area, now restricted to the coast. Blooms June – October (CNPS 2021).	Will not occur	There is no suitable marsh or swamp habitat in the Study Area.
Chorizanthe robusta var. *robusta* robust spineflower	FE/--/1B.1	An annual herb found on sandy or gravelly soils in maritime chaparral, openings in cismontane woodland, coastal dunes, and coastal scrub from 3 – 300 meters elevation. Currently known only from Santa Cruz and Monterey Counties and possibly San Francisco County. Blooms April – September (CNPS 2021).	Will not occur	There is no suitable chaparral, woodland, coastal scrub, or dune habitat in the Study Area.
Cirsium fontinale var. *fontinale* fountain thistle	FE/CE/1B.1	A perennial herb found in serpentinite seeps in chaparral openings, cismontane woodlands, meadows, seeps, and valley and foothill grasslands from 45 to 175 meters elevation. Blooms (April) May – October. Known only from the vicinity of Crystal Springs Reservoir (CNPS 2021)	Will not occur	There is no suitable serpentinite seep habitat in the Study Area.
Cirsium praeteriens lost thistle	--/--/1A	A perennial herb formerly known from only 2 locations in Palo Alto last seen in 1901; possibly introduced from Europe. Not in Baldwin et al. (2012). Presumed extinct in California.	Will not occur	Species extinct in California.
Collinsia corymbosa round-headed Chinese-houses	--/--/1B.2	An annual herb found in coastal dunes from 0 – 20 meters elevation. Blooms April – June (CNPS 2021).	Will not occur	There is no suitable coastal dune habitat in the Study Area.
Collinsia multicolor San Francisco collinsia	--/--/1B.2	An annual herb found in closed-cone coniferous forest and coastal scrub from 30 – 250 meters elevation, sometimes on serpentine soil. Blooms (February) March – May (CNPS 2021).	Will not occur	There is no suitable forest or coastal scrub habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Dirca occidentalis western leatherwood	--/--/1B.2	A perennial deciduous shrub found in mesic microsites in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland from 25 – 425 meters elevation. Blooms January – March (April) (CNPS 2021).	Will not occur	There is no suitable forest, chaparral, woodland, or riparian habitat in the Study Area.
Eryngium aristulatum var. *hooveri* Hoover's button-celery	--/--/1B.1	An annual or perennial herb found in vernal pools, from 3 to 45 meters in elevation. Currently known to occur in Alameda, San Benito, San Diego, and San Luis Obispo counties. Blooms June to August (CNPS 2018b).	Will not occur	There is no suitable vernal pool habitat in the Study Area.
Eryngium jepsonii Jepson's coyote-thistle	--/--/1B.2	A perennial herb on clay soils in vernal pools and valley and foothill grassland from 3 – 300 meters elevation. Blooms April – August (CNPS 2021).	Will not occur	There is no suitable vernal pool or grassland habitat in the Study Area.
Extriplex joaquinana San Joaquin spearscale	--/--/1B.2	An annual herb found in chenopod scrub, meadows and seeps, playas, and valley and foothill grassland (alkaline), from 1 to 835 meters in elevation. Currently known to occur in Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Santa Clara, San Joaquin, San Luis Obispo, Solano, Tulare, and Yolo counties. Blooms April to October (CNPS 2018b).	Will not occur	There is no suitable grassland, meadow, seep, playa, chenopod scrub, or prairie habitat in the Study Area.
Fritillaria liliacea fragrant fritillary	--/--/1B.2	A perennial bulbiferous herb found usually on serpentine soils in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland from 3 – 410 meters elevation. Blooms February – April (CNPS 2021).	Will not occur	There is no suitable grassland, woodland, coastal scrub, or prairie habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Gilia millefoliata dark-eyed gilia	--/--/1B.2	An annual herb found on coastal dunes from 3 – 30 meters elevation. Blooms April – June (CNPS 2021).	Will not occur	There is no suitable coastal dune habitat in the Study Area.
Helianthella castanea Diablo helianthella	--/--/1B.2	A perennial herb found on rocky, azonal soils in partial shade, in broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland from 60 – 1,300 meters elevation. Blooms March – June (CNPS 2021).	Will not occur	There is no suitable chaparral, woodland, coastal scrub, or riparian habitat in the Study Area.
Hesperolinon congestum Marin western flax	FT/CT/1B.1	An annual herb occurs in chaparral, valley and foothill grassland. Usually occurs in serpentinite soil from 5 – 370 meters elevation. Blooms April – July (CNPS 2019).	Will not occur	There is no suitable chaparral or grassland habitat in the Study Area.
Hoita strobilina Loma Prieta hoita	--/--/1B.1	A perennial herb found usually on serpentine soils in mesic microsites in chaparral, cismontane woodland, and riparian woodland from 30 – 860 meters elevation. Presumed extirpated from Alameda County. Blooms May – July (August – October) (CNPS 2021).	Will not occur	There is no suitable woodland or chaparral habitat in the Study Area.
Holocarpha macradenia Santa Cruz tarplant	FT/CE/1B.1	An annual herb found on sandy clay soils in coastal prairie, coastal scrub, and valley and foothill grassland from 10 – 220 meters elevation. All known natural occurrences are in Santa Cruz County. Blooms June – October (CNPS 2021).	Will not occur	There is no suitable prairie, coastal scrub, or grassland habitat in the Study Area.
Horkelia cuneata var. sericea Kellogg's horkelia	--/--/1B.1	A perennial herb found in sandy or gravelly openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub from 10 – 200 meters elevation. Extirpated from the San Francisco Bay Area except for 1 location in San Mateo County. Blooms April – September (CNPS 2021).	Will not occur	There is no suitable woodland, scrub, or chaparral habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Lasthenia conjugens Contra Costa goldfields	FE/--/1B.1	An annual herb found in alkaline playas, valley and foothill grassland, vernal pools, and cismontane woodland, from 0 to 470 meters in elevation. Currently known to occur in Alameda, Contra Costa, Marin, Monterey, Napa, Solano, and Sonoma counties. Blooms March to June (CNPS 2018b).	Will not occur	There is no suitable playa, grassland, vernal pool or woodland habitat in the Study Area.
Lessingia hololeuca woolly-headed lessingia	--/--/3	An annual herb found on clay serpentine soils in broadleafed upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland from 15 – 305 meters elevation. May be more widespread in the Sacramento Valley and North Coast Ranges. Blooms June – October (CNPS 2021).	Will not occur	There is no suitable grassland, forest, or coastal scrub habitat in the Study Area.
Malacothamnus arcuatus arcuate bush-mallow	--/--/1B.2	A perennial evergreen shrub found in chaparral and cismontane woodland from 15 to 355 meters elevation. Blooms April to September (CNPS 2021)	Will not occur	There is no suitable woodland or chaparral habitat in the Study Area.
Monolopia gracilens woodland woollythreads	--/--/1B.2	An annual herb found on serpentine soils in broadleafed upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland from 100 – 1,200 meters elevation. Blooms (February) March – July (CNPS 2021).	Will not occur	There is no suitable woodland or grassland habitat in the Study Area.
Navarretia prostrata prostrate vernal pool navarretia	--/--/1B.2	An annual herb found in vernal pools and mesic sites in coastal scrub, meadows, seeps, and valley and foothill grassland from 3 – 1,210 meters elevation. Blooms April – July (CNPS 2021).	Will not occur	There is no suitable vernal pool, meadows, seeps, coastal scrub, or grassland habitat in the Study Area.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcornflower	--/--/1B.2	An annual herb found in mesic microsites in chaparral, coastal prairie, and coastal scrub from 3 – 160 meters elevation. Currently known from locations on the coast between Salinas and San Francisco. Blooms March – June (CNPS 2021).	Will not occur	There is no suitable coastal scrub, prairie, or chaparral habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Plagiobothrys glaber hairless popcornflower	--/--/1A	An annual herb found in alkaline meadows and seeps and coastal salt marshes, from 15 to 180 meters in elevation. Formerly known to occur in Alameda, Marin, San Benito, and Santa Clara counties; now presumed extinct in California and rare elsewhere. Blooms March to May (CNPS 2018b).	Will not occur	No suitable habitat in the Study Area. Presumed extinct in California. Last known collection dated 1954; all collections since 1930's are from near Hollister (CNPS 2017b).
Polemonium carneum Oregon polemonium	--/--/2B.2	A perennial herb found in coastal prairie, coastal scrub, and lower montane coniferous forest from 0 – 1,830 meters elevation. Blooms April – September (CNPS 2021).	Will not occur	There is no suitable coastal scrub, prairie, or forest habitat in the Study Area.
Polygonum marinense Marin knotweed	--/--/3.1	An annual herb found in coastal salt- or brackish-water marshes and swamps from 0 – 10 meters elevation. Uncertain taxonomic status; may be a synonym of a non-native species. Blooms (April) May – August (October) (CNPS 2021).	Will not occur	There is no suitable coastal scrub, prairie, or forest habitat in the Study Area.
Puccinellia simplex California alkali grass	--/--/1B.2	An annual herb found in alkaline, vernally mesic sinks, flats, and lake margins in chenopod scrub, meadows, seeps, vernal pools, and valley and foothill grasslands from 2 – 930 meters elevation. Blooms March – May (CNPS 2021).	Will not occur	There is no suitable scrub, sink, lake margin, vernal pool, meadow, seep, or grassland habitat in the Study Area.
Sanicula maritima adobe sanicle	--/--/1B.1	A perennial herb found on serpentine clay soils in chaparral, coastal prairie, meadows, seeps, and valley and foothill grassland from 30 – 240 meters elevation. Currently known only from Monterey and San Luis Obispo Counties. Blooms February – May (CNPS 2021).	Will not occur	There is no suitable chaparral, coastal prairie, seep, or grassland habitat in the Study Area.
Senecio aphanactis chaparral ragwort	--/--/2B.2	An annual herb found in chaparral, cismontane woodland, and coastal scrub, from 15 to 800 meters in elevation. Currently known to occur in Alameda, Contra Costa, Fresno, Los Angeles, Merced, Monterey, Orange, Riverside, San Benito, Santa Barbara, Santa Clara, Santa Cruz, San Diego, San Luis Obispo, Solano, and Ventura counties. Blooms January to May (CNPS 2018b).	Will not occur	There is no suitable chaparral or scrub habitat in the Study Area; the Study Area is outside the elevation range of the species.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Spergularia macrotheca var. *longistyla* long-styled sand-spurrey	--/--/1B.2	A perennial herb found in alkaline meadows, mud flats, meadows, and hot springs (Baldwin, *et al.* 2012). Only record in the Newark quad is from 1897 (CDFW 2018b).	Will not occur	No suitable meadow, mud flat, meadow, or hot spring habitat in the Study Area.
Streptanthus albidus ssp. *peramoenus* most beautiful jewelflower	--/--/1B.2	An annual herb found on serpentine soils in chaparral, cismontane woodland, and valley and foothill grassland from 95 – 1,000 meters elevation. Blooms (March) April – September (October) (CNPS 2021).	Will not occur	There is no suitable chaparral, woodland, or grassland habitat in the Study Area.
Stuckenia filiformis ssp. *alpina* slender-leaved pondweed	--/--/2B.2	A perennial herb found in shallow freshwater marshes and swamps, from 300 to 2,150 meters in elevation. Currently known to occur in Alameda, Butte, Contra Costa, El Dorado, Lassen, Mariposa, Merced, Modoc, Mono, Nevada, Placer, San Mateo, Shasta, Sierra, Solano, and Sonoma counties. Blooms May to July (CNPS 2018b).	Will not occur	No suitable marsh or swamp habitat in the Study Area.
Suaeda californica California seablite	FE/--/1B.1	A perennial evergreen shrub found in coastal salt marshes and swamps from 0 – 15 meters elevation. Nearly extirpated from the Bay Area; most known occurrences are in Morro Bay. Blooms July – October (CNPS 2021).	Will not occur	There is no suitable marsh or swamp habitat in the Study Area.
Trifolium amoenum two-fork clover	--/--/1B.1	An annual herb found in wetlands in coastal bluff scrub and valley and foothill grassland from 5 – 415 meters elevation; sometimes on serpentine soils. Most records are historic; recent rediscoveries are uncertain. Blooms April – June (CNPS 2021).	Will not occur	There is no suitable chaparral, coastal scrub, or grassland habitat in the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Trifolium hydrophilum saline clover	--/--/1B.2	An annual herb found in marshes and swamps, mesic alkaline valley and foothill grassland, and vernal pools, from 0 to 300 meters in elevation. Currently known to occur in Alameda, Contra Costa, Lake, Monterey, Napa, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, and Yolo counties. Blooms April to June (CNPS 2018b).	Presumed absent	Marginal habitat may be present in the Study Area; however, the species was not observed during focused surveys conducted in the Study Area.
Sensitive Natural Habitats				
Northern Coastal Salt Marsh		A highly productive community of salt-tolerant, winter-dormant species that occurs in areas subject to daily tidal inundation by salt water. Occurs along sheltered margins of bays and estuaries. Vegetation is typically stratified horizontally, with cordgrass (*Spartina*) in the lowest zone, pickleweed (*Sarcocornia*) in the middle zone, and alkali heath (*Frankenia salina*) and gumplant (*Grindelia*) dominant in the upper zone (Holland 1986).	Not present	This habitat type is not present in the Study Area. Salt marsh may be present in the detention basins but is not tidally influenced and doesn't contain vegetation structure suitable for this habitat designation.
Valley Needlegrass Grassland		A mid-height grassland dominated by tussock-forming purple needlegrass (Stipa pulchra) on fine textured to clay soils. This grassland may also contain native and non-native annuals between the bunch grass, which may exceed the bunchgrass in cover. This grassland often interdigitates with adjacent oak woodlands on moister and better drained sites. Vegetation typically consists purple needlegrass, nodding needlegrass (Stipa cernua), or other perennial bunchgrasses and native and non-native grasses and forbs (Holland 1986).	Not present	This habitat type is not present on the Study Area.

Scientific Name/Common Name	FESA/CESA/ CRPR or Other State Status*	General Habitat Description	Potential to Occur**	Rationale
Valley Oak Woodland		Savannah-like to forest-like stands. Canopy is dominated by valley oaks (*Quercus lobata*). Ground cover consists of annual grasses and forbs.		

Note: Bold font indicates a species with the potential to occur in the Study Area; these species are evaluated in detail in the body of the report.

*FESA=Federal Endangered Species Act; CESA=California Endangered Species Act; FE – FESA endangered; FT – FESA threatened; FC – FESA candidate; FD – FESA delisted; CE – CESA endangered; CT – CESA threatened; SSC – state species of special concern; FP – Fully Protected CRPR – California Rare Plant Rank (see definitions of CRPR rankings below)

CNPS ratings:

1A = Presumed extirpated in California and rare elsewhere

1B = Rare, threatened, or endangered in California and elsewhere

1B.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)

1B.2 = Fairly endangered in California (20-80% occurrences threatened)

1B.3 = Not very endangered in California (fewer than 20% of occurrences threatened)

2B = Rare, threatened, or endangered in California but more common elsewhere.

2B.2 = Fairly endangered in California (20-80% occurrences threatened)

Global and State rankings in descending order of sensitivity (1=critically imperiled; 5=demonstrably secure).

Potential to occur in the Study Area is assessed as follows. **Not Present: Natural community does not occur in the Study Area; **Will Not Occur**: Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur in the Study Area; **Not Expected**: Species moves freely and might disperse through or across the Study Area, but suitable habitat for residence or breeding does not occur in the Study Area, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100% certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs in the Study Area; however, focused surveys conducted for the current project were negative; **May Occur**: Habitat suitable for residence and breeding occurs in the Study Area but the species has not been recorded recently in or near the Study Area and was not observed during surveys for the current project; **High**: Habitat suitable for residence and breeding occurs in the Study Area and the species has been recorded recently in or near the Study Area, but was not observed during surveys for the current project; **Present**: The species was observed during biological surveys for the current project and is assumed to occupy the Study Area.

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Appendix D

Site Photos

Photo 1. View of the northern portion of SWDB-1 looking southwest. Taken July 3, 2019.

Photo 2. View of SWDB-1 looking north from the southern tip of the Study Area. Taken July 3, 2019.

Photo 3. View of the southern portion of SWDB-2. Taken July 3, 2019.

Photo 4. View of SWDB-2 looking south from the central portion of the basin. Taken July 3, 2019.

Photo 5. Representative view of salt marsh harvest mouse exclusion fence installed along detention basin. Taken November 16, 2021.

Photo 6. View of the storage lot at the Pick -N- Pull facility. Taken November 16, 2021.

Photo 7. Representative view of eucalyptus trees lining the edge of the ruderal/disturbed habitat. Taken November 16, 2021.

Photo 8. Representative view of the salt marsh harvest mouse exclusion fence installed along the project boundary. Taken November 16, 2021.

Photo 9. View of the constructed storm drain feature, facing northwest. Taken November 16, 2021.

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Appendix E

Plant and Animal Species Observed in the Study Area

Table E-1
Plant Species Observed in the Study Area

Family	Species Name	Common Name	Status
Native			**CRPR[1]**
Asteraceae	*Baccharis pilularis*	coyote brush	--
	Grindelia stricta var. *angustifolia*	marsh gumplant	--
Cyperaceae	*Cyperus eragrostis*	tall flatsedge	--
	Schoenoplectus californicus	California bulrush	--
Fabaceae	*Lotus corniculatus*	birdfoot trefoil	--
Malvaceae	*Malvella leprosa*	alkali-mallow	--
Poaceae	*Distichlis spicata*	saltgrass	--
	Elymus triticoides	beardless wild ryegrass	--
Non-Native			**Cal-IPC[2]**
Arecaceae	*Washingtonia robusta*	Mexican fan palm	Moderate
Asteraceae	*Carduus pycnocephalus*	Italian thistle	Moderate
	Centaurea solstitialis	yellow starthistle	High
	Helminthotheca echioides	bristly ox-tongue	Limited
	Lactuca serriola	Prickly lettuce	--
Brassicaceae	*Brassica nigra*	black mustard	Limited
	Lepidium appelianum	hairy whitetop	Limited
	Lepidium latifolium	perennial pepperweed	High
	Raphanus sativus	wild radish	Limited
Chenopodiaceae	*Atriplex prostrata*	triangle orache	--
Fabaceae	*Melilotus indicus*	Indian sweet clover	--
	Melilotus indicus	Indian sweet clover	--
	Vicia sativa	spring vetch	--
Geraniaceae	*Geranium molle*	crane's bill geranium	Limited
Juglandaceae	*Juglans regia*	English walnut	--
Myrsinaceae	*Lysimachia arvensis*	scarlet pimpernel	--
Myrtaceae	*Eucalyptus globulus*	blue gum	--
	Eucalyptus sideroxylon	red ironbark	--
Oleaceae	*Olea europaea*	olive	Limited
Poaceae	*Agrostis avenacea*	Pacific bentgrass	--
	Avena fatua	wild oats	--
	Bromus diandrus	common ripgut grass	Moderate
	Festuca perennis	Italian ryegrass	Moderate
	Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	Moderate
	Phalaris paradoxa	Hood canarygrass	--
	Polypogon monspeliensis	annual beardgrass	Limited
Typhaceae	*Typha angustifolia*	narrowleaf cattail	--

1 California Rare Plant Rank
2 California Invasive Plant Council invasiveness rating

Table E-2
Animal Species Observed in the Study Area

Order/Family	Species Name	Common Name	Status*
Birds			
Accipitriformes			
Accipitridae	*Buteo jamaicensis*	red-tailed hawk	--
	Buteo lineatus	Red-shouldered hawk	--
	Circus hudsonius	northern harrier	SSC
	Elanus leucurus	white-tailed kite	FP
Cathartidae	*Cathartes aura*	turkey vulture	--
Anseriformes			
Anatidae	*Branta canadensis*	Canada goose	--
Caprimulgiformes			
Trochilidae	*Calypte anna*	Anna's hummingbird	--
Charadriiformes			
Charadriidae	*Charadrius vociferous*	killdeer	--
Laridae	*Larus californicus*	California gull	--
	Larus occidentalis	western gull	--
Columbiformes			
Columbidae	*Columba livia*	rock dove	--
	Zenaida macroura	mourning dove	--
Passeriformes			
Bombycillidae	*Bombycilla cedrorum*	cedar waxwing	--
Columbidae	*Zenaida macroura*	mourning dove	--
Corvidae	*Corvus brachyrhynchos*	American crow	--
Emberizidae	*Zonotrichia leucophrys*	white-crowned sparrow	--
Fringillidae	*Haemorhous mexicanus*	house finch	--
Hiruninidae	*Hirundo rustica*	Barn swallow	--
	Petrochelidon pyrrhonota	cliff swallow	--
	Tachynecta bicolor	tree swallow	--
Icteridae	*Agelaius phoeniceus*	red-winged blackbird	--
	Euphagus cyanocephalus	Brewer's blackbird	--
	Quiscalus mexicanus	Great-tailed grackle	--
	Sturnella neglecta	western meadowlark	--
Mimidae	*Mimus polyglottos*	northern mockingbird	--
Parulidae	*Setophaga coronata*	yellow-rumped warbler	--
Passerellidae	*Melozone crissalis*	California towhee	--
	Melospiza melodia	song sparrow	--
Troglodytidae	*Cistothorus palustris*	marsh wren	--
Turdidae	*Sialia mexicana*	western bluebird	--
Tyrannidae	*Sayornis nigricans*	black phoebe	--
	Tyrannus verticalis	western kingbird	--
Mammals			
Carnivora			
Canidae	*Canis latrans*	coyote (scat)	--
Mephitidae	*Mephitis mephitis*	striped skunk	--
Procyonidae	*Procyon lotor*	common raccoon (prints)	--
Lagomorpha			
Leporidae	*Lepus californicus*	black-tailed jackrabbit	--
Rodentia			
Sciuridae	*Otospermophilus beecheyi*	California ground squirrel	--

Order/Family	Species Name	Common Name	Status*
Amphibian			
Anura			
Hylidae	*Pseudacris regilla*	Pacific chorus frog	--

* Status for animal species: -- = No special status. FESA=Federal Endangered Species Act; CESA=California Endangered Species Act; FE – FESA endangered; FT – FESA threatened; FC – FESA candidate; FD – FESA delisted; CE – CESA endangered; CT – CESA threatened; SSC – state species of special concern; FP – Fully Protected

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Appendix F

Arborist Report

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630
916.365.8700 tel
619.462.0552 fax
www.**helixepi**.com

April 15, 2022

Project 00357.00035.001

Vince Fletcher
The Mowry Project Owner, LLC
2603 Camino Ramon, Suite 480
San Ramon, CA 94583

Subject: Certified Arborist Tree Inventory for the Mowry Village Project, City of Newark, Alameda County California

Dear Mr. Fletcher:

On behalf of The Mowry Project Owner, LLC, HELIX Environmental Planning, Inc. (HELIX) conducted an arborist inventory of trees protected under Chapter 8.16 of the City of Newark Municipal Code, entitled Preservation of Trees on Private Property, for the Mowry Village Project located in the City of Newark, Alameda County, CA. This technical memorandum documents the results of the tree inventory. The City of Newark protects trees as windbreaks, essential to public health and safety. The City of Newark Municipal Code Chapter 8.16.02 requires that a permit be obtained from the Public Works Director to cut down, destroy, remove, or move trees when growing on any parcel except developed residential parcels less than ten thousand square feet in area. A tree is defined in the ordinance as any live perennial woody plant with at least one well-defined stem six inches or greater in diameter measured at 48 inches above grade (diameter at breast height or dbh). The purpose of the tree inventory was to document existing trees growing within the Study Area in support of an application for tree removal from the Public Works Director, if such a permit is necessary.

PROJECT LOCATION AND DESCRIPTION

The Study Area is situated in the City of Newark in Alameda County, California (Figure 1, *Regional Location Map*). The approximately 35.3-acre Study Area is generally located southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks, west of Cherry Street. The Study Area is generally comprised of three parcels: Assessor's Parcel Numbers: 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00 with some off-site improvements on adjacent parcels. The site is in un-sectioned lands not included in the Public Lands Survey, adjacent to Township 5 South, Range 1 W, Mount Diablo Meridian. The Study Area is depicted on the U.S. Geological Survey (USGS) 7.5-minute "Newark, California" quadrangle map (quad; Figure 2, *Topographic Map*). The approximate center of the Study Area is at latitude 37.511991 N, longitude -122.011772 W, NAD 83.

The Study Area is proposed for construction of 203 single-family detached homes, resulting in a density of seven units per acre. The proposed single-family homes would be located on three typical lot sizes that are 3,375 square feet (sf), 3,600 sf, or 4,000 sf. The proposed project would provide 40,802 sf (0.94 acre) of common open space consisting of landscaping, bioretention areas, and a pocket park. Additional improvements would include on-street parking, drive aisles, underground utilities, Low Impact Development (LID) drainage and water quality treatment areas, lighting, sidewalks, and landscaping. The proposed project would also include improvements and widening of Mowry Avenue.

The Study Area is situated in an industrial and undeveloped area in the southwestern portion of the City of Newark. Surrounding land uses include Cargill salt ponds to the north and west, railroad tracks and a sports complex to the north, wetlands and open space to the west, and industrial/open space to the south. The northern one-third of the site is undeveloped ruderal/disturbed habitat; the remainder of the site is developed as an auto parts and scrap metal salvage yard (Pick-N-Pull) (Figure 3, *Aerial Map*). Runoff from the salvage yard is collected in two detention basins in the southern tip and along the southeastern side of the site. There are two stands of large eucalyptus trees near the northern corner of the site, as well as ornamental trees in the parking area of the Pick-N-Pull salvage yard. The Study Area also includes two narrow strips; one along Mowry Avenue to allow for roadway improvements, and another along the railroad tracks to allow for the installation of a water line extension. The Mowry Avenue extension consists entirely of developed roadway. The water line extension follows a gravel road in a southeasterly direction along the UPRR tracks and then turns to the northeast and crosses over the Alameda County Flood Control & Water Conservation District (ACFC & WCD) channel before ultimately running along a planned gravel road adjacent to the channel. The current alignment of the ACFC & WCD channel is within the Study Area; however, this channel is proposed to be realigned outside of the Study Area prior to implementation of the project.

METHODS

An inventory of trees in the Pick-N-Pull portion of the Study Area was conducted on April 16, 2019 by International Society of Arboriculture (ISA) Certified Arborist George Aldridge, Ph.D. (ISA Certification No. WE-11778A). An additional survey was conducted on December 8, 2021 by ISA Certified Arborist Stephanie McLaughlin, M.S. (WE-12922A) in order to record trees within an expanded project footprint, which included the linear alignments for off-site improvements. All woody plants rooted within the Study Area meeting the City's definition of a tree were assessed. The locations of all trees with one or more trunks with a diameter of six inches or greater when measured at 48 inches above ground level were recorded using an EOS Systems Arrow 100 GNSS receiver. Each tree included in the inventory was identified with a numbered metal tag.

In addition to measured diameter, trees were assessed for dripline radius, height, structural condition, and health. Structure and health were assessed by a visual inspection of trunk, foliage, and root crown. Each tree was assigned an overall rating on a scale of 0 (dead), 1 (severe decline), 2 (declining), 3 (fair), 4 (good), or 5 (excellent). Height and dripline were visually estimated. An Arborist Survey Map documenting the location of each tree in the inventory is included as Attachment A; the survey data are compiled in Attachment B. Criteria used for assessing the health and structure of trees are provided in Attachment C.

SUMMARY AND RECOMMENDATIONS

A total of 45 trees meeting the City of Newark Municipal Code definition of protected trees were identified in the Study Area. Most of these (33 trees) are blue gums (*Eucalyptus globulus*) growing along Mowry Avenue, along internal fence lines, and in the parking lot of the auto salvage yard. Most of the blue gums in the Study Area have not been properly maintained and are in poor structural condition and could pose a hazard to the proposed development. The remaining 12 protected trees in the site include three English walnuts (*Juglans regia*), four Mexican fan palms (*Washingtonia robusta*), one Canary Island date palm (*Phoenix canariensis*), one black locust (*Robinia pseudoacacia*), one Ngaio tree (*Myoporum laetum*), one Peruvian pepper tree (*Schinus mole*), and one Fremont cottonwood (*Populus fremontii*). The majority of the trees are in fair to good overall health, with the exception of tree #320, the Ngaio tree. The majority of the blue gum trees are in poor structural condition. A permit would likely be required from the City of Newark Public Works Director prior to removal, destruction, or transplantation of any trees included in the inventory.

The tree assessment in this report is based solely on the condition of the trees at the time of the evaluation and is not an assessment of the potential suitability of any trees for preservation or retention on the site. If any trees are planned for preservation on-site, they should be evaluated by an ISA Certified Arborist at the time of construction for suitability for retention based on final site plans and any remedial measures that may be necessary to preserve the trees such as pruning to remove dead, diseased limbs or clearance pruning, or installation of tree wells or retaining walls to reduce the impact of grade changes on the trees could be prescribed at that time.

If you have any questions or comments regarding the results of the survey, please do not hesitate to contact me by e-mail at StephenS@helixepi.com or by phone at (916) 996-9374.

Sincerely,

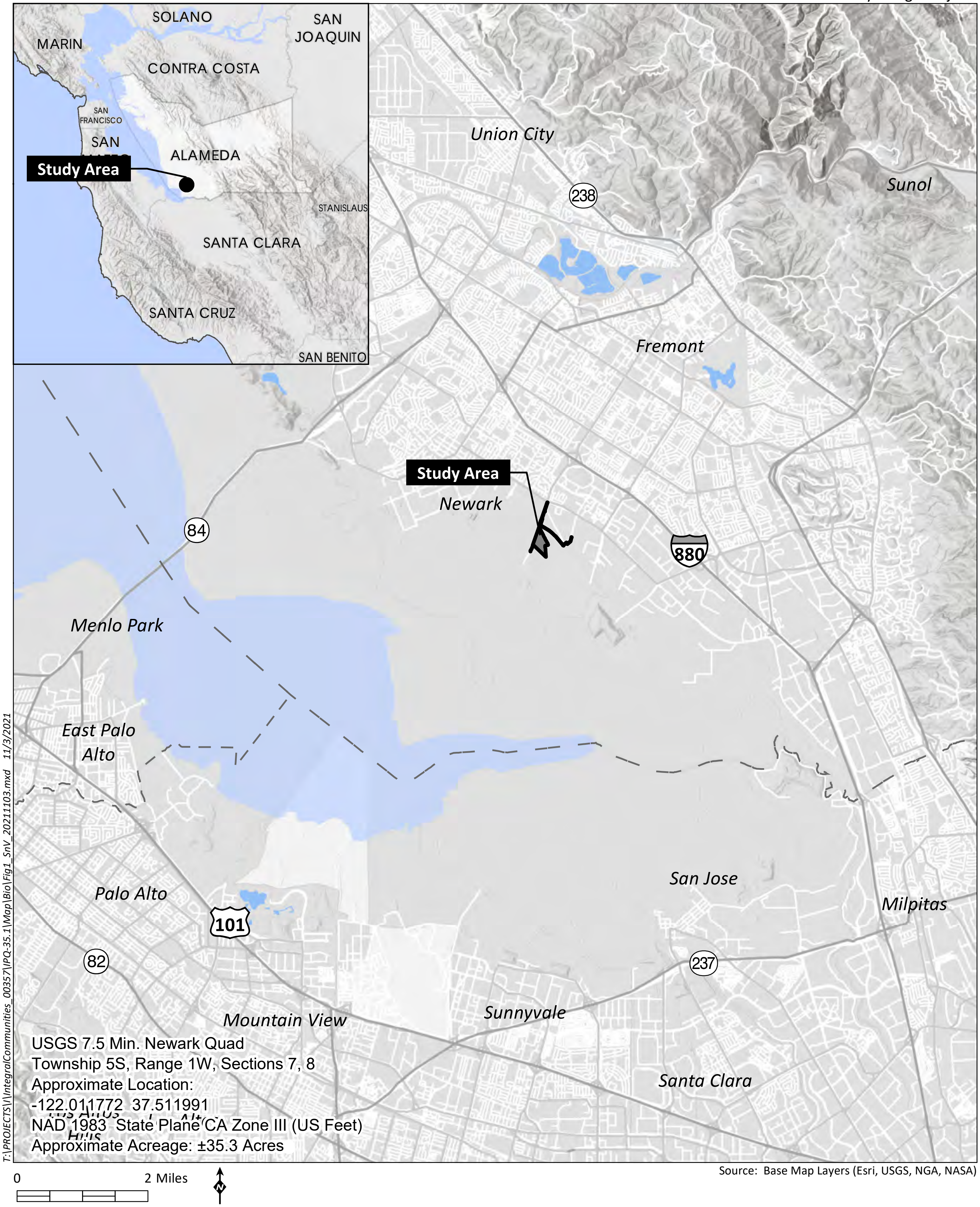
Stephen Stringer

Stephen Stringer, M.S.
Principal Biologist/ISA Certified Arborist WE-7129A

Attachments:

Figure 1:	Regional Location Map
Figure 2:	Topographic Map
Figure 3:	Aerial Map
Attachment A:	Arborist Survey
Attachment B:	Tree Inventory Data
Attachment C:	Assessment Criteria

Figures

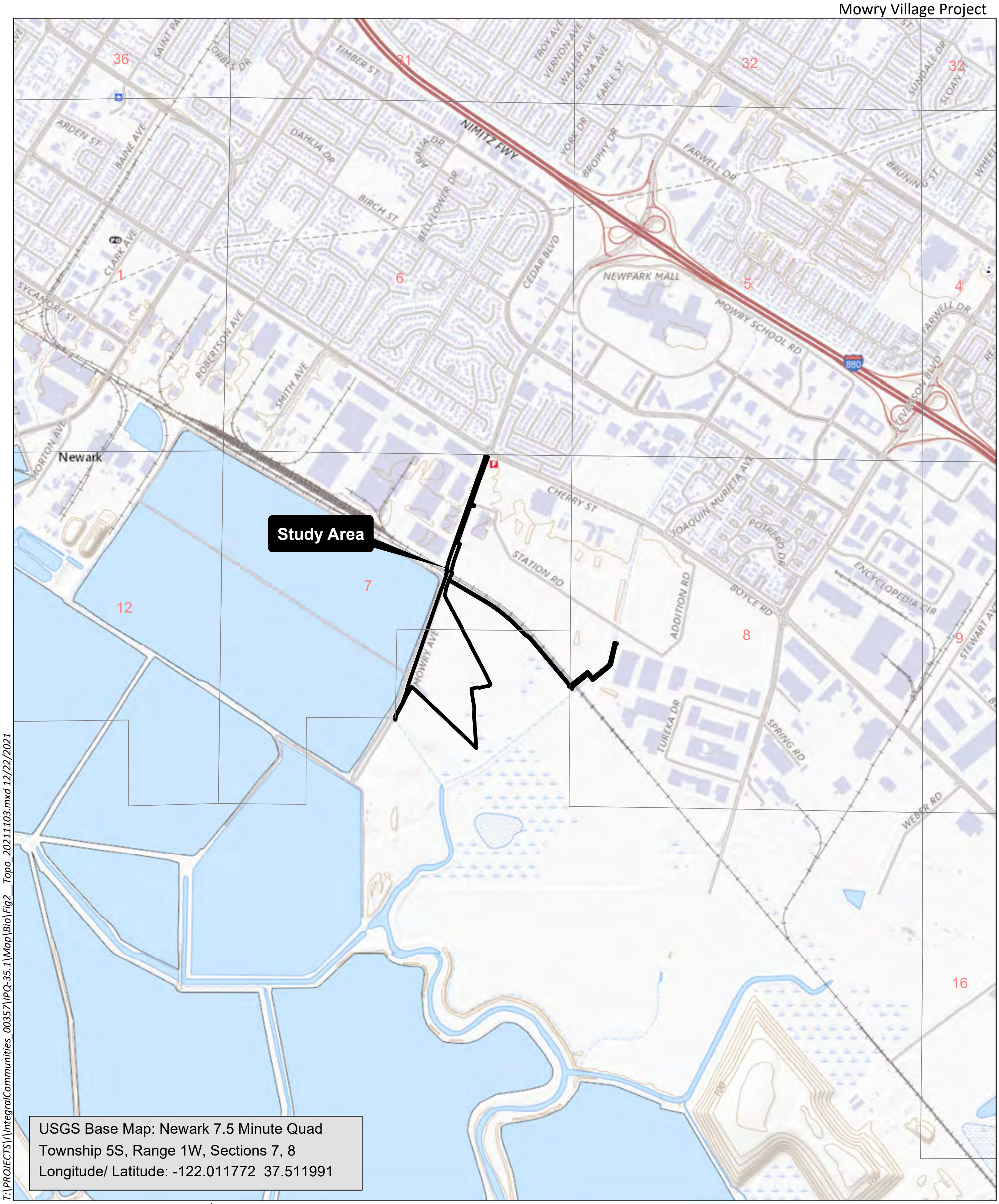


Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Regional Location Map

Figure 1



Source: USGS National Map, 2020

0 2,000 Feet

HELIX Environmental Planning

Topographic Map

Figure 2

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Source: DigitalGlobe, 11/4/2019

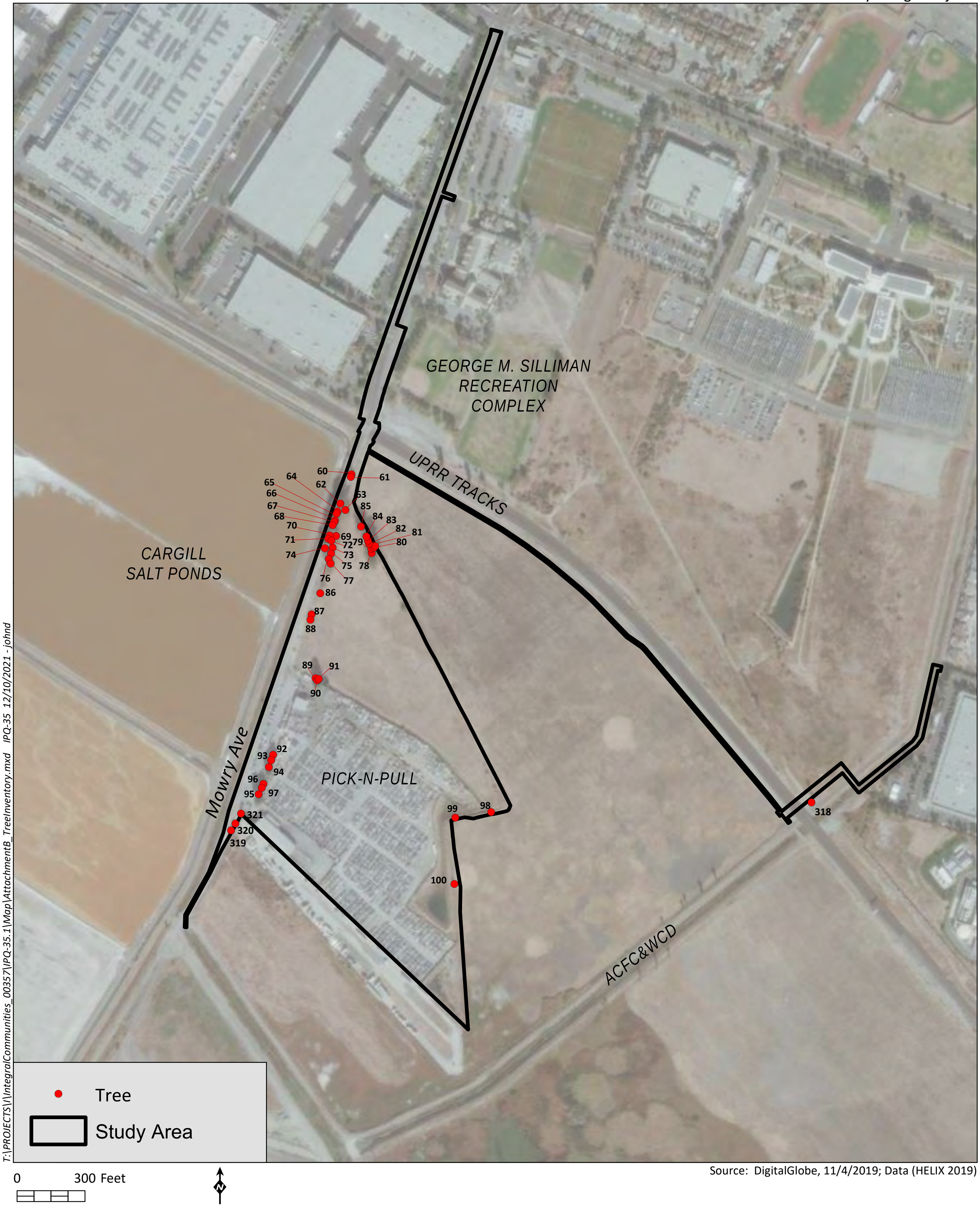
HELIX Environmental Planning

Aerial Map

Figure 3

Attachment A

Arborist Survey



T:\PROJECTS\I\IntegralCommunities_00357\IPQ-35.1\Map\AttachmentB_TreeInventory.mxd IPQ-35 12/10/2021 - johnd

Source: DigitalGlobe, 11/4/2019; Data (HELIX 2019)

HELIX
Environmental Planning

Arborist Survey

Attachment A

Attachment B

Tree Inventory Data

Table B-1
TREE INVENTORY DATA

Tag #	Species	DBH (in.)	Dripline (ft.)	Height (ft.)	Health[1]	Struct[1]	Rating[2]	Notes[3]
60	*Washingtonia robusta* (Mexican fan palm)	19.0	6	30	G	G	4	
61	*Phoenix canariensis* (Canary Island date palm)	30.0	10	15	G	F	3	crowded by Tree #60
62	*Eucalyptus globulus* (blue gum)	58.0	25	60	G	F	3	CDL; OL
63	*Eucalyptus globulus* (blue gum)	17.5	12	35	G	F	3	OL
64	*Eucalyptus globulus* (blue gum)	42.5	10	50	G	P	3	CDL; OL
65	*Eucalyptus globulus* (blue gum)	35.5, 44.0	20	60	F	P	2	CDL; lean; decay; burn scar
66	*Eucalyptus globulus* (blue gum)	53.2	35	60	G	F	3	CDL
67	*Eucalyptus globulus* (blue gum)	9.7	12	25	G	P	3	suppressed
68	*Eucalyptus globulus* (blue gum)	19.6, 13.7	20	25	G	P	2	CDL; OL; lean; suppressed
69	*Eucalyptus globulus* (blue gum)	17.2	18	45	G	G	4	1-sided
70	*Eucalyptus globulus* (blue gum)	57.5	30	60	F	P	3	CDL; OL; dieback
71	*Eucalyptus globulus* (blue gum)	44.2	25	25	P	P	2	OL; dieback; 1-sided
72	*Eucalyptus globulus* (blue gum)	8.3	16	30	G	P	2	lean; suppressed
73	*Eucalyptus globulus* (blue gum)	20.4, 12.9	20	40	F	P	3	CDL@base; OL; 1-sided; DBF
74	*Eucalyptus globulus* (blue gum)	89.0	27	60	F	P	2	CDL; OL; PP; 1-sided; decay@base
75	*Eucalyptus globulus* (blue gum)	8.0	8	20	G	F	4	CDL
76	*Eucalyptus globulus* (blue gum)	30.8	20	50	G	P	3	CDL; IB; OL
77	*Eucalyptus globulus* (blue gum)	48.0, 19.0, 12.2, 9.5, 5.7	20	50	G	P	3	CDL; OL
78	*Eucalyptus globulus* (blue gum)	9.0, 13.5, 9.4, 13.1, 38.0, 18.4, 31.0, 54.5	30	60	G	P	3	CDL; OL
79	*Eucalyptus globulus* (blue gum)	8.9, 7.3	6	15	P	P	2	dead leaders; CDL; suppressed

Tag #	Species	DBH (in.)	Dripline (ft.)	Height (ft.)	Health[1]	Struct[1]	Rating[2]	Notes[3]
80	*Eucalyptus globulus* (blue gum)	13.5, 13.0, 10.7, 8.8, 12.3, 8.2, 11.7	15	50	G	P	3	CDL
81	*Eucalyptus globulus* (blue gum)	30.2, 21.3, 32.2, 18.9, 12.1, 8.1	20	50	G	P	2	CDL; bleeding sap
82	*Eucalyptus globulus* (blue gum)	16.4, 14.7, 15.5, 8.7, 28.1	18	50	G	P	3	CDL; OL
83	*Eucalyptus globulus* (blue gum)	13.1, 8.9. 19.2, 14.1, 16.1, 12.8	15	50	G	P	3	CDL; OL
84	*Eucalyptus globulus* (blue gum)	17.3, 14.0, 21.0, 13.8	20	60	G	P	3	CDL; OL
85	*Eucalyptus globulus* (blue gum)	17.8, 20.2, 9.7, 15.2	20	50	G	P	3	CDL; OL
86	*Juglans regia* (English walnut)	6.8, 6.7, 6.0, 4.2, 4.0, 3.5	8	12	G	G	4	
87	*Juglans regia* (English walnut)	7.3, 8.0, 7.7	15	15	G	G	4	
88	*Juglans regia* (English walnut)	10.1, 11.1, 9.9	15	12	P	G	2	dieback
89	*Eucalyptus globulus* (blue gum)	14.6, 9.2	18	40	P	P	2	CDL; dieback
90	*Eucalyptus globulus* (blue gum)	35.6	15	45	G	G	4	
91	*Eucalyptus globulus* (blue gum)	44.6	12	30	G	G	4	
92	*Eucalyptus globulus* (blue gum)	31.1, 18.8	10	30	F	G	3	CDL
93	*Eucalyptus globulus* (blue gum)	23.2, 18.4, 17.4, 14.3	20	30	F	G	3	CDL
94	*Eucalyptus globulus* (blue gum)	43.0, 20.9, 23.5	12	30	G	P	3	CDL; IB
95	*Eucalyptus globulus* (blue gum)	20.5, 10.6, 5.6	10	30	G	F	4	
96	*Eucalyptus globulus* (blue gum)	41.1	8	35	G	F	3	fused CDLs
97	*Eucalyptus globulus* (blue gum)	54.8	10	35	G	P	3	CDL; IB
98	*Washingtonia robusta* (Mexican fan palm)	12.0	3	20	P	G	2	dieback
99	*Populus fremontii* (Fremont cottonwood)	8.2, 6.4	12	15	G	G	4	
100	*Washingtonia robusta* (Mexican fan palm)	14.0	7	15	G	G	4	
318	*Washingtonia robusta* (Mexican fan palm)	28.9	7	30	G	G	4	

Tag #	Species	DBH (in.)	Dripline (ft.)	Height (ft.)	Health[1]	Struct[1]	Rating[2]	Notes[3]
319	*Robinia psuedoacacia* (black locust)	8.7, 7.7, 6.5, 7.7, 4.9	13	15	F	P	3	CDL, IB
320	*Myoporum laetum* (ngaio tree)	26.5	10	13	P	P	1	wilt, IB, dieback, DBF
321	*Schinus mole* Peruvian pepper tree	12, 8.7	10	12	F	P	2	CDL

1 G=Good; F=Fair; P=Poor

2 1=severe decline – expected to die within 5 years; 2=declining – may die within 5 years; 3=fair – health or structural issues but likely to survive more than 5 years; 4=good; 5=excellent

3 CDL=co-dominant leaders; DBF=decayed branch failures; IB=included bark in trunk attachments; OL=overloaded limbs; PP=poor pruning history; 1-sided=one-sided canopy development.

Attachment C

Assessment Criteria

The following tables provide summaries of the criteria used for rating the health and structure of trees in the survey. Overall tree ratings were based on the individual ratings for health and structure.

Health

Health is an indication of the overall vigor and vitality of the tree expressed as a rating of Good, Fair, or Poor. Ratings for health were based on the criteria in Table C-1.

Table C-1
CRITERIA FOR RATING TREE HEALTH

Good	**Little or no Evidence of Stress, Disease, Infestation, or Nutrient Deficiency.** Foliage (if present on deciduous species) is of average or better density, size, and color for the species; foliage in the canopy is evenly distributed; twig elongation and bud density are normal for the species; there is no evidence of dieback; there is little or no epicormic growth (water sprouts); there are not excessive numbers of galls or excessive evidence of herbivory; callusing, if present, is vigorous; bark is healthy and intact; there are no signs of senescence.
Fair	**Moderate Evidence of Stress, Disease, Infestation, or Nutrient Deficiency.** Foliage is below average density, size, or color for the species; foliage density may be lower in some parts of the canopy; twig elongation and bud density may be moderately reduced; some evidence of dieback may be present; some epicormic growth may be present; gall or herbivore load is higher than average for the species; callusing of old wounds is not well-developed; there may be evidence of small areas of infection such as bark swelling or sloughing; the tree may be over-mature or beginning to senesce.
Poor	**Abundant Evidence of Stress, Disease, Infestation, or Nutrient Deficiency.** Foliage and/or buds are sparse; leaves are reduced in size or of unhealthy color; the canopy is sparse and underdeveloped; there is widespread evidence of dieback; twig elongation is severely reduced; there is abundant epicormic growth; gall load, insect exit holes, or evidence of herbivory is severe; old wounds are not callused; there is widespread evidence of bark swelling, splitting, or sloughing in the root crown, trunk, or major limbs; the tree is senescent.

Structure

Structure is an indication of the structural stability and failure potential of the tree expressed as a rating of Good, Fair, or Poor. Ratings for structure were based on the criteria in Table C-2.

Table C-2
CRITERIA FOR RATING TREE STRUCTURE

Good	**Low Potential for Failure.** No wounds, cavities, decay, or indications of hollowness evident in the root crown, trunk, or major limbs; no exposed anchor roots or circling roots; no codominant branching or multiple trunk attachments; no crossing limbs; little or no included bark at branch attachments; no dead major limbs; no major limb failures; no overburdened limbs; no excessive or unnatural lean; proper development of trunk taper; structure is more or less symmetrical.

Fair	**Moderate Potential for Failure.** Small to moderate wounds, cavities, decay, or indications of hollowness may be present in the root crown, trunk, or major limbs; minor exposure of anchor roots; no circling roots; codominant trunks or multiple trunk attachments are present but included bark is absent or not well-developed; no large crossing limbs are present; small or medium-sized dead limbs may be present in the canopy; no large limb failures; limbs may be slightly overburdened; natural or only minor lean is evident with well-developed reaction wood; canopy development may be slightly to moderately asymmetrical.
Poor	**High Potential for Failure.** Significant wounds, cavities, decay, or indications of hollowness evident in the root crown, trunk, or major limbs; anchor roots are exposed or the tree has lost anchorage; circling roots are present; codominant branching or multiple trunk attachments are present; large crossing limbs are present; significant amounts of included bark are present at trunk and branch attachments; large dead limbs are present in the canopy; evidence of past large limb failures; overburdened limbs; poor trunk taper; excessive or unnatural lean or drastically unbalanced canopy development.

Appendix G

Aquatic Resources Delineation Report

Mowry Village Project

Aquatic Resources Delineation Report

Prepared for:

The Mowry Project Owner, LLC
2603 Camino Ramon, Suite 480
San Ramon, CA 94583

Prepared by:

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630

October 2022 | 00357.00035.001

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1.0 INTRODUCTION

On behalf of The Mowry Project Owner, LLC, HELIX Environmental Planning, Inc. (HELIX) has prepared this delineation of aquatic resources to evaluate the current status of jurisdictional wetlands and other waters of the U.S. and State on the approximately 35.3-acre Mowry Village Project Study Area in the City of Newark, Alameda County, California.

The purpose of our delineation was to identify aquatic resources in the Study Area that potentially qualify as waters of the U.S. (WOTUS) and/or waters of the State. WOTUS on the site are subject to regulatory jurisdiction by both the U.S. Army Corps of Engineers (USACE) and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). Waters of the State on the site are subject solely to the jurisdiction of the SFBRWQCB. Impacts to onsite aquatic resources may require obtaining permits from one or both agencies. The results of this report are preliminary and subject to concurrence by the USACE and the SFBRWQCB.

The proposed project is within the Newark Area 3 and 4 Specific Plan. Portions of the Study Area were previously delineated as part of the overall delineation to support the Specific Plan and the delineation was verified by the USACE. Site conditions appear to have changed since the date of the verified delineation map (August 2007) resulting in a change to the extent of WOTUS in the Study Area. A linear feature mapped as “Other Waters” along the northern boundary of the Pick-N-Pull wrecking yard in the previously verified delineation was assessed and was determined to not qualify as wetland (Data Points 5, 6, and 7). This mapped linear feature does not exhibit an ordinary high water mark or bed/bank and also does not qualify as an “other water.” A total of seven additional data points were collected on September 17, 2022, along the southern/western boundary of the waterline study area, to assess the presence/absence of wetlands. None of the seven data points met the three-parameter test for wetlands (Data Points 8 – 15). The stormwater detention basins on the Pick-N-Pull site, which were determined to not qualify as WOTUS in the verified delineation, are still present and considered not subject to USACE jurisdiction.

1.1 PROJECT LOCATION AND DESCRIPTION

The Study Area is situated in the City of Newark in Alameda County, California (Figure 1 in Appendix A). The approximately 35.3-acre Study Area is generally located southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks, west of Cherry Street. The Study Area is generally comprised of three parcels: Assessor’s Parcel Numbers: 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00 with some off-site improvements on adjacent parcels. The site is in un-sectioned lands not included in the Public Lands Survey, adjacent to Township 5 South, Range 1 W, Mount Diablo Meridian. The Study Area is depicted on the U.S. Geological Survey (USGS) 7.5-minute “Newark, California” quadrangle map (quad; Figure 2 in Appendix A). The approximate center of the Study Area is at latitude 37.511991 N, longitude -122.011772 W, NAD 83.

The Study Area is proposed for a low-density residential construction of 203 single-family detached homes, resulting in a density of seven (7) units per acre. The proposed single-family homes would be located on three typical lot sizes that are 3,375 sf, 3,600 sf, or 4,000 sf. The proposed project would provide 40,802 sf (0.94 acres) of common open space consisting of landscaping, bioretention areas, and a pocket park. Additional improvements would include on-street parking, drive aisles, underground utilities, Low Impact Development (LID) drainage and water quality treatment areas, lighting, sidewalks, and landscaping. The proposed project would also include improvements and widening of Mowry Avenue.

1.2 DRIVING DIRECTIONS

From downtown San Francisco, travel eastward on Interstate 80 (I-80) towards Oakland. After taking the San Francisco-Oakland Bay Bridge over the Bay, take the I-880 south exit towards Alameda/San Jose/Airport. Travel for 1.6 miles, then merge onto I-880 south. Travel 28.3 miles, then take the Mowry Avenue exit and turn south. Travel approximately one mile along Mowry Avenue and cross the train tracks, which is the northwestern corner of the Study Area. The Study Area is gated and fenced and may only be accessed during normal business hours with prior notice.

1.3 CONTACT INFORMATION

Applicant: The Mowry Project Owner, LLC
Vince Fletcher
2603 Camino Ramon, Suite 480
San Ramon, CA 94583
(925) 766-5900

Agent: HELIX Environmental Planning, Inc.
Stephen Stringer
Principal Biologist
11 Natoma Street, Suite 155
Folsom, CA 95630
(916) 365-8700

1.4 REGULATORY SETTING

1.4.1 Federal Jurisdiction

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act, any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable WOTUS without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

“Waters of the U.S.” are defined as: “All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; the territorial sea; or wetlands adjacent to these waters (33 Code of Federal Regulations [CFR] Part 328).”

Within non-tidal waters that meet the definition cited above and, in the absence of adjacent wetlands, the indicator used by the USACE to determine the lateral extent of its jurisdiction is the ordinary high water mark (OHWM) – the line on the shore established by fluctuations of water and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, and/or the presence of litter and debris.

Wetlands are defined under the CFR Part 328.3 as those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The USACE has determined that not all features which meet the wetland definition are, in fact, considered to be WOTUS. Normally, features not considered as WOTUS include (a) non-tidal drainage and irrigation ditches excavated on dry land; (b) artificially irrigated areas which would revert to upland if the irrigation ceased; (c) artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing, (d) artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons, and (e) waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of WOTUS (see 33 CFR 328.3(a)). Other features may be excluded based on Supreme Court decisions (e.g., SWANCC and Rapanos) or by regulation.

Federal and state regulations pertaining to WOTUS including wetlands, are discussed below.

Clean Water Act (33 USC 1251-1376). The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to WOTUS must obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into WOTUS.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into WOTUS (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there is no practicable alternative that would have less adverse impacts.

1.4.2 State Jurisdiction

1.4.2.1 Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Federal CWA. Although the Clean Water Act is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code).

The WQC Program currently issues the WQC for discharges requiring USACE's permits for fill and dredge discharges within WOTUS, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Office of Administrative Law approved the Procedures on August 28, 2019, and the Procedures became effective May 28, 2020.

Under the Procedures and the State Water Code (Water Code §13050(e)), “Waters of the State” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to waters of the State, which includes WOTUS and non-federal waters of the State, requires filing of an application under the Procedures.

The RWQCB will assert jurisdiction over any waters of the State, including wetlands, regardless of whether or not the feature qualifies as WOTUS. Under the Procedures and the State Water Code (Water Code §13050(e)), “waters of the State” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state.” “Waters of the State” includes all “waters of the U.S.” The following wetlands are waters of the State:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state,
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the State, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the State unless they also satisfy the criteria set forth in 2, 3a, or 3b):
        i. Industrial or municipal wastewater treatment or disposal,
        ii. Settling of sediment,
        iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
        iv. Treatment of surface waters,
        v. Agricultural crop irrigation or stock watering,
        vi. Fire suppression,

vii. Industrial processing or cooling,
viii. Active surface mining – even if the site is managed for interim wetlands functions and values,
ix. Log storage,
x. Treatment, storage, or distribution of recycled water,
xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits), or
xii. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the State.

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 et seq.) is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, National Pollution Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

1.4.2.2 California Department of Fish and Wildlife

The CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of streambeds…except when the department has been notified pursuant to Section 1601." Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submitting an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

2.0 ENVIRONMENTAL SETTING

2.1 LOCATION DESCRIPTION

The Study Area is located within an industrial and undeveloped area in the southwestern portion of the City of Newark. Surrounding land uses include Cargill salt ponds to the north, open space to the east, wetlands and open space to the south, and industrial/open space to the west. The site consists primarily of the Pick-N-Pull facility, which is mostly developed and used as an auto parts and scrap metal salvage lot (Figure 3 in Appendix A) as well as some linear off-site improvements. Elevation of the site ranges from approximately 12 feet above mean sea level (amsl) in the north to approximately two feet amsl in the south. The western and eastern edges of the Study Area are at an elevation of approximately seven feet amsl.

The approximately 35.3-acre Study Area is located in southwestern Alameda County in the City of Newark, California (Appendix A, Figure 1), near the southern terminus of Mowry Avenue. The Study Area is comprised primarily of Assessor's Parcel Numbers (APNs) 537-0850-001-11, -13, and -002-00 with some linear off-site improvements on adjacent parcels. The site is in un-sectioned lands not included in the Public Lands Survey, adjacent to Township 5 South, Range 1 W, Mount Diablo Meridian. The Study Area is depicted on the USGS 7.5-minute "Newark, California" quadrangle map (Appendix A, Figure 2). Figure 3 in Appendix A is an aerial photograph of the Study Area.

2.2 EXISTING CONDITIONS

The northern one-third of the site is undeveloped ruderal/disturbed habitat; the remainder of the site is developed as an auto parts and scrap metal salvage yard (Pick-N-Pull). Runoff from the salvage yard is collected in two constructed water treatment basins in the southern tip and along the southeastern side of the site. There are two stands of large eucalyptus trees near the northern corner of the site, as well as ornamental trees in the parking area of the Pick-N-Pull salvage yard. The Study Area also includes two narrow strips; one along Mowry Avenue to allow for roadway improvements, and another along the railroad tracks to allow for the installation of a water line extension. The Mowry Avenue extension consists entirely of developed roadway. The water line extension follows a gravel road in a southeasterly direction along the UPRR tracks and then turns to the northeast and crosses over the Alameda County Flood Control & Water Conservation District (ACFC & WCD) channel before ultimately running along a planned gravel road adjacent to the channel. The current alignment of the ACFC & WCD channel is within the Study Area; however, this channel is proposed to be realigned outside of the Study Area prior to implementation of the project.

2.3 FIELD CONDITIONS

The delineation for the majority of the Study Area was conducted on July 3, 2019. The weather during the site visit was sunny and warm. The climate of Alameda County is Mediterranean, characterized by wet, cool winters and dry, hot summers. The nearest weather station is in Newark, California, located approximately one mile west of the Study Area in Alameda County. Mean daily maximum and minimum temperatures are 77 degrees in July and 57 degrees Fahrenheit in July, and 58 and 41 degrees Fahrenheit in January (NRCS 2019). The mean annual precipitation is 14.1 inches, with nearly 100 percent occurring as rain from September through May. The weather station in Newark received 16.12 inches of rainfall in the 2018/2019 rain season, which is 114 percent of normal (NRCS 2019). Follow up surveys were conducted on November 16, 2021, March 8, 2022, and September 17, 2022 to evaluate current site conditions and assess the off-site improvement areas. The weather during the November 2021 site visit was cloudy with a high of 65 degrees Fahrenheit and the weather during the March 2022 survey was sunny with a high of 74 degrees Fahrenheit.

2.4 INTERSTATE OR FOREIGN COMMERCE CONNECTION

No aquatic resource in the Study Area is used in interstate or foreign commerce. The Study Area has an off-site connection via Mowry Slough to the San Francisco Bay, a navigable water that is used in interstate and foreign commerce. Mowry Slough connects to the San Francisco Bay approximately 2.4 miles southwest of the site. An alkali salt marsh complex that is connected to Mowry Slough through a culvert abuts the eastern boundary of the Study Area. A segment of Alameda County Flood Control & Water Conservation District channel (Line D) is present in the Study Area and is tributary to Mowry Slough and San Francisco Bay beyond.

3.0 METHODS

3.1 DATA GATHERING

The following sources were used in preparation of this jurisdictional delineation:

- Aerial photography taken November 4, 2019 downloaded from Esri®
- Topographic contours from the USGS “Newark, CA” 7.5-minute quadrangle maps
- Natural Resources Conservation Service (NRCS) web soil survey (NRCS 2021)
- Corps of Engineers *Wetlands Delineation Manual* (USACE 1987)
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0; USACE 2008)
- Field Indicators of Hydric Soils in the United States, Version 8.2 (NRCS 2018)
- USACE 2020 National Wetland Plant List for the Arid West (USACE 2020)
- USFWS’s National Wetland Inventory online wetland mapper (USFWS 2021)
- 2016 National Hydric Soils List (NRCS 2016)

3.2 DELINEATION AREA

The delineation area includes the entire approximately 35.3-acre Study Area. Refer to the delineation map in Appendix B for the limits of the HELIX delineation.

3.3 DETERMINATION PROCEDURES

3.3.1 Delineation Methods

Fieldwork for the jurisdictional delineation was initially conducted by HELIX Principal Biologist Stephen Stringer, M.S. on July 3, 2019. Follow up surveys were conducted on November 16, 2021 by Mr. Stringer and HELIX Biologist Stephanie McLaughlin and by Mr. Stringer on March 8, 2022 to assess the current site conditions and evaluate the offsite improvement areas. Mr. Stringer conducted an additional survey on September 17, 2022 to collect additional data points as requested by the USACE. The delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0*; USACE 2008).

Vegetation, soils, and hydrologic characteristics were visually assessed during the field delineation by walking the entire Study Area to obtain 100 percent visual coverage. Ground photographs of each delineated feature were taken (Appendix C). Plant species identifiable at the time of the survey were recorded (refer to Appendix D for the list of plants observed with the wetland indicator status for each species).

The three-parameter method was used to determine the presence/absence of wetlands, which involves identifying indicators of hydrophytic vegetation, hydric soils, and wetland hydrology according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0*; USACE 2008) and the *Arid West 2020 Regional Wetland Plant List* (USACE 2020). Paired data points, recorded on data sheets, were taken in and adjacent to areas exhibiting evidence of wetland vegetation or hydrology to identify wetland boundaries (Appendix E).

The boundaries of aquatic features were mapped in the field using an EOS Mapping Systems Arrow 100 global navigation satellite system receiver. These data were exported into ArcMap 10® and used to produce the map of aquatic resources in the delineation area and calculate the acreage of the aquatic resources.

3.3.2 Nomenclature

Habitat nomenclature is generally derived from *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009) with reference to Holland (1986). Plant names are from *The Jepson Manual, Second Edition* (Baldwin et al. 2012). Wetland ratings for plant species were taken from the *National Wetland Plant List, 2020* (USACE 2020).

4.0 RESULTS

4.1 VEGETATION COMMUNITIES/HABITAT TYPES

Upland habitats in the Study Area include developed and ruderal/disturbed. These habitats are discussed below. Aquatic resources are discussed in Section 4.5.

4.1.1 Developed

Developed land is where permanent structures, pavement, and/or other land uses prevent the growth of vegetation, or where the vegetation is associated with landscaping and is tended and maintained. Approximately 22.36 acres of the site is classified as developed land, which includes the auto parts and scrap metal salvage yard, portions of Mowry Avenue, and a gravel road paralleling the Union Pacific Railroad Tracks.

4.1.2 Ruderal/Disturbed

Disturbed habitat is land that retains a soil substrate but is subject to recent or on-going disturbance that prevents the formation of natural vegetation communities. Vegetation in disturbed areas is predominated by naturalized and/or invasive non-native species and ruderal native annuals. The species composition is determined by local colonization potential or past introductions. Ruderal and disturbed areas include dirt roads, trails, parking areas, and weedy open areas where the natural vegetation has been removed. Ruderal and disturbed areas are not described in treatments of plant communities.

Ruderal/disturbed habitat on the Study Area is predominated by a variety of non-native grasses including oats (*Avena fatua*) (--) and Italian ryegrass (*Festuca perennis*) (FAC), and non-native forbs such as yellow star thistle (*Centaurea solstitialis*) (--) and black mustard (*Brassica nigra*) (--). Approximately 11.74 acres of the Study Area is ruderal/disturbed habitat.

4.2 SOILS

Three soil types are mapped within the Study Area: Omni silt clay loam, strongly saline (132), Omni silt clay loam, drained (131), and Pescadero clay, drained (133) (NRCS 2021). A soil map is included as Figure 4 in Appendix A.

Omni silt clay loam, strongly saline (132) is found on toeslopes and floodplains and consists of alluvium derived from sedimentary rock. A typical soil profile is silty clay loam from 0 to 6 inches, clay from 6 to 52 inches, and stratified clay loam to silty clay from 52 to 60 inches. Omni silt clay loam, strongly saline is a poorly drained soil with a frequency of ponding of “none” and a depth to water table of 48 to 72 inches (NRCS 2021). Omni silt clay loam, strongly saline is rated as a hydric soil (NRCS 2016).

Omni silt clay loam, drained (131) is found on toeslopes and floodplains and consists of alluvium derived from sedimentary rock. A typical soil profile is silty clay loam from 0 to 6 inches, clay from 6 to 52 inches, and stratified clay loam to silty clay from 52 to 60 inches. Omni silt clay loam, drained is a poorly drained soil with a frequency of ponding of “none” and a depth to water table of more than 80 inches (NRCS 2021). Omni silt clay loam, drained is rated as a hydric soil (NRCS 2016).

Pescadero clay, drained (133) is found on toeslopes and rims and consists of alluvium derived from sedimentary rock. A typical soil profile is clay loam from 0 to 2 inches, clay from 2 to 30 inches, and clay loam from 30 to 60 inches. Pescadero clay, drained is a poorly drained soil with a frequency of ponding of “none” and a depth to water table of 48 to 72 (NRCS 2021). Pescadero clay, drained is rated as a hydric soil (NRCS 2016).

4.3 HYDROLOGY

The Study Area is situated adjacent to Mowry Slough in the Plummer Creek – Frontal San Francisco Bay Estuaries Hydrologic Unit (HUC12: 180500040702). Mowry Slough is a tidal channel south of the Study Area that is connected to the San Francisco Bay.

The detention basins along the eastern site boundary are constructed, with the majority of the ponding water resulting from direct precipitation and runoff collected from the adjacent upland areas, including the auto parts and scrap metal salvage yard. Both detention basins drain into the alkali salt marsh complex located on the neighboring site, that abuts the eastern boundary of the Study Area, through gravel lined spillways. The alkali salt marsh complex is connected to the Mowry Slough through a culvert, which then drains into the San Francisco Bay.

The constructed storm drain was built to route stormwater runoff away from the outdoor athletic facilities at the George M. Silliman Recreation Complex, located north of the Study Area into the ACFC & WCD channel, which is a constructed stormwater management channel.

4.4 USFWS NATIONAL WETLANDS INVENTORY

National Wetland Inventory mapping shows two categories of aquatic features in and immediately adjacent to the Study Area: Freshwater Emergent Wetland and Estuarine and Marine Wetland (Figure 5 in Appendix A).

Freshwater emergent wetland is mapped by the National Wetlands Inventory on the Pick-N-Pull site and along the UPRR tracks on or adjacent to the site. The freshwater emergent wetland mapped on the Pick-N-Pull site is a palustrine system, class emergent, subclass persistent, seasonally flooded, and diked/impounded – this corresponds to the constructed stormwater detention basins. There is also a polygon of freshwater emergent wetland mapped along the UPRR tracks that may overlap the Study Area. This portion of the Study Area is a gravel road and ruderal/disturbed habitat paralleling the railroad tracks and is not wetland, therefore the National Wetland Inventory mapping does not reflect site conditions. The National Wetland Inventory mapping depicting freshwater emergent wetland within Pick-N-Pull also does not reflect current site conditions. The constructed stormwater detention basins are periodically dredged to maintain capacity, and any vegetation is routinely removed. The constructed stormwater detention basins do not currently support freshwater emergent wetland except what grows between dredging events.

Estuarine and marine wetland mapped by the National Wetland Inventory within the Study Area is the ACFC & WCD channel, which is a constructed, managed channel for controlling stormwater and floodwater.

4.5 AQUATIC RESOURCES IN THE STUDY AREA

Aquatic resources in the Study Area include two stormwater detention basins, a segment of a constructed storm drain, and a segment of the ACFC & WCD channel (Appendix B). The total acreage of aquatic resources in the Study Area is 1.192 acres (Table 1).

Table 1
AQUATIC RESOURCES IN THE STUDY AREA

Feature ID[1]	Classification	Area (ac.)	Square Feet	Linear Feet
SWDB-1	PEM1Ch	0.160	6,963	--
SWDB-2	PEM1Ch	0.737	32,095	--
CSD-1	--	0.005	209	21
ACFC & WCD Channel	E2SBNx	0.290	12,630	680
TOTAL	**--**	**1.192**	**51,897**	**--**

[1] Refer to Appendix B for feature locations.

4.5.1 Stormwater Detention Basins

There is a pair of constructed stormwater detention basins along the eastern boundary of the site. These basins are routinely dredged to maintain capacity, and any vegetation is routinely removed. As the result of frequent dredging disturbance, the basins do not support a permanent vegetation community. The total area of these basins is 0.89 acre.

4.5.1.1 Stormwater Detention Basin 1

Stormwater Detention Basin 1 (SWDB-1) is a constructed, unlined earthen basin approximately 0.16 acre in size. The basin is in the southernmost tip of the Study Area and abuts the southern boundary of the auto scrap yard. Vegetation in SWDB-1 is dominated by obligate hydrophytes (cattail) between periodic dredging events. The basin is fed by runoff from the surrounding area and exits the site through a gravel lined spillway on the eastern edge of the project boundary, where it enters the alkali salt marsh complex on the adjacent property.

4.5.1.2 Stormwater Detention Basin 2

Stormwater Detention Basin 2 (SWDB-2) is a constructed, unlined earthen basin approximately 0.73 acre in size. The basin consists of two smaller basins connected by a narrow channel. The basin is located at the eastern edge of the Study Area and abuts the eastern boundary of the auto salvage yard. Vegetation in SWDB-2 is dominated by obligate hydrophytes (cattail) between periodic dredging events. The basin is fed by runoff from the surrounding area and exits the site through a gravel lined spillway on the eastern edge of the project boundary, where it enters the alkali salt marsh complex on the adjacent property.

4.5.2 Constructed Storm Drain

The Constructed Storm Drain (CSD-1) is a constructed, unlined earthen channel located in the eastern portion of the Study Area, along the narrow strip of developed land that will be used for the installation of a water line extension. This storm drain was constructed to route stormwater runoff away from the outdoor athletic facilities at the George M. Silliman Recreation Complex, located north of the Study Area. Vegetation in the constructed storm drain consists of non-native grasses and forbs, and the drain contains vegetative debris from a nearby Mexican fan palm (*Washingtonia robusta*). The downstream end of CSD-1 was blocked with vegetative debris at the time of the survey (see Photo 6), but it is assumed to empty into a culvert that in turn drains to the ACFC & WCD Channel “Line D” to the south. The total area of the constructed storm drain falling within the bounds of the Study Area is 0.005 acre. The constructed storm drain exhibited an ordinary high water mark and bed/bank but lacked surface water during the survey in November 2021. CSD-1 is assumed to be ephemeral in nature due to the vegetation present in the feature, which is primarily upland grasses and forbs, and the lack of surface water evident in the feature from review of aerial imagery on Google Earth.

4.5.3 ACFC & WCD Channel

A 0.29-acre segment of the ACFC & WCD channel “Line D” falls within the Study Area at the time of report preparation but is planned for realignment prior to project implementation. The channel is a managed stormwater channel with earthen bed and banks. Water was present in the channel to a depth of several inches at the time of the survey in November 2021. The banks of the channel support ruderal upland vegetation and the bed of the channel supports salt marsh species. “Line D” has an ordinary high water mark consisting of shelving/scour and a shift in vegetation, as well as debris deposits.

4.6 WATERS POTENTIALLY SUBJECT TO USACE AND SFBRWQCB JURISDICTION UNDER THE CLEAN WATER ACT AND/OR THE PORTER-COLOGNE ACT

The stormwater detention basins (SWDB-1 and SWDB-2) located along the eastern boundary of the Study Area are constructed structures designed to meet the requirements of the CWA. The basins were constructed between 1993 and 2002 based on aerial imagery (Google Earth 2021), which drain an auto wrecking yard. Historically, the detention basins and the land surrounding the basins were used for row crop agriculture. These detention basins were designed to capture polluted water runoff from the wrecking yard before it reaches saltwater marsh habitat east of the basins. These detention basins function as water treatment systems, which remove or reduce pollution from discharging directly into a water of the U.S. The land these detention basins were constructed on was also previously converted cropland, which was used for agricultural purposes based on aerial imagery for several decades, and these detention basins were constructed on dry land. These features were not claimed by the USACE as jurisdictional wetlands during the environmental review process for the Specific Plan (see verified map, dated October 10, 2007, attached to this report in Appendix F).

The constructed storm drain (CSD-1) located in the eastern portion of the Study Area, along the narrow strip for land adjacent to the railroad, is a man-made feature constructed to drain runoff from the George M. Silliman Recreation Complex into the ACFC & WCD channel.

The segment of the ACFC & WCD channel that currently falls within the Study Area may be subject to jurisdiction under Section 404 and 401 of the Clean Water Act because it is a relatively permanent, non-navigable tributary of a traditionally navigable water indirectly by means of other tributaries. Tributaries include natural, man-altered, or man-made water bodies that carry flow directly or indirectly into a traditional navigable water (USACE and USEPA 2008). The channel is tributary to Mowry Slough approximately 0.5 mile downstream (west) of the project site and Mowry Slough is tributary to San Francisco Bay.

The stormwater detention basins and the constructed storm drain are not jurisdictional under Section 404 or 401 of the Clean Water Act, or the Porter-Cologne Act, as stormwater control features are not considered WOTUS or waters of the State. Therefore, these features are not regulated by the USACE or the SFBRWQCB.

4.7 WATERS POTENTIALLY SUBJECT TO CDFW JURISDICTION UNDER THE LAKE AND STREAMBED ALTERATION PROGRAM

The ACFC & WCD channel is potentially subject to CDFW jurisdiction under Section 1602 of the Fish and Game Code. The stormwater detention basins and the constructed storm drain are not believed to be subject to CDFW jurisdiction.

5.0 SUMMARY

HELIX conducted a delineation of potential waters of the U.S./State occurring within the approximately 35.3-acre Study Area. The Study Area contains four aquatic features totaling 1.19 acres, which includes two stormwater detention basins, a constructed storm drain, and segment of the ACFC & WCD channel

"Line D." The stormwater detention basins are not subject to USACE, SFBRWQCB, or CDFW jurisdiction because they are wastewater treatment systems and are exempt from CWA and Porter-Cologne Act jurisdiction and do not qualify as a lake or stream subject to CDFW jurisdiction. The constructed storm drain is also not subject to USACE, SFBRWQCB, or CDFW jurisdiction because it is a stormwater control feature that was constructed to convey, treat, or store stormwater. The ACFC & WCD channel "Line D" may be subject to USACE, SFBRWCB, and CDFW jurisdiction. Only the USACE can determine the extent of the WOTUS.

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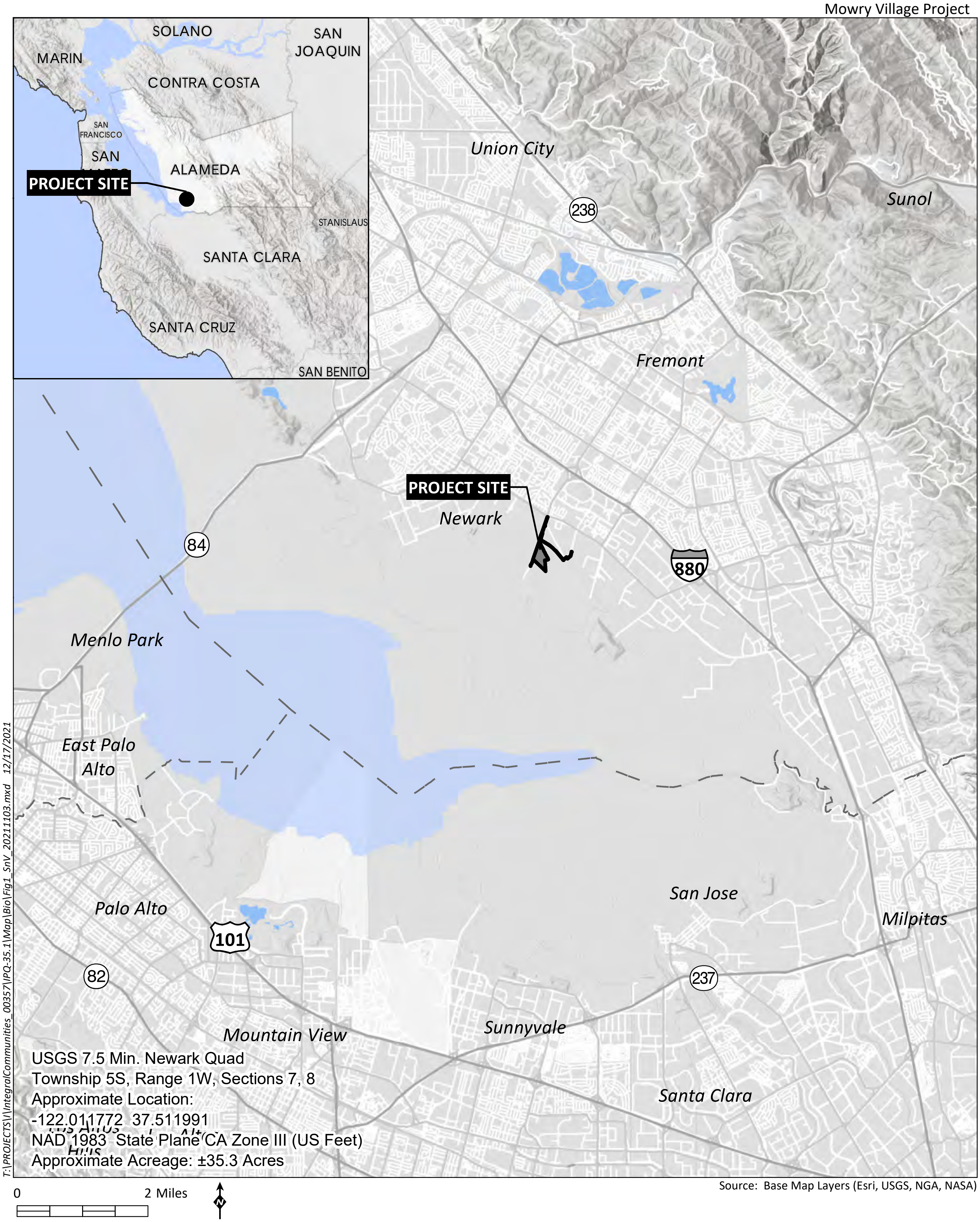
Appendix A

Figures

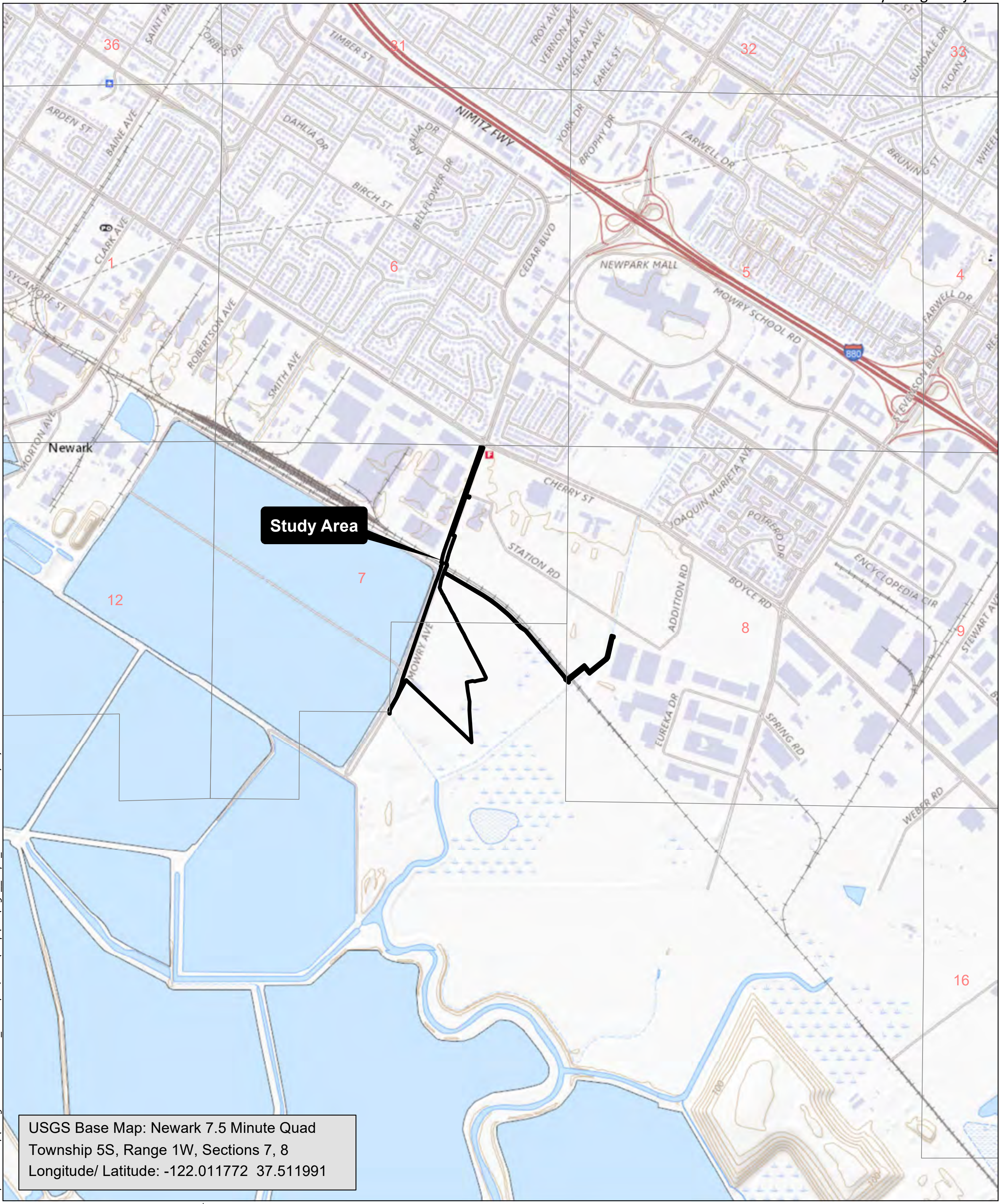


Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Vicinity Map

Figure 1



Source: USGS National Map, 2020

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0 2,000 Feet

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HELIX
Environmental Planning

Topographic Map

Figure 2

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Source: DigitalGlobe, 11/4/2019

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HELIX
Environmental Planning

Aerial Map

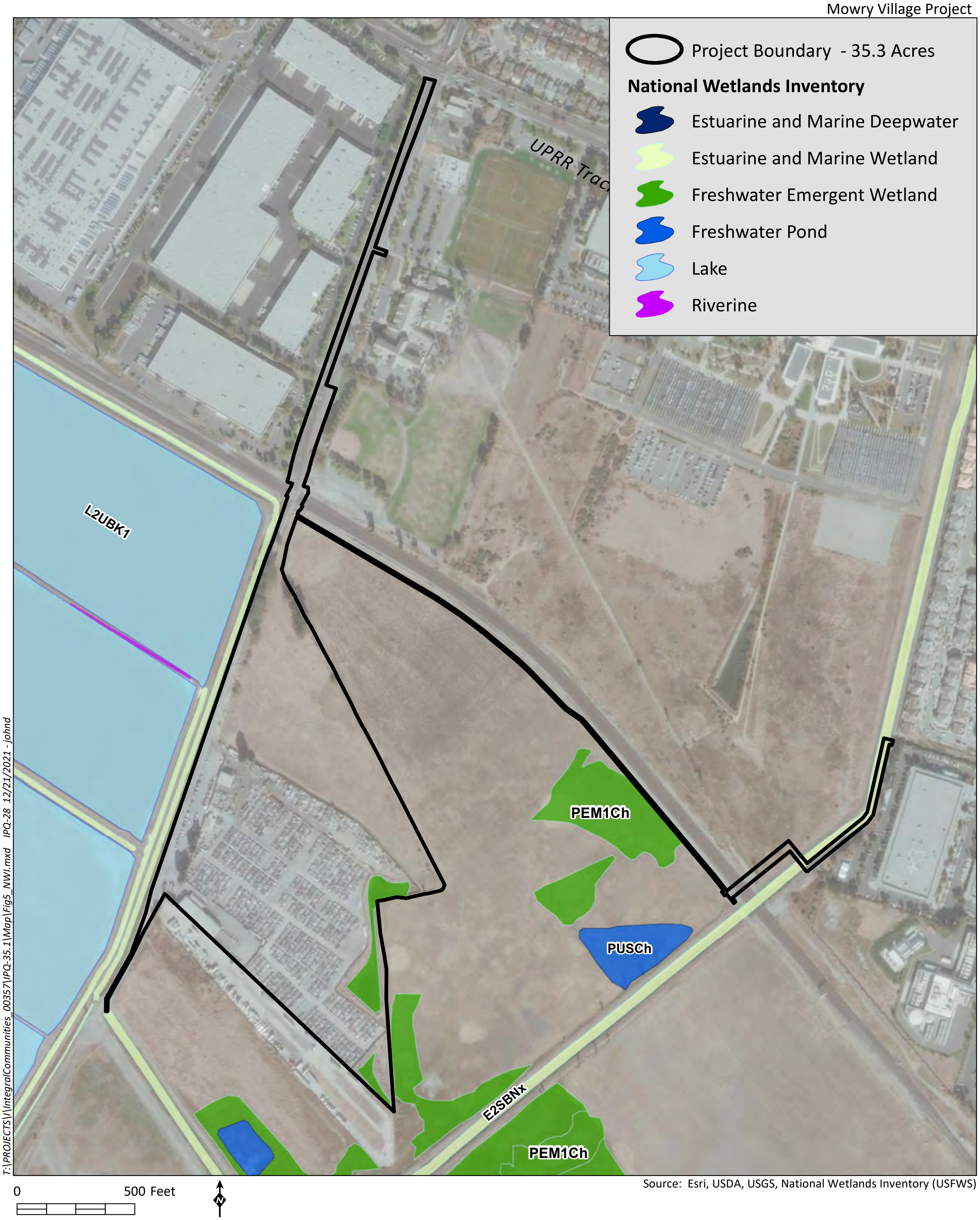
Figure 3

Source: NRCS, 2021; DigitalGlobe, 11/4/2019

HELIX Environmental Planning

Soils Map

Figure 4



Source: Esri, USDA, USGS, National Wetlands Inventory (USFWS)

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HELIX Environmental Planning

National Wetlands Inventory Map

Figure 5

Appendix B

Aquatic Resources Delineation Map

NOTES

- The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers.
- Aquatic resources were mapped by Helix Environmental Planning using an EOS Arrow on 1/4/19, 11/16/2021, 3/8/2022, and 9/17/2022.
- Delineated By: S. Stringer and S. McLaughin
- This delineation utilizes the Corps' 1987 three-parameter methodology and Arid West Supplement to delineate jurisdictional waters of the U.S.
- The Hydrologic Unit Code for this site is 18050004
- Topographic contour interval is 2-foot.
- Coordinate System: NAD 83 State Plane Zone III (US Feet)
- Projection: Lamber Conformable Conic
- Datum: North American Datum 1983

AQUATIC FEATURES	ACRES	SQ. FEET	LINEAR FEET
Wetland			
Storm Water Detention Basin 1 (SWDB 1)	0.160	6,963	-
Storm Water Detention Basin 2 (SWDB 2)	0.737	32,095	-
Wetlands Subtotal	*0.897*	*39,058*	
Other Waters			
Constructed Storm Drain (CSD 1)	0.005	209	21
ACFC&WCD Line D	0.290	12,630	680
Other Waters Subtotal	*0.295*	*12,839*	*701*
Total Aquatic Resources	***1.192***	**51,897**	**701**

HELIX Environmental Planning

USACE REGULATORY FILE #:
VERIFIED BY: TBD
DATE OF VERIFICATION: TBD

REVISIONS

DATE	DESCRIPTION	BY
1/8/2019	Delineated by S Stringer	
11/16/2021	Revised by S Stringer/S McLaughin	
3/8/22, 9/17/22	Addl data collected by S Stringer	

0 350 700
Feet
1 inch = 350 feet
N

Drawn By: JCD

AQUATIC RESOURCES DELINEATION MAP

Mowry Village
Alameda County, California
September 23, 2022

Appendix B.1

NOTES

- The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers.
- Aquatic resources were mapped by Helix Environmental Planning using a EOS Arrow on 1/4/19, 11/16/2021, 3/8/2022 and 9/17/2022.
- Delineated By: S. Stringer and S. McLaughin
- This delineation utilizes the Corps' 1987 three-parameter methodology and Arid West Supplement to delineate jurisdictional waters of the U.S.
- The Hydrologic Unit Code for this site is 18050004
- Topographic contour interval is 2-foot.
- Coordinate System: NAD 83 State Plane Zone III (US Feet)
- Projection: Lamber Conformable Conic
- Datum: North American Datum 1983

AQUATIC FEATURES	ACRES	SQ. FEET	LINEAR FEET
Wetland			
Storm Water Detention Basin 1 (SWDB 1)	0.160	6,963	-
Storm Water Detention Basin 2 (SWDB 2)	0.737	32,095	-
Wetlands Subtotal	*0.897*	*39,058*	
Other Waters			
Constructed Storm Drain (CSD 1)	0.005	209	21
ACFC&WCD Line D	0.290	12,630	680
Other Waters Subtotal	*0.295*	*12,839*	*701*
Total Aquatic Resources	***1.192***	**51,897**	**701**

Document Path: T:\PROJECTS\I\IntegralCommunities_00357\PQ-35.1\Map\AqResDelin_B2_20220909.mxd

HELIX Environmental Planning

USACE REGULATORY FILE #:
VERIFIED BY: TBD
DATE OF VERIFICATION: TBD

REVISIONS

DATE	DESCRIPTION	BY
1/8/2019	Delineated by S Stringer	
11/16/2021	Revised by S Stringer/S McLaughin	
3/8/22, 9/17/22	Addl data collected by S Stringer	

0 200 400
Feet
1 inch = 200 feet

N

Drawn By: JCD

AQUATIC RESOURCES DELINEATION MAP

Mowry Village
Alameda County, California
September 23, 2022

Appendix B.2

Appendix C

Representative Site Photos

Photo 1. View of SWDB-1 looking north from the southern tip of the Study Area. Photo taken July 3, 2019.

Photo 2. View of the northern portion of SWDB-1 looking southwest. Photo taken July 3, 2019.

Photo 3. View of SWDB-2. Photo taken July 3, 2019.

Photo 4. Photo taken from SWDB – 2, looking east into the alkali salt marsh complex in the adjacent site. Photo taken July 3, 2019.

Photo 5. Photo of the constructed storm drain, facing northwest. Photo taken July 3, 2019.

Photo 6. Photo of the constructed storm drain, facing southeast. Photo taken July 3, 2019.

Photo 7. Photo of the ruderal/disturbed habitat in the northwest portion of the Study Area. Photo taken July 3, 2019.

Photo 8. Photo of Data Point 5 looking south. Photo taken March 8, 2022.

Photo 9. Photo of Data Point 6 looking north along the fence line of Pick-N-Pull. Photo taken March 8, 2022.

Photo 10. Photo of the location of Data Point 7 looking north along the fence line of Pick-N-Pull. Photo taken March 8, 2022.

Photo 11. Photo looking south from the northern end of the fence line along Pick-N-Pull. Photo taken March 8, 2022.

Photo 12. Photo of SWDB-2 looking west. Photo taken March 8, 2022.

Appendix D

Plant Species Observed in the Study Area

Appendix D
Plant Species Observed in the Study Area

Family	Species Name	Common Name	Rating[1]
Native			
	Baccharis pilularis	coyote brush	--
	Salicornia sp.	pickleweed	OBL
	Typha angustifolifa	Narrow-leaved cattail	OBL
Non-native			
	Agrostis avenacea (=Lachnagrostis filiformis)	Pacific bentgrass	FACW
	Avena fatua	Oats	--
	Brassica nigra	Black mustard	--
	Bromus sp.	brome	UPL
	Bromus diandrus	Ripgut brome	--
	Carduus pycnocephalus	Italian thistle	--
	Centaurea solstitialis	Yellow star thistle	--
	Elytrigia elongata	Tall wheatgrass	--
	Festuca perennis	Italian ryegrass	FAC
	Geranium molle	crane's bill geranium	--
	Helminthotheca echioides	bristly ox-tongue	FAC
	Hordeum murinum	Barley	FACU
	Malva parviflora	cheeseweed	--
	Oxalis pes-caprae	Bermuda buttercup	--
	Raphanus sativus	Wild radish	--
	Typha angustifolia	narrow-leaved cattail	OBL

[1] Acronyms: FAC – facultative, FACU – facultative upland, FACW – facultative wetland, OBL – obligate, UPL – upland, -- – no status (assumed to be upland [USACE 2020]).

Scientific and common names from: Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, D.H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkley
or
U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory, *Arid West 2020 Regional Wetland Plant List*

Appendix E

Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pick-N-Pull   City/County: Newark/Alameda   Sampling Date: 7/03/2019

Applicant/Owner: Integral Communities   State: CA   Sampling Point: 1

Investigator(s): Stephen Stringer   Section, Township, Range: Sections 7 & 18 of T5S and R1W

Landform (hillslope, terrace, etc.): terrace   Local relief (concave, convex, none): concave   Slope (%): ____

Subregion (LRR): LRR C   Lat: 37.512335   Long: -122.013438   Datum: NAD 83

Soil Map Unit Name: Omni silt clay loam, strongly saline   NWI classification: PEM1K

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks:

Point taken in a constructed detention basin that has been recently maintained to remove overgrowth.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Typha angustifolia	unk	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ____   % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

No living vegetation present. Constructed detention basin is regularly maintained to remove vegetation. Cattail present outside the basin that was evidently recently removed from the basin. Absolute cover is indiscernible.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/1	90	7.5 YR 4/6	10	C	M	clay loam	soil profiles are disturbed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✓ No ___

Remarks:

Prominent redoximorphic features detected in the matrix fulfill hydric soil indicator depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		✓	
Water Table Present?	✓		10
Saturation Present? (includes capillary fringe)	✓		8

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water in constructed detention basin next to pit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pick-N-Pull City/County: Newark/Alameda Sampling Date: 7/03/2019

Applicant/Owner: Integral Communities State: CA Sampling Point: 2

Investigator(s): Stephen Stringer Section, Township, Range: Sections 7 & 18 of T5S and R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): LRR C Lat: 37.512335 Long: -122.013438 Datum: NAD 83

Soil Map Unit Name: Omni silt clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ______, or Hydrology ______ significantly disturbed? Are “Normal Circumstances” present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No ✓	**Is the Sampled Area within a Wetland?** Yes ______ No ✓
Hydric Soil Present?	Yes ______	No ✓	
Wetland Hydrology Present?	Yes ______	No ✓	

Remarks:

Point taken on a berm above a constructed detention basin. Vegetation was removed prior to the site visit and is estimated to be upland based upon species observed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ______	x 1 = ______
FACW species ______	x 2 = ______
FAC species ______	x 3 = ______
FACU species ______	x 4 = ______
UPL species ______	x 5 = ______
Column Totals: ______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ✓

Remarks:

Vegetation has been recently cleared for regular maintenance. Several weeds are evident including Helminthotheca echioides (FAC), Lotus sp., Cynodon dactylon (FACU), and Convolvulus arvensis (Upl). Absolute cover is indiscernible.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/2	100					clay loam	soil profiles are disturbed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

No hydric soil indicators present. Soil is compacted fill.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pick-N-Pull City/County: Newark/Alameda Sampling Date: 7/03/2019

Applicant/Owner: Integral Communities State: CA Sampling Point: 3

Investigator(s): Stephen Stringer Section, Township, Range: Sections 7 & 18 of T5S and R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): ______

Subregion (LRR): LRR C Lat: 37.512335 Long: -122.013438 Datum: NAD 83

Soil Map Unit Name: Omni silt clay loam, strongly saline NWI classification: PEM1K

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**
Hydric Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____		

Remarks:

Point taken in a constructed detention basin that has been recently maintained to remove overgrowth.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Typha angustifolia	unk	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

No living vegetation present. Constructed detention basin is regularly maintained to remove vegetation. Cattail present outside the basin that was evidently recently removed from the basin. Absolute cover is indiscernible.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/1	90	7.5 YR 4/6	10	C	M	clay loam	soil profiles are disturbed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ______ Depth (inches): 4

Water Table Present? Yes ✓ No ______ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ✓ No ______ Depth (inches): ______

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water in constructed detention basin.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pick-N-Pull City/County: Newark/Alameda Sampling Date: 7/03/2019

Applicant/Owner: Integral Communities State: CA Sampling Point: 4

Investigator(s): Stephen Stringer Section, Township, Range: Sections 7 & 18 of T5S and R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): ____

Subregion (LRR): LRR C Lat: 37.512335 Long: -122.013438 Datum: NAD 83

Soil Map Unit Name: Omni silt clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓
Is the Sampled Area within a Wetland?		✓

Remarks:
Point taken on a berm above a constructed detention basin. No discernible vegetation present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:
Vegetation has been recently cleared for regular maintenance. No discernible vegetation at point.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/2	100					clay loam	soil profiles are disturbed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? **Yes** ______ **No** ✓

Remarks:

No hydric soil indicators present. Soil is compacted fill.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? **Yes** ______ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 03/08/22

Applicant/Owner: The Mowry Project Owner, LLC State: Ca Sampling Point: 5

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 37.511022 Long: 122.010250 Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

Region is experiencing drought conditions.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Hordeum murinum	50	Y	FACU
2. Bromus diandrus	10	N	NI
3. Raphanus sativus	20	Y	NI
4. Malva parviflora	5	N	NI
5.			
6.			
7.			
8.			
= Total Cover	85		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 2/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. The area surrounding the data point represents a high point in the topography. The elevation at the data point is estimated to be approximately 12 to 24 inches higher than the water level in the adjacent detention basin on Pick-N-Pull and 12 inches higher than the adjacent marsh.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 03/08/22

Applicant/Owner: The Mowry Project Owner, LLC State: Ca Sampling Point: 6

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): C Lat: 37.511666 Long: 122.011010 Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✓

Remarks:
Region is experiencing drought conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Elytrigia elongata	90	Y	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5 YR 2.5/2	90						mixed soil, clay loam
	7.5 YR 4/3	10						
11-16	10 YR 2/1	100						clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ____
Water Table Present?	Yes ___	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): ____

Wetland Hydrology Present? **Yes** ___ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of wetland hydrology. Data point was taken in a low area along a fenceline, but there is no evidence of any flow or ponding in this area (water marks, drift deposits, sediment deposits, biotic crust etc.), which should still be present from heavy rains in December/early January if this was a wetland.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 03/08/22

Applicant/Owner: The Mowry Project Owner, LLC State: Ca Sampling Point: 7

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): C Lat: 37.512513 Long: 122.012671 Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

Region is experiencing drought conditions.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Raphanus sativus	50	Y	NI
2. Oxalis pes-caprae	15	N	NI
3. Bromus diandrus	10	N	NI
4. Malva parviflora	5	N	NI
5.			
6.			
7.			
8.			
= Total Cover	80		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5 YR 3/3	100					clay loam	cobble mixed in/fill
>12								impenetrable below 12 inches
								due to cobble

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

No hydric soil indicators present. Data point taken next to fenceline with Pick-N-Pull; soil appears to be mixed with fill (cobble/soil) due to construction of parking areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 8

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): C Lat: 37.512985 N Long: 122.007897 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✔ (If no, explain in Remarks.)

Are Vegetation ___, Soil ✔, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Region is experiencing drought conditions. Soil contains fill from adjacent gravel road/railroad berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq. ft.)			
1. Avena sativa	70	Y	UPL
2. Bromus diandrus	10		UPL
3. Distichlis spicata	2		FAC
4.			
5.			
6.			
7.			
8.			
= Total Cover	82		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 18 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/1	100					clay	silty, cobbly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ___ **No** ✔

Remarks:

Soil at data point is mixed with fill - contains gravel and cobble from adjacent gravel road/railroad berm.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✔	Depth (inches): ___
Water Table Present?	Yes ___	No ✔	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✔	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. Data point taken on a high spot next to a gravel road that is approximately 12 inches in elevation above a large wetland to the west.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 9

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): C Lat: 37.512578 N Long: 122.007474 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: PEM1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✔ (If no, explain in Remarks.)

Are Vegetation ___, Soil ✔, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✔
Hydric Soil Present?	Yes ___	No ✔
Wetland Hydrology Present?	Yes ___	No ✔

Is the Sampled Area within a Wetland? Yes ___ No ✔

Remarks:

Region is experiencing drought conditions. Soil contains fill from adjacent gravel road/railroad berm.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq ft)			
1. Distichlis spicata	40	Y	FAC
2. Avena sativa	40	Y	UPL
3. Helminthotheca echioides	5		FAC
4. Malva parviflora	2		UPL
5. Bromus diandrus	5		UPL
6.			
7.			
8.			
= Total Cover	92		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 8 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	45	x 3 = 135
FACU species		x 4 =
UPL species	47	x 5 = 235
Column Totals:	92 (A)	370 (B)

Prevalence Index = B/A = 4.02

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✔

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/1	100					clay	silty, very cobbly
>12								impenetrable with shovel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✔

Remarks:

Soil at data point is mixed with fill - contains gravel and cobble from adjacent gravel road/railroad berm.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. Data point taken next to a gravel road in a point that is approximately 6-12 inches in elevation above a large wetland to the west.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 10

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): C Lat: 37.512311 N Long: 122.007201 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: PEM1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	Is the Sampled Area within a Wetland?	Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔		
Wetland Hydrology Present?	Yes ____	No ✔		

Remarks:

Region is experiencing drought conditions. Soil contains fill from adjacent gravel road/railroad berm.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq ft)			
1. Avena sativa	60	Y	UPL
2. Distichlis spicata	30	Y	FAC
3. Helminthotheca echioides	5		FAC
4. Bromus diandrus	5		UPL
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	35	x 3 =	105
FACU species		x 4 =	
UPL species	65	x 5 =	325
Column Totals:	100 (A)		430 (B)

Prevalence Index = B/A = 4.3

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/1	100					Clay	silty, very cobbly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✔

Remarks:

Soil at data point is mixed with fill - contains gravel and cobble from adjacent gravel road/railroad berm.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. Data point taken next to a gravel road in a point that is approximately 6-12 inches in elevation above a large wetland to the west.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 11

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): C Lat: 37.512018 N Long: 122.006884 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: PEM1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✔	Is the Sampled Area within a Wetland?	Yes ____ No ✔
Hydric Soil Present?	Yes ____ No ✔		
Wetland Hydrology Present?	Yes ____ No ✔		

Remarks:

Region is experiencing drought conditions. Soil contains fill from adjacent gravel road/railroad berm.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq ft)			
1. Distichlis spicata	70	Y	FAC
2. Avena sativa	25	Y	UPL
3. Lactuca serriola	5		FACU
4. Bromus diandrus	2		UPL
5. Helminthotheca echioides	2		FAC
6.			
7.			
8.			
= Total Cover	104		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	72	x 3 = 216
FACU species	5	x 4 = 20
UPL species	27	x 5 = 135
Column Totals:	104 (A)	371 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/1	100					Clay	silty, cobbly
>12								impenetrable with shovel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✔

Remarks:

Soil at data point is mixed with fill - contains gravel and cobble from adjacent gravel road/railroad berm.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. Data point taken next to a gravel road in a point that is approximately 6-12 inches in elevation above a large wetland to the west.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 12

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): C Lat: 37.511713 N Long: 122.006569 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: PEM1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Region is experiencing drought conditions. Soil contains fill from adjacent gravel road/railroad berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq ft)			
1. Distichlis spicata	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ____

Remarks:

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/1	100					clay	silty, very cobbly
>4								impenetrable with shovel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ____ No ✔

Remarks:

Soil at data point is mixed with fill - contains gravel and cobble from adjacent gravel road/railroad berm. Impenetrable below 4 inches with shovel due to gravel and cobble.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): ____

Water Table Present? Yes ____ No ✔ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. Data point taken next to a gravel road in a point that is approximately 6-12 inches in elevation above a large wetland to the west.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 13

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): >1

Subregion (LRR): C Lat: 37.511408 N Long: 122.006249 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✔
Hydric Soil Present?		✔
Wetland Hydrology Present?		✔
Is the Sampled Area within a Wetland?		✔

Remarks:

Region is experiencing drought conditions. Soil contains fill from adjacent gravel road/railroad berm.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq ft)			
1. Avena sativa	70	Y	UPL
2. Distichlis spicata	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	30	x 3 = 90
FACU species		x 4 =
UPL species	70	x 5 = 350
Column Totals:	100 (A)	440 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/1	100					Clay	silty, gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** ✔

Remarks:

Soil at data point is mixed with fill - contains gravel from adjacent gravel road/railroad berm.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______

Water Table Present? Yes ______ No ✔ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ______

Wetland Hydrology Present? **Yes** ______ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. Data point taken next to a gravel road in a point that is approximately 6-12 inches in elevation above a large wetland to the west.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 14

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): C Lat: 37.511053 N Long: 122.005873 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____
Hydric Soil Present?	Yes ____	No ✔
Wetland Hydrology Present?	Yes ____	No ✔

Is the Sampled Area within a Wetland? Yes ____ No ✔

Remarks:

Region is experiencing drought conditions. Soil contains fill from adjacent gravel road/railroad berm.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq ft)			
1. Distichlis spicata	60	Y	FAC
2. Helminthotheca echioides	30	Y	FAC
3. Avena sativa	20		UPL
4.			
5.			
6.			
7.			
8.			
= Total Cover	110		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/1	100					Clay	silty, gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✔

Remarks:

Data point taken on the slope of a constructed berm that supports a gravel road and railroad tracks. Soil is mixed with gravel.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ______
Water Table Present? Yes ______ No ✔ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present. Data point taken next to a gravel road in a point that is approximately 12 inches in elevation above a large wetland to the west.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mowry Village Project City/County: Newark/Alameda Sampling Date: 9/17/22

Applicant/Owner: The Mowry Project Owner, LLC State: CA Sampling Point: 15

Investigator(s): Stephen Stringer Section, Township, Range: unsectioned lands, T5S, R1W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 37.511315 N Long: 122.006274 W Datum: NAD 83

Soil Map Unit Name: Omni silty clay loam, strongly saline NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ✔ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ______	Is the Sampled Area within a Wetland?	Yes ✔ No ______
Hydric Soil Present?	Yes ✔ No ______		
Wetland Hydrology Present?	Yes ✔ No ______		

Remarks:

Region is experiencing drought conditions. Data point taken on the eastern edge of a large wetland complex.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 100 sq ft)			
1. Distichlis spicata	90	Y	FAC
2. Helminthotheca echioides	5		FAC
3. Lactuca serriola	5		FACU
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ______

Remarks:

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/1	97	7.5 YR 4/6	3	C	PL/M	clay	silty

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ✔ **No** ______

Remarks:

No gravel or cobble present at this data point. Soil is comprised entirely of native soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✔ Depth (inches): ____________

Water Table Present? Yes ______ No ✔ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ______ No ✔ Depth (inches): ____________

Wetland Hydrology Present? **Yes** ✔ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix F

Verified Delineation Map for the Areas 3 and 4 Specific Plan


Legend
Project Boundary
Other Waters (34.14 ac)
Wetlands (249.17 ac)
Upland (354.46 ac)
Wetland Vegetation Supported by Artificial Hydrology (6.27 ac) (non-jurisdictional)
USACE Sample Points
Soil Saturation Monitoring Points
USACE File #'s:
27848S
24851S
1.61 acres - Waters of the U.S.
Feet
0 100 200 400
N
Hydrology most influenced by:
1 Ground Water
2 Surface Precipitation
3 Seep
US Army Corps of Engineers
USACE jurisdiction under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for the Newark Areas 3 and 4 Site located in Newark, Alameda County, California.
The jurisdictional waters of the U.S. and wetlands within the project area boundary are accurately depicted on this map.
File No. 2006-400075S Date: October 10, 2007
H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS
Newark Areas 3 & 4:
ID of Waters of the U.S.
Proj No. 2596-03
Date August 2007
Figure 6
SM
N:\Projects\2596-03\Figure 5 ID of Waters_ESize.mxd

Appendix D
Cultural Resources
Assessment

Mowry Village

Cultural Resources Assessment

December 2021 | 00357.00035.001

Prepared for:

City of Newark
Community Development Department
37101 Newark Boulevard
Newark, CA 94560

Prepared by:

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630

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MANAGEMENT SUMMARY

HELIX Environmental Planning, Inc. (HELIX) has prepared this Cultural Resources Assessment to determine whether historical resources may be affected by implementation of the Mowry Village Project (project) in the City of Newark, Alameda County, California. The project, which would demolish the existing on-site structures and remediate the site to construct a low-density residential development, would cause ground disturbances that have the potential to affect historic properties if they exist within the project area. This assessment is based on the results of an archival records search, Native American coordination, and intensive pedestrian surveys of the proposed project area.

The Mowry Village project area is 35.3 acres and located within Area 4, Sub Area D, of the Newark Areas 3 and 4 Specific Plan (Specific Plan). Most of the project area is currently used as an auto parts and scrap metal salvage lot (Pick-n-Pull), although approximately 10 acres consists of undeveloped agricultural land. The total number of proposed housing units to be constructed is 203, and additional proposed site improvements would include on-street parking, drive aisles, underground utilities, Low Impact Development (LID) drainage and water quality treatment structures, lighting, sidewalks, and landscaping. The entire 35.3-acre project area would be disturbed during preparation and grading. The proposed project would also include improvements and widening of Mowry Avenue.

Results from HELIX's California Historical Resources Information System (CHRIS) records search, and other searches of applicable archives and historic era maps indicate that no resources have been previously recorded within the project's Area of Potential Effects (APE), although seven resources have been recorded within a 0.5-mile search radius of the APE. These resources include a prehistoric site with burials and habitation debris; two prehistoric shell mounds; a prehistoric site with human burials, habitation debris and hearths or pits; an historic-era reburial of prehistoric remains; an area of prehistoric habitation debris, and an historic-era trash scatter.

On April 16, 2018, the Native American Heritage Commission (NAHC) conducted a search of their Sacred Lands File for the presence of Native American sacred sites or human remains in the vicinity of the study area. A written response received from the NAHC on May 23, 2018, stated that the Sacred Lands File failed to indicate the presence of Native American cultural resources in the vicinity. On May 29, 2018, HELIX sent letters to six Native American tribal representatives named by NAHC as potential sources of information related to cultural resources in the area. To date, no responses have been received.

The undeveloped 10-acre portion of the APE located adjacent north of the Pick-n-Pull was fully surveyed for cultural resources in June 2019. A survey was not conducted on the Pick-n-Pull property, which has been fully graded and capped with a layer of imported fill soil. Survey conditions of the 10-acre plot were poor, with less than 10 percent surface visibility due to grass cover. No prehistoric or historic resources were found during the field survey. A second intensive survey of the proposed project's APE was conducted on November 16, 2021, to re-examine the 10-acre undeveloped plot of the project area, and to examine off-site improvements that have been included in the project's APE that had not previously been surveyed. The 10-acre plot exhibited 30 percent visibility during this survey. Areas to the northwest, northeast, southeast, and southwest of the Pick-n-Pull property were also surveyed to ensure 100 percent coverage of the ground surface of the APE. No prehistoric or historic resources were found during this second intensive pedestrian survey.

Despite the negative findings of the pedestrian surveys, the number and nature of the archaeological sites previously documented in the vicinity of the project area indicate that the potential for the project to encounter prehistoric resources should be considered high. This high potential also extends to the salvage lot, where the imported fill which currently serves as the Pick-n-Pull's ground surface may overlie near-surface or buried cultural resources. HELIX recommends that impacts to surface and subsurface cultural resources not identified during this Cultural Resources Assessment be mitigated during project related activities through the implementation of a monitoring program during demolition and construction grubbing, grading, and excavation.

1.0 PROJECT BACKGROUND

1.1 INTRODUCTION

This report presents the results of a cultural resources assessment conducted by HELIX Environmental Planning, Inc. (HELIX) for the Mowry Village Project (project), a proposed low-density residential development located on 35.3 acres in the City of Newark (City), California.

Cultural resources investigations conducted in support of this project are subject to provisions of the California Environmental Quality Act (CEQA), as defined by Section 15064.5 of the CEQA Guidelines, with the Newark City Council acting as the Lead Agency. This letter report documents HELIX's efforts to assess the potential of ground disturbances associated with this project to affect historical resources (i.e., prehistoric or historic-era cultural resources that meet the criteria of significance under CEQA). This assessment is based on the results of an archival records search, Native American coordination, and an intensive pedestrian survey of the proposed project area.

1.2 PROJECT DESCRIPTION

1.2.1 Project Location

The 35.3-acre project area is located southwest of the intersection of Mowry Avenue and the Union Pacific Railroad (UPRR) tracks, and west of Cherry Street (Figures 1 and 2). The project area is comprised of three parcels: Assessor's Parcel Numbers (APNs): 537-0850-001-11, 537-0850-001-13, and 537-0850-002-00. The project area is located in Sections 7 and 18 of Township 5 South, and Range 1 West of the U.S. Geological Survey (USGS) 7.5-minute "Newark, California" quadrangle map.

1.2.2 Project Setting

The project area is located within an agricultural and industrial area in the southwestern portion of the City. Most of the project area is used as an auto parts and scrap metal salvage lot (Pick-n-Pull) that includes a 13,000-square-foot (sf) warehouse, 1,500-sf sales office, 3,000-sf workshop, and a large asphalt parking area for storing vehicles. The northern parcel of the project area is currently undeveloped, open land.

Salt production ponds are located on the west side of Mowry Avenue to the west of the project area. The property to the north is undeveloped. The property to the south, known as the Harwinder Singh site, was previously developed with one warehouse-type structure near Mowry Avenue, and the site was used as an auto wrecking yard. The building has since been demolished, and there are presently no buildings on the Harwinder Singh site. The area to the east of the project area is permanent open space.

Terrain in the project area is generally flat. The undeveloped northern parcel of the project area is roughly triangular in shape and occupies an area of about 10 acres. Site topography indicates fill has been placed in the central area of the undeveloped parcel as the surface elevation is about 10 feet above mean sea level (amsl) around the perimeter of the parcel with a mound up to about 15 feet amsl in the center. The surface elevation of the middle and southern parcels of the three-parcel property is about 10 feet amsl along the northern property line where it abuts the undeveloped parcel as well as along the Mowry Avenue frontage and in the southwest area of the salvage yard where the warehouse building is located. The surface of the parcels throughout the main yard area varies from about 10 feet amsl at the west to 5 feet amsl at the far east end of the yard.

1.2.3 Proposed Project

The Mowry Village project area is proposed for low-density residential on approximately 35.3 acres within Area 4, Sub Area D, of the Specific Plan. The allowable density for low-density residential in the Specific Plan area is between 4.2 and 8.5 dwelling units per acre. The total number of proposed housing units is 203 on 35.3 acres of the project area to achieve an overall density of approximately 7 housing units per acre. Each of these units will be a single-family detached residential unit. Additional proposed site improvements include on-street parking, drive aisles, underground utilities, LID drainage and water quality treatment structures, lighting, sidewalks, and landscaping.

The entire 35.3-acre project area would be disturbed during preparation and grading. Prior to project construction, the existing 13,000-sf warehouse, 1,500-sf sales office, 3,000-sf workshop, and large asphalt parking area servicing the Pick-n-Pull operation would be demolished and removed. Project demolition and construction is estimated to require the removal of approximately 39,000 cubic yards of vegetation, contaminated soil, demolition debris, and other cleared materials.

As part of these residential developments, project designs also call for ground surface modifications to the northwest, northeast, southwest, and southeast of the proposed residential development as well as expansion and modifications of Mowry Avenue, the road adjacent west of the project area (see Figure 3). In the north, the project proposes to construct a 12-inch water main extension to supply the residents of the new development. This extension would be constructed through a jack-and-bore operation which would pass under the UPRR tracks and connect to the terminus of an existing 16-inch water main on the north side of the UPRR tracks within Mowry Avenue, totaling approximately 1,850 lineal feet. To the east, there would be another jack-and bore excavation underneath the UPRR tracks to extend a drainage pipeline towards an already extant stormwater management system and human-modified drainage that runs northeast to southwest, parallel to the main project area. To the west, the proposed project would also install an 8-inch sanitary sewer lines throughout the development to connect to a proposed 8-inch sanitary sewer line within Mowry Avenue. To the south, designs call for a series of outfalls in the proposed detention basins to carry stormwater runoff from the development to the outlets that discharges into the marshland just southeast of the APE. Each of these aspects of the project design have significant potential to disturb any subsurface cultural resources located within the APE.

1.3 AREA OF POTENTIAL EFFECTS

The APE for the proposed project is defined as the geographic area where project activities may directly or indirectly cause changes in the character or use of historic properties of prehistoric or historic age, if any such properties exist. The APE for the project measures 35.3 acres and corresponds to the project's maximum area of ground disturbance. The APE corresponds to the project area as depicted on the USGS "Newark, CA" 7.5- minute quadrangle map (Figure 2) and is shown on an aerial overview map (Figure 3) that can be found within Appendix A.

2.0 REGULATORY FRAMEWORK

2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to CEQA, an historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historic resources, or identified as significant in a local survey conducted in accordance with state guidelines, are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in, or determined eligible for listing in, the CRHR or is not included in a local register or survey shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be an historic resource as defined in California Public Resources Code (PRC) Section 5024.1(c).

CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of an historical resource (see Section 2.2), or (2) the archaeological resource satisfies the definition of a "unique archaeological resource." A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria (PRC § 21083.2(g)):

1. The archaeological resource contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.

2. The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. The archaeological resource is directly associated with a scientifically-recognized important prehistoric or historic event or person.

2.2 CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC § 5024.1(a)). Certain properties, including those listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP) and California Historical Landmarks (CHLs) numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR.

A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria (PRC § 5024.1(c)):

1) It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2) It is associated with the lives of persons important in our past.

3) It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

4) It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance. It is possible that a resource whose integrity does not satisfy NRHP criteria may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data. Resources that have achieved significance within the past 50 years also may be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.

2.3 NATIVE AMERICAN HERITAGE COMMISSION

Section 5097.91 of the PRC established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.9 of the PRC, a State policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

2.4 GOVERNMENT CODE SECTIONS 6254(R) AND 6254.10

These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to “Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission.” Section 6254.10 specifically exempts from disclosure requests for “records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency.”

2.5 HEALTH AND SAFETY CODE, SECTIONS 7050 AND 7052

Health and Safety Code, Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

2.6 PENAL CODE, SECTION 622.5

Section 622.5 of the Penal Code provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

2.7 NEWARK GENERAL PLAN

Goal LU-5 of the Newark General Plan is to identify, preserve, and maintain historic structures and sites to enhance Newark's sense of place and create living reminders of the city's heritage. The following policies and actions are relevant to the types of cultural resources that may be found in the project area:

Policy LU-55, Native American Resources: Coordinate with local tribal representatives and the Native American Heritage Commission to ensure the protection of Newark's Native American resources and to follow appropriate mitigation, preservation, and recovery procedures in the event that important resources are identified during development.

Action LU-5.D, Historic Inventory: Maintain and periodically update a list of Newark's historic sites and structures.

Action LU-5.E, State and Federal Register Listings: Work with property owners seeking to place their properties on the National Register of Historic Places, the California Points of Historical Interest, California Historical Landmarks, or the California Register of Historical Resources.

3.0 CULTURAL SETTING

Following is a brief overview of the prehistoric, ethnographic, and historic background that provide a context in which to understand the background and relevance of sites found in the general project area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview.

Further details can be found in ethnographic studies, mission records, and major published sources, including Beardsley (1948), Bennyhoff (1950), Chartkoff and Chartkoff (1984), Fredrickson (1973 and 1974), Kroeber (1925), and Moratto (1984).

3.1 PREHISTORIC BACKGROUND

The San Francisco Bay Area supported a dense population of hunter-gatherers over thousands of years, leaving a rich and varied archaeological record. The Bay Area was a place of incredible language diversity, with seven languages spoken at the time of Spanish settlement in 1776. The diverse ecosystem of the Bay and surrounding lands supported an average of three to five persons per square mile but reached eleven persons per square mile in the North Bay (Milliken 1995). At the time of Spanish contact, the Native Americans living in the Bay Area were organized into local tribelets that defended fixed territories under independent leaders. Typically, individual Bay Area tribelets included 200 to 400 people distributed among three to five semi-permanent villages, within territories measuring approximately 10 to 12 miles in diameter (Milliken 1995).

Early archaeological investigations in central California were conducted at sites located in the Sacramento-San Joaquin Delta region. The first published account documents investigations in the Lodi and Stockton area (Schenck and Dawson 1929). The initial archaeological reports typically contained descriptive narratives, with more systematic approaches sponsored by Sacramento Junior College in the 1930s. At the same time, University of California, Berkeley excavated several sites in the lower Sacramento Valley and Delta region, which resulted in recognizing archaeological site patterns based on variations of inter-site assemblages. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence (Lillard and Purves 1936; Lillard et al. 1939). In 1939, Lillard noted that each cultural period led directly to the next and that influences spread from the Delta region to other regions in central California (Lillard et al. 1939). In the late 1940s and early 1950s, Beardsley documented similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS). This system proposed a uniform, linear sequence of cultural succession (Beardsley 1948 and 1954). The CCTS system was challenged by Gerow, whose work looked at radiocarbon dating to show that Early and Middle Horizon sites were not subsequent developments but, at least partially, contemporaneous (Gerow 1954 and 1974; Gerow with Force 1968).

To address some of the flaws in the CCTS system, Fredrickson (1973) introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: Paleo-Indian (10000 to 6000 B.C.E.); Lower, Middle and Upper Archaic (6000 B.C.E. to 500 C.E.), and Emergent Upper and Lower (500 to 1800 C.E.). The suggested temporal ranges are similar to earlier horizons, which are broad cultural units that can be arranged in a temporal sequence (Moratto 1984). In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns include:

- Windmiller Pattern or Early Horizon (3000 to 1000 B.C.E.);
- Berkeley Pattern or Middle Horizon (1000 B.C.E. to 500 C.E.); and
- Augustine Pattern or Late Horizon (500 C.E. to European Contact).

Brief descriptions of these temporal ranges and their unique characteristics follow.

Windmiller Pattern or Early Horizon (3000 to 1000 B.C.)

Characterized by the Windmiller Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but minimal obsidian. The large variety of projectile point types and faunal remains suggests exploitation of numerous types of terrestrial and aquatic species (Bennyhoff 1950; Ragir 1972). Burials occurred in cemeteries and intra-village graves. These burials typically were ventrally extended, although some dorsal extensions are known with a westerly orientation and a high number of grave goods. Trade networks focused on acquisition of ornamental and ceremonial objects in finished form rather than on raw material. The presence of artifacts made of exotic materials such as quartz, obsidian, and shell indicate an extensive trade network that may represent the arrival of Utian populations into central California. Also indicative of this period are rectangular *Haliotis* and *Olivella* shell beads, and charmstones that usually were perforated.

Berkeley Pattern or Middle Horizon (1000 B.C. to A.D. 500)

The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson (1973) suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay Area. Compared with the Early Horizon, there is a higher proportion of grinding implements at this time, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. As noted by Lillard, the practice of spreading ground ochre over the burial was common at this time (Lillard et al. 1939). Grave goods during this period are generally sparse and typically include only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles were occasionally present, which suggests the religious or ceremonial significance of the individual. During this period, larger populations are suggested by the number and depth of sites compared with the Windmiller Pattern. According to Fredrickson (1973), the Berkeley Pattern reflects gradual expansion or assimilation of different populations rather than sudden population replacement and a gradual shift in economic emphasis.

Augustine Pattern or Late Horizon (A.D. 500 to Historic Period)

The Late Horizon is characterized by the Augustine Pattern, which represents a shift in the general subsistence pattern. Changes include the introduction of bow and arrow technology; and most importantly, acorns became the predominant food resource. Trade systems expanded to include raw resources as well as finished products. There are more baked clay artifacts and extensive use of Haliotis ornaments of many elaborate shapes and forms. Burial patterns retained the use of flexed burials with variable orientation, but there was a reduction in the use of ochre and widespread evidence of cremation (Moratto 1984). Judging from the number and types of grave goods associated with the two types of burials, cremation seems to have been reserved for individuals of higher status, whereas other individuals were buried in flexed positions. Johnson (1976) suggests that the Augustine Pattern represents expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Berkeley Pattern.

Central California research has expanded from an emphasis on defining chronological and cultural units to a more comprehensive look at settlement and subsistence systems. This shift is illustrated by the early use of burials to identify mortuary assemblages and more recent research using osteological data to determine the health of prehistoric populations (Dickel et al. 1984). Although debate continues over a single model or sequence for central California, the general framework consisting of three temporal/cultural units is generally accepted, although the identification of regional and local variation is a major goal of current archaeological research.

3.2 ETHNOGRAPHIC BACKGROUND

At the time of European contact, the general Newark area was occupied by various tribelets that were part of the Ohlone (previously Costanoan) tribe of California Native Americans (Levy 1978). The Ohlone group designates a language family consisting of eight branches of the Ohlone language that are considered too distinct to be dialects, with each being related to its geographically adjacent neighbors.

These groups lived in approximately 50 separate and politically autonomous tribelet areas, each with one or more permanent villages, between the North San Francisco Bay and the lower Salinas River (Levy 1978).

The various Ohlone tribes subsisted as hunter-gatherers and relied on local terrestrial and marine flora and fauna for subsistence (Levy 1978). The predominant plant food source was the acorn, but they also exploited a wide range of other plants, including various seeds, buckeye, berries, and roots. Protein sources included grizzly bear, elk, sea lions, antelope, and black-tailed deer as well as smaller mammals such as raccoon, brush rabbit, ground squirrels, and wood rats. Waterfowl, including Canadian geese, mallards, green-winged teal, and American widgeon, were captured in nets using decoys to attract them. Fish also played an important role in the Ohlone diet and included steelhead, salmon, and sturgeon (Jones and Klar 2007).

The Ohlone constructed watercraft from tule reeds and possessed bow and arrow technology. They fashioned blankets from sea otter pelts, fabricated basketry from twined reeds of various types, and assembled a variety of stone and bone tools in their assemblages. Ohlone villages typically consisted of domed dwelling structures, communal sweathouses, dance enclosures, and assembly houses constructed from thatched tule reeds and a combination of wild grasses, wild alfalfa, and ferns.

The Ohlone were politically organized into autonomous tribelets that had distinct cultural territories. Individual tribelets contained one or more villages with several seasonal camps for resource procurement within the tribelet territory. The tribelet chief could be either male or female, and the position was inherited patrilineally, but approval of the community was required. The tribelet chief and council were essentially advisors to the community and were responsible for feeding visitors, directing hunting and fishing expeditions, ceremonial activities, and warfare on neighboring tribelets.

The Gold Rush brought disease to the native inhabitants, and by the 1850s, nearly all the Ohlone had adapted in some way or another to economies based on cash income. Hunting and gathering activities continued to decline and were rapidly replaced with economies based on ranching and farming.

3.3 HISTORIC BACKGROUND

The history of the San Francisco Bay Area can be divided into several periods of influence; pertinent historic periods are briefly summarized below.

Spanish Mission Period

The most drastic and permanent change came to the local Ohlone way of life with the establishment of the Spanish Mission system. By the early 1800s, the mission fathers began a process of cultural change that brought the majority of local Native Americans into the missions. At the expense of traditional skills, the neophytes were taught the pastoral and horticultural skills of the Hispanic tradition. If the Native Americans tried to escape, the Spanish missionaries traveled into valley regions to recapture them and recruit inland Native Americans for the coastal missions. In 1834, the Mission system was officially secularized, and most of the mission Native American population dispersed to local ranches, villages, or nearby pueblos. Following the collapse of the mission system, many of the local Native Americans returned to northern California, bringing with them language and agricultural practices learned from the Spanish. During the latter half of the 19th century, the size of all Native American populations dwindled dramatically, due to the spread of European settlements and the diseases the Europeans brought with them (Mission San Jose 2017).

Mexican Period

With the declaration of Mexican independence in 1821, Spanish control of Alta California ended, although little change occurred. Political change did not take place until mission secularization in 1834, when Native Americans were released from missionary control and the mission lands were granted to private individuals. Mission secularization removed the social protection and support on which Native Americans had come to rely; it exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following mission secularization, the Mexican population grew as the native population continued to decline. Anglo-American settlers began to arrive in Alta California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive land grants. In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of Alta California was 8,000 non-natives and 10,000 natives. However, these estimates have been debated. Cook (1976) suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,300.

European Expansion

In 1848, as a result of the Treaty of Guadalupe Hidalgo, California became a United States territory. Also, in 1848, John Marshall found gold at Sutter's Mill in Coloma, which marked the start of the Gold Rush. The influx of miners and entrepreneurs increased the population of California, not including Native Californians, from 14,000 to 224,000 in just four years. This massive jump in population allowed California to meet the requirements to petition for statehood resulting in California becoming a state in 1850. At this point, large numbers of American businessmen, ranchers, orchardists, farmers, entrepreneurs, immigrants, religious groups, and anyone else who could make the trip by boat or overland flocked to California. Drawn by the benign climate, fertile land, access to ports for shipping and trade, and a vast array of business opportunities, Euro-Americans flocked to California. More came each decade, establishing businesses, farms, and ranches, creating commercial and industrial ventures and buying up land from the Mexican families to subdivide and create towns and cities. Cities such as San Francisco and Sacramento benefited greatly from the newcomers and the business developments, becoming more diverse and economically successful with each decade.

3.4 CITY OF NEWARK

The City of Newark is located within Alameda County, California and comprised of approximately 14 square miles of land. Newark was incorporated on September 22, 1955 and is part of what is referred to as the "Tri-City" area which includes Newark, Fremont and Union City. In 2015, the City's population was approximately 44,000 people. The development of Newark followed the same patterns of change and growth as did most of California during the Mexican and American periods. After California statehood, the American presence in the San Francisco Bay region increased steadily. The following is excerpted from the City's website (Newark 2019).

> By the early 1850s, small landings were under construction along the San Francisco Bay area in the vicinity of Newark. In 1853, Mayhew's Landing included warehouses for wheat, hay, and coal and by 1856 the Mayhew Ranch included 1,500 acres of farmland extending inland to

> present-day I-880. Less than 20 years later, the Perrin brothers acquired the old Mayhews Ranch and extended their holdings to include property stretching from today's Jarvis Avenue on the north to south of Thornton Avenue. The Perrin brothers' "development project," the Green Point Dairy and Transportation Company, set the tone for future development. It was the Perrin brothers who first drew up plans to subdivide the Green Point Dairy into a townsite (located in the general vicinity of Thornton and Jarvis Avenues).
>
> Early swamp reclamation was started by E. Beard who patented the land in the area. Mr. Beard required capital and, in 1872, he sold 20,000 acres of swampland for $300,000 to Mr. J. Ross Browne. Mr. Browne outlined his swamp lands project before the State legislature on February 3, 1872. At this point, Mr. Browne referred to the proposed town site as "Cralvo" or "Cariboo." Browne created a circular that was distributed around Europe to promote the swamp lands project. An English capitalist bought an interest in the property and hired J. Barr Robertson (a Scotsman) to oversee his interests. Robertson was a director of the California Land Investment Co., Ltd., London, England. Robertson then bought out the interest that Mr. Browne had in the land. The name 'Newark' was chosen by Robertson, who named it after the castle "Newark" in Port Glasgow, Scotland.
>
> Work started on a railroad through the townsite from Dumbarton Point in 1875. That project was under-financed and never progressed beyond initial grading. In 1876, the railroad, together with the Green Point Dairy, were purchased by a San Francisco capitalist, Alfred Davis, and a Comstock millionaire, Jim Fair. They not only completed the South Pacific Coast Railroad, from Dumbarton Point south all the way to Santa Cruz, but also moved the town site to coincide with the curve on the railroad where the Railroad turned south toward San Jose. Soon, a railroad station, roundhouse, and railroad shop buildings were being erected in the center of Newark in the area between Thornton Avenue, Sycamore Street, and Carter Avenue.
>
> Eventually, the railroad was extended north from Newark to Alameda, providing direct ferry service to San Francisco.
>
> The completion of the railroad precipitated additional development in Newark. Hotels and stores were soon erected, along with some of the first manufacturing industries, including a railroad car building firm operated by Thomas and Martin Carter and a foundry which later manufactured Wedgewood stoves. These enterprises joined the production of salt, which had been underway in the Newark area since the 1850s. Acquisitions and mergers of salt production companies throughout the Bay area ultimately resulted in formation of the Arden Salt Company, predecessor to Leslie Salt Company and today's Cargill Salt.

The City lies close to Silicon Valley with its high-tech companies and digital technology. Over the twentieth century, industrial growth within and surrounding Newark added to the economic base. Various manufacturing companies were within the Newark area including the Wedgewood Company that manufactured stoves from the 1910s until the 1940s and Peterbilt which manufactured trucks in Newark from the early 1960s to the mid-1980s. In 1956, Trailmobile moved its manufacturing and assembly facility from Berkeley to a site adjacent to the Peterbilt factory. The facility was closed in 1975, and the company moved its operations to Illinois. From the mid-1950s through the early 1960s, the A.O. Smith Corporation of Illinois built residential and commercial grade glass-lined water heaters at a large manufacturing facility located in Newark on Sycamore Street. The plant was later acquired by the

National Steel Corporation which continued the water heater manufacturing operations until the early 1970s.

In the early 1950s subdivisions in Southern Alameda County began talks of incorporation. In 1953, a group representing the chambers of commerce of Centerville, Irvington, Mission San Jose, Niles, Warm Springs, and Newark commissioned a study to incorporate all six communities into one large city. During the hearings, Centerville and Niles began pressuring Newark into accepting an industrial zoning for the entire town of Newark so that it would become the major industrial area for the new Southern Alameda County city. However, the Newark Chamber of Commerce began its own movement to incorporate just Newark, and in September 1955 Newark was incorporated as the first new city in Alameda County in 47 years. Because of these efforts, Newark has built the Newark Mall, with its jobs and tax revenues, completed the Dumbarton Bridge and maintained and improved much of the Nimitz Freeway (Newark 2019).

3.4.1 Historic Use of the Project Area

The project area and surrounding lands were historically used for agriculture. In a 1939 aerial photo, the project area appears to contain a farmhouse, with the surrounding land developed for agriculture. This farmhouse may have been associated with a 75-acre tract owned by F. Silva, as both the house and the tract are shown in an 1878 atlas of Alameda County (Thompson and West 1878). In the 1939 aerial, a road cuts through the center of the project area, leading from Mowry Avenue to the farmhouse. The project area appears relatively unchanged in 1946, 1948, and 1958 aerial photos. By 1958, the property to the west of the project area was developed into salt ponds. In a 1963 aerial photo, the farmhouse appears to have been demolished, and the land is unused (Haley & Aldrich 2019).

Able Auto Wreckers operated an automobile wrecking yard on the project area from the late 1960s until they were acquired by the current owner, Pick-n-Pull, in 1996. Pick-n-Pull has continued to operate the automobile wrecking yard since that time (Haley & Aldrich 2019).

4.0 RECORD SEARCHES

4.1 NORTHWEST INFORMATION CENTER RECORDS SEARCH

A records search addressing the project area and a 0.5-mile radius beyond the APE boundary (together referred to as the study area) was conducted on April 17, 2018 at the Northwest Information Center (NWIC) in Rohnert Park by HELIX Archaeologist Katherine D. Thomas, M.A., RPA. Sources of information included previous survey and cultural resources files; the NRHP; the CRHR; the Office of Historic Preservation (OHP) Archaeological Determinations of Eligibility; the OHP Directory of Properties in the Historic Property Data File; and historical topographic maps and aerial photographs.

4.1.1 Previous Studies

The records search identified 18 previous cultural resources studies that have been conducted within the study area (Table 1).

Table 1
PREVIOUS STUDIES CONDUCTED WITHIN THE STUDY AREA

Report	Year	Author(s)	Affiliation	Title
S-000814	1977	Peter Banks, David A. Fredrickson	Archaeological Laboratory, California State College, Sonoma	An Archaeological Investigation of Project #3, Zone 5 and Zone 6 of the Alameda County Flood Control and Water Conservation District
S-001479	1979	David Chavez	None	Cultural Resources Evaluation for the East Bay Dischargers Authority Reclamation Reuse EIR, Alameda County, California
S-002916	1982	James C. Bard, Patricia M. Ogrey	Basin Research Associates, Inc.	A Cultural Resources Assessment of Five Salinity Barrier Well Sites, Alameda County, California
S-005858	1982	Miley Paul Holman	Holman & Associates	A report of a preliminary archaeological field reconnaissance of 9 development areas inside the City of Newark, Alameda County, California
S-006501	1984	Miley Paul Holman	Holman & Associates	Sobrato Newark Development Area (letter report)
S-008013	1986	None cited	Archaeological Resource Management	Cultural Resource Evaluation of the Cerro Metals Products Parcel in the City of Newark, County of Alameda
S-022711	2000	William Self	William Self Associates, Inc.	Archaeological Survey of Newark Parcels, Alameda County, CA (letter report)
S-023992	2001	John Holson	Pacific Legacy, Inc.	Archaeological Survey and Record Search for the Auto Mall Project, Project # 647-17 (letter report)
S-023994	2001	Alan Leventhal, Susan Morley, Norma Sanchez, Rosemary Cambra	Ohlone Families Consulting Services	Report on the Results on the Phases I, II, III Archaeological Monitoring Program, Burial Recovery Program and Archival Literature Search Conducted Within a Portion of the Stevenson Point Tech Park Located in the City of Newark, Alameda County, California (letter report)
S-025511	2000	Allen G. Pastron	Archeo-Tec	Subsurface Archaeological Testing Program Conducted Within a 13.45 Acre Portion of the MCI/WorldCom Phase II Site, Located Near the Intersection of Stevenson Boulevard and Eureka Drive, City of Newark, Alameda County, California
S-026109	2002	David Chavez, Jan M. Hupman	David Chavez & Associates	Cultural Resources Investigations for the Union Pacific Railroad East Oakland Corridor and Newark-Albrae Corridor, Alameda County, California
S-028221	2003	Michelle St. Clair	Pacific Legacy, Inc.	Archaeological Survey and Record Search for the NSR MCI Eureka Drive Fiber Optic Tie-In Project, Newark, Alameda County (1266-01) (letter report)
S-036217	2009	John Dougherty	PAR Environmental Services, Inc.	Cultural Resources Inventory of the Newark-Ravenswood Reconductoring Project, Alameda and San Mateo Counties, California
S-038901	2011	Randy Wiberg	Holman & Associates	Archaeological Evaluation Report (CA-ALA-599), Newark Area 4, Alameda County, California
S-038907	2010	Randy Wiberg	Holman & Associates	Archaeological Testing Report, Newark Area 3, Alameda County, California
S-045690	2014	Eric Strother	Garcia & Associates	Cultural Resources Study of the Proposed Variance No. 6 Staging Area and Landing Zone for the Newark-Ravenswood 230kV Reconductoring Project, Newark, Alameda County, California (letter report)
S-048387	1982	Jack Burgess	City of Newark	Historical Property Survey Report Reconstruction and Widening of Cherry Street between Moores Avenue and 450 Feet South of Mowry Ave, Project No. 175, Newark, Alameda County, California FAU Route - A088/A030
S-048387a	1982	Mara Melandry	Caltrans District 4	Archaeological Survey Report, Improvements to the Cherry Street/Mowry Avenue Intersection, City of Newark, Alameda County, Local Assistance, 04302-929051

Of the 18 previous cultural resources studies within the study area, only two directly examined the current APE. The first was conducted in 1979, when David Chavez surveyed a 225-acre area that included the northeastern portion of the APE, extending from the Pick-n-Pull property to the Southern Pacific Railroad tracks. At that time, the ground surface was so obscured by crops and dense grass that Chavez concluded the survey was inadequate. He believed that the area was highly sensitive for undiscovered cultural resources and recommended that the area be examined again when conditions were more favorable (Report S-001479). There is no evidence that a follow-up survey was ever conducted within the current project area.

The second survey to address the current APE was conducted by Holman and Associates in 1982. The report does not discuss survey conditions but states that a few isolated artifacts were found near the levees that are over 2,000 feet south of the APE. No archaeological materials were found in the APE itself.

4.1.2 Previously Documented Resources

Results from the records search indicate that no resources have been previously recorded within the APE, however, seven resources have been recorded within the 0.5-mile search radius (Table 2). The seven resources include a prehistoric site with burials and habitation debris recorded in 1959; two prehistoric shell mounds recorded in the 1930s; a prehistoric site with burials, habitation debris and hearths/pits recorded in 1999; an historic-era reburial of prehistoric remains recorded in 2000; an area of prehistoric habitation debris recorded in 2011, and an historic era trash scatter recorded in 2014. These resources are summarized in Table 2.

Table 2
PREVIOUSLY DOCUMENTED RESOURCES WITHIN THE STUDY AREA

Primary	Trinomial	Description	Year	Recorder	Affiliation
P-01-000079	CA-ALA-59	Prehistoric shell mound with burials and habitation debris	1959	J. T. Davis	None
P-01-000112	CA-ALA-336	Possible prehistoric shell mound	ca. 1909	Nels Nelson	University of California, Berkeley
P-01-000113	CA-ALA-337	Possible prehistoric shell mound	ca. 1935	Nels Nelson	University of California, Berkeley
P-01-002267	CA-ALA-620	Prehistoric burial site with habitation debris	1999	Alan Levanthal, Rosemary Cambra	Ohlone Families Consulting Services
P-01-010491	None	Prehistoric reburial site	2002	Jason Claiborne	Archeo-Tec
P-01-011353	CA-ALA-641	Prehistoric habitation debris	2011	Randy Wiberg	Holman and Associates
P-01-011611	None	Historic-era refuse	2014	Eric Strother, Kruger Frank	Garcia and Associates

P-01-000079 is a prehistoric shell mound containing burials and habitation debris. P-01-000079 is located about 1,500 feet southwest from the project area's southwestern boundary. The site record states that the depth of the resource was between "5-6 feet" and that it was destroyed with a "bulldozer by the landowner in 1959." However, it is unknown whether a bulldozer could have excavated to a depth of 5 to 6 feet, and therefore portions of the site may still exist below the ground surface.

P-01-000112 and **P-01-000113** are two of 425 prehistoric shell mounds recorded around the San Francisco Bay area by Nels Nelson, a University of California archaeologist, prior to 1909. The NWIC has approximate location information for the mounds, but no associated documentation exists. P-01-000112 and P-01-000113 were located approximately 500 and 150 feet northwest of the project area's northwest boundary, respectively.

P-01-002267 is a prehistoric site characterized by a moderate deposit of faunal remains (mostly shellfish), artifacts, and Native American mortuary features. The site was initially recorded by Ohlone Family Consulting Services (OFCS) in August 1999 after human remains were found during construction of the Stevenson Point Technology Park. Between August 1999 and March 2001, OFCS recovered Native American human remains and other archaeological materials while monitoring construction activities (Report S-023994). Another portion of the site was identified in 2000 during monitoring of a fiber optic line trenching for the MCI WorldCom facility; subsequent test excavations revealed a 75- by 75-meter archaeological deposit containing animal bone, shell, flaked stone artifacts, and eight Native American burials (Report S-025511).

In 2008, Holman and Associates completed subsurface mechanical testing for prehistoric cultural resources in the vicinity of P-01-002267, and within portions of Specific Plan Areas 3 and 4 where future development could impact buried or obscured archaeological resources. The testing, which was intended to provide a better understanding of the site's boundaries, yielded additional human remains and artifacts (Report S-038907). In 2010, Holman and Associates completed subsurface archaeological testing along the western edge of the site, within Area 4, Sub Area C. At that time a sparse archaeological deposit was documented, and the human remains discovered during previous archaeological surveys were recovered. The site has been recommended eligible for the CRHR (Report S-038901).

P-01-010491 is the location where human remains and associated cultural materials recovered from P-01-002267 were reburied by the project's Native American Most Likely Descendant. It is located in the vicinity of P-01-002267.

P-01-011353 is a 50+ cm-thick deposit of prehistoric archaeological midden identified during exploratory trenching of Specific Plan Area 4 by Holman and Associates in 2011. The midden is marked by a sparse to moderate scatter of fire-altered rock, shellfish fragments, flaked and ground stone artifacts, and fragments of human bone. The site is located approximately 1,000 meters south of the project area.

P-01-011611, located about 175 meters southwest from the project area's southwestern boundary, consists of four discrete historic-era artifact scatters that include historic bottle glass fragments, ceramic fragments, complete bottles, brick fragments, and chunks of concrete. The four scatters are intermixed with modern debris including plastic and metal. It is likely that the site represents periodic roadside dumping that has occurred over a long period of time.

A search of the Historic Properties Database File for Alameda County was negative for historic properties within the study area and within 0.50 mile of the study area boundary.

4.2 NATIVE AMERICAN HERITAGE COMMISSION SACRED LANDS FILE SEARCH

On April 16, 2018, HELIX requested that the NAHC conduct a search of their Sacred Lands File for the presence of Native American sacred sites or human remains in the vicinity of the study area. A written response received from the NAHC on May 23, 2018, stated that the Sacred Lands File failed to indicate the presence of Native American cultural resources in the vicinity. On May 29, 2018, HELIX sent letters to six Native American tribal representatives named by NAHC as potential sources of information related to cultural resources in the area. The letters advised the tribal representatives of the proposed project and requested information regarding Native American resources in the immediate area, as well as feedback or concerns related to the proposed project. The letters noted that the requested information was not for Assembly Bill (AB) 52 or Senate Bill (SB) 18 consultation, but merely for informational purposes. To date, no responses have been received. The NAHC correspondence relevant to the current analysis is contained in Appendix B.

5.0 PEDESTRIAN SURVEY

On June 13, 2019, HELIX Archaeologist Katherine D. Thomas, RPA, conducted an intensive pedestrian survey to characterize any prehistoric or historic-era archaeological resources located within the APE. On November 16, 2021, HELIX Senior Archaeologist Benjamin D. Siegel, RPA, conducted a second intensive pedestrian survey of the APE to examine areas recently added to the proposed APE and to re-examine portions of the APE which were covered in dense grasses during the initial survey. Both surveys consisted of a pedestrian walk-over of the undeveloped portions of the APE in parallel transects spaced at 10-meter intervals. During the surveys the ground surface was examined for the presence of historic-era artifacts (e.g., metal, glass, ceramics), prehistoric artifacts (e.g., flaked stone tools, tool-making debris), and other features that might represent human activity that took place more than 50 years ago. Photographs of the areas surveyed are provided in Appendix C.

The 2019 and 2021 surveys did not cover the Pick-n-Pull property itself however, as this portion of the APE has been fully graded and capped with a layer of imported fill soil. Additionally, two detention basins, located on the eastern boundary of the Pick-n-Pull which mark the southeastern boundary of the project area were surveyed. Finally, the remainder of the APE which includes areas marked for underground excavations to the northwest, northeast, southeast, and southwest of the Pick-n-Pull property and locations proposed to be modified on Mowry Avenue (adjacent west of the Pick-n-Pull) were also surveyed (see Figure 3). No prehistoric or historic resources were found during the 2019 or 2021 field surveys.

During the 2019 survey conditions in the 10-acre plot north adjacent of the Pick-n-Pull were poor, with less than 10 percent surface visibility due to dense grass cover. The vegetation varied in height from a few inches to a few feet (Photo 1) and it was clear that this section of the APE had been aerated or tilled in the last few months (Photo 2). Standing water was present in the stormwater detention basins to the southeast (Photo 3). In the western portion of the APE there was fencing and a short gravel road associated with the Pick-n-Pull lot (Photo 4). There was also a considerable amount of debris and trash found within the APE, consisting mainly of discarded car parts and remnants of homeless encampments (Photo 5).

The second intensive pedestrian survey of the APE was conducted in November 2021. The purpose of this survey was to resurvey the 10-acre undeveloped portion of the APE which was found to be densely vegetated during the 2019 survey and to examine areas that had been added into the APE's footprint. These areas include off-site improvements which extend the project's footprint and APE to the northwest, northeast, southeast, and southwest.

On November 16, 2021, survey conditions in the 10-acre undeveloped parcel to the north of the Pick-n-Pull were better than those encountered in 2019, though still somewhat poor, revealing 30 percent or less ground surface visibility due to the presence of dense, though short, grass vegetation (Photos 6 and 7). This parcel showed signs ground surface disturbance, with evidence of recent plowing (perhaps within the last 6 months), a rock pile (likely associated with plowing activities), and vehicle tracks (Photos 8, 9, and 10). Improved visibility in the northern portion of the parcel also revealed that the area had been artificially raised by roughly 0.5 meter above the surrounding wetlands (Photo 11). Exposed soil in the northeastern quarter of the parcel corroborated this interpretation, revealing dark and light gray clays with rough cobble inclusions (Photo 12). In addition, the parcel was found to be littered with modern debris including, car parts, lawn mowing equipment, cloth, rope, TVs, and various pieces of plastic and metal (Photo 13). No cultural resources were encountered during the November 2021 intensive pedestrian survey of the 10-acre lot.

During the 2021 survey, standing water was found to be present within the stormwater detention basins in the southeastern corner of the APE. These basins and the areas around them revealed significant signs of ground disturbance. The basins themselves represent past excavations, and the fill placed in the areas surrounding these two artificial bodies of water suggests that the native ground surface has not been visible for some time (Photo 14).

The 2021 survey also examined areas where project plans call for subsurface excavations to the northwest, northeast, southwest, and southeast of the Pick-n-Pull lot, as well portions of Mowry Avenue, which project plans propose to modify (Figure 3). Survey of the area proposed for subsurface excavations to the northwest of the Pick-n-Pull revealed push piles and piles of modern debris to the west of the 10-acre parcel, at the intersection of Mowry Avenue and the Union Pacific Railroad grade. This area is characterized by imported gravel which forms the raised railroad bed, as well as pavement and concrete which form present day Mowry Avenue and its bike paths, curbs, and sidewalks (Photos 15, 16, and 17). Systematic investigation of the area proposed for subsurface excavations revealed the heavily modified ground surfaces described above, a marshland with dense, tall grasses (which contained modern, and in-use, stormwater management features), a human-modified creek, and a gravel covered access road running parallel to the modified creek (Photos 18, 19, 20, and 21). Attempts were made to systematically examine the recently added southeasternmost portion of the APE, but this effort revealed little as the area was found to contain tall grasses and inundated marshland (Photos 22 and 23). Lastly, intensive pedestrian survey of the southwestern most portion of the APE revealed highly disturbed ground surfaces including roadside areas that had been covered in fill, an extant human-modified drainage, and the pavement and concrete curbs of Mowry Avenue (Photos 24 and 25).

Ultimately no cultural resources were encountered during the 2021 intensive pedestrian survey of the APE which included the extensions of the proposed APE which lie to the northwest, northeast, southeast, and southwest of the Pick-n-Pull lot, and the portions of Mowry Avenue which the project proposes to modify.

5.1 SUMMARY

The records search determined that six prehistoric resources and one historic-era resource have been documented in the study area or within 0.5 mile of the APE. The prehistoric resources include mounds, habitation debris, and human remains, all of which indicate repeated and/or long-term prehistoric occupation in the area. Mounds, which were ubiquitous in the region during prehistoric times, were historically bulldozed to create agricultural land, although they often contained human burials below grade that may remain undisturbed by shallow agricultural activity. Therefore, despite the negative findings of the 2019 and 2021 intensive pedestrian survey of the APE, the potential for the project area to contain prehistoric resources should be considered high. This high potential also extends to the salvage lot, where the imported fill may overlie near-surface or buried cultural resources.

5.2 RECOMMENDATIONS

5.2.1 Archaeological Monitoring

HELIX recommends that impacts to surface and subsurface cultural resources not identified during this Cultural Resources Assessment be mitigated through the implementation of a monitoring program during demolition and construction grubbing, grading, and excavation. Native American consultation should also be undertaken as part of this mitigation measure. The monitoring program should include the following:

- **Retention of a Qualified Archaeologist.** A qualified archaeologist should be retained to implement a monitoring and recovery program during all ground-disturbing activity associated with the project, including grubbing, grading, and excavation. The qualified archaeologist should meet the Secretary of Interior's Professional Standards for prehistoric and historic archaeology.

- **Agreement for Disposition of Recovered Artifacts.** A written agreement should be secured with a recognized museum repository regarding the final disposition and permanent storage and maintenance of any unique archaeological resources or historical resources recovered as a result of the archaeological monitoring, as well as corresponding geographic site data that might be recovered as a result of the specified monitoring program.

- **Preconstruction Briefing.** Construction personnel should be briefed by the qualified archaeologist on procedures to be followed in the event that unique archaeological resources, historical resources, or human remains are encountered during construction. The qualified archaeologist should be required to provide a telephone number where they can be reached by the construction contractor, as necessary.

- **Construction Monitoring.** An archaeological monitor working under the supervision of the qualified archaeologist should observe all initial ground-disturbing activities associated with the project, including grubbing, grading, and excavations. The monitor should be authorized to halt construction, if necessary, in the immediate area where buried cultural remains are encountered. Prior to the resumption of grading activities in the immediate vicinity of the cultural remains, the City should provide the qualified archaeologist with the necessary resources to identify and implement a program for the appropriate disposition of those remains.

- **Monitoring Report.** A complete set of the daily monitoring logs should be kept on-site throughout the earth-moving activities and be available for inspection. The daily monitoring log should be keyed to a location map to indicate the area monitored, date, assigned personnel, and results of monitoring, including the recovery of archaeological material, sketches of recovered materials, and associated geographic site data. Within 90 days of the completion of the archaeological monitoring, a monitoring report should be submitted to the City and filed with the NWIC.

5.2.2 Accidental Discovery of Human Remains

There is always the possibility that ground disturbing activities during construction may uncover previously unknown human remains. In the event of an accidental discovery or recognition of any human remains, PRC Section 5097.98 must be followed. If there is a discovery or recognition of human remains during project-related earthmoving activities, the following steps shall be taken:

1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the "most likely descendant" of the deceased Native American. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or

2. Where the following conditions occur, the landowner or his/her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendent or on the project area in a location not subject to further subsurface disturbance:

    - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;

    - The descendent identified fails to make a recommendation; or

    - The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

6.0 REFERENCES

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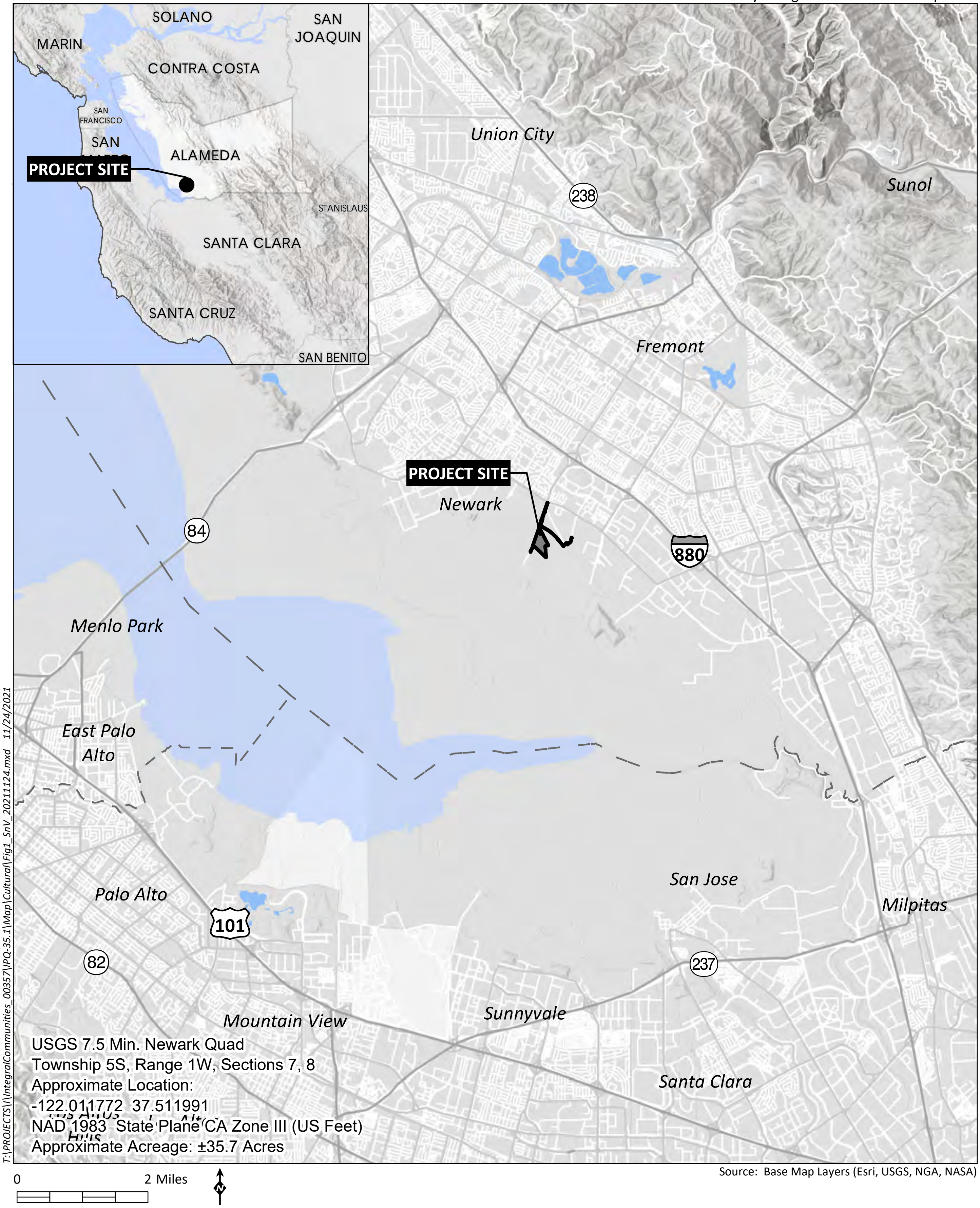
Appendix A

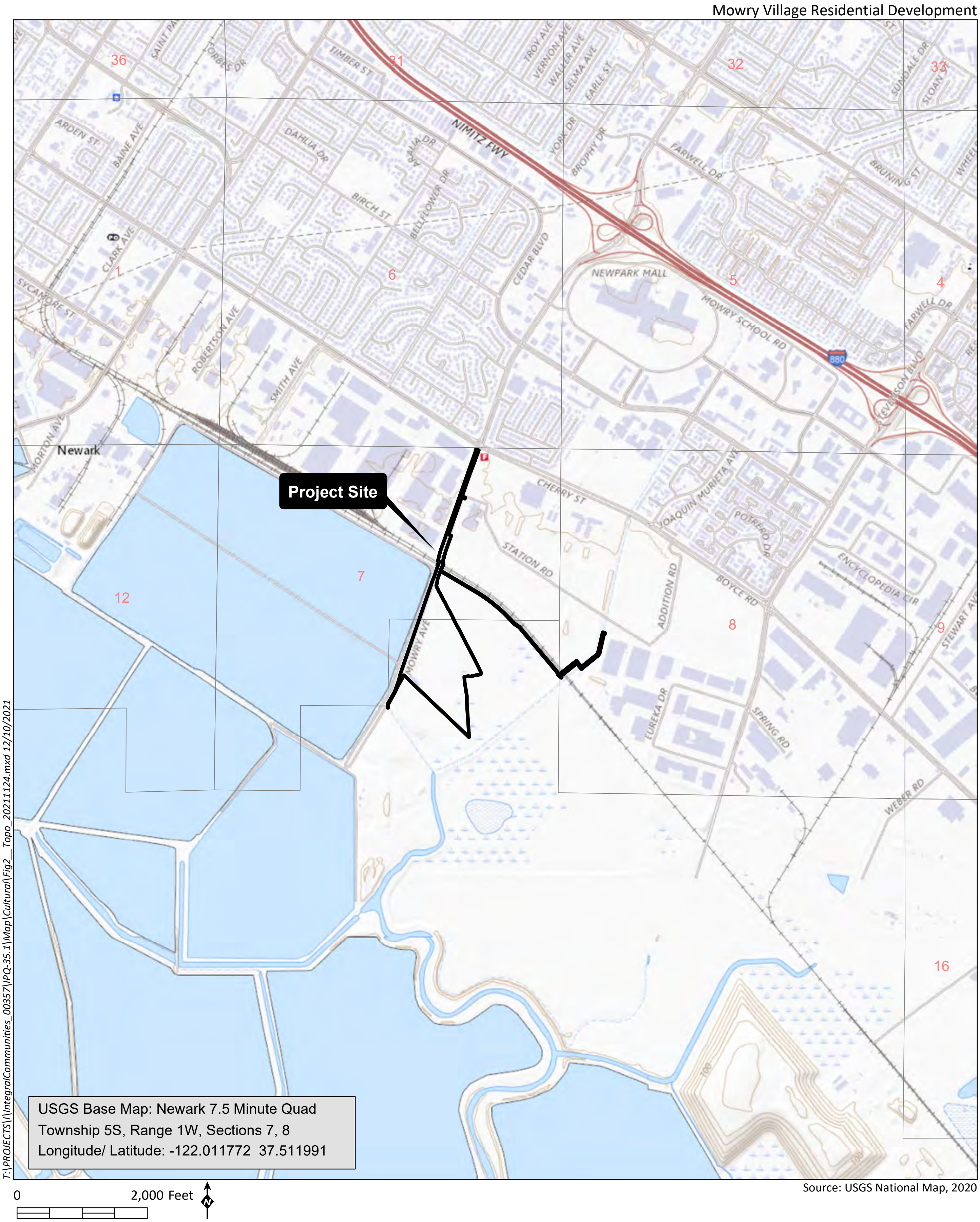
Figures



HELIX Environmental Planning

Vicinity Map

Figure 1



Source: USGS National Map, 2020

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Project Location Map

Figure 2

Source: DigitalGlobe, 11/4/2019

HELIX
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Area of Potential Effects Map

Figure 3

Appendix B

Native American Correspondence

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

May 23, 2018

Katherine D. Thomas

Helix Environmental Planning

Sent by Email: katethomas33@gmail.com

Re: Mowry, Alameda County

Dear Ms. Thomas,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contacts
5/23/2018

Coastanoan Rumsen Carmel Tribe
Tonv Cerda. Chairperson
244 E. 1st Street
Pomona , CA 91766
rumsen@aol.com
(909) 524-8041 Cell
(909) 629-6081
Ohlone/Costanoan

Indian Canvon Mutsun Band of Costanoan
Ann Marie Savers. Chairperson
P.O. Box 28
Hollister , CA 95024
ams@indiancanyon.org
(831) 637-4238
Ohlone/Costanoan

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein. Chairperson
789 Canada Road
Woodside , CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 851-7747 Office
(650) 332-1526 Fax
Ohlone/Costanoan

North Vallev Yokuts Tribe
Katherine Erolinda Perez. Chairperson
P.O. Box 717
Linden , CA 95236
canutes@verizon.net
(209) 887-3415
Ohlone/Costanoan
Northern Valley Yokuts
Bav Miwok

Muwekma Ohlone Indian Tribe of the SF Bav Area
Rosemarv Cambra. Chairperson
P.O. Box 360791
Milpitas , CA 95036
muwekma@muwekma.org
(408) 314-1898
(510) 581-5194
Ohlone / Costanoan

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3388
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 Cell
(510) 687-9393 Fax
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was pr oduced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed
Mowry, Alameda County

HELIX Environmental Planning, Inc.
11 Natoma Street
Suite 155
Folsom, CA 9530
925.788.9097 cell
www.**helixepi.com**

HELIX Environmental Planning

May 29, 2018

Rosemary Cambra, Chairperson
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
P.O Box 360791
Milpitas, CA 95036

Subject: Mowry Project

Dear Ms. Rosemary Cambra:

HELIX Environmental Planning Inc. (HELIX) is conducting a Cultural Resource Assessment for a project within the City of Newark, Alameda County, California. The Mowry Project area consists of four separate parcels located southwest of the intersection of Mowry Avenue and Cherry Street. They are bounded to the northeast by the Southern Pacific Railroad and the northwest by Mowry Avenue. The Mowry Project site is proposed for low to medium density residential units in four neighborhoods. The surrounding area is predominantly light industrial and small businesses. The project Area of Potential Effect (APE) consists of undeveloped and developed land that includes remnant buildings from previous use. The APE was surveyed on May 10, 2018, and there were no pre-contact resources, sites, or features identified.

Information Request

The NAHC response letter indicated that although the Sacred Lands File search was negative, there may be additional information to be gained from individual tribal members and/or tribal organizations. HELIX is sending this letter to give you the opportunity to provide any additional information you may have about the project area. We are soliciting your input for *informational purposes only*, not as part of the AB52 or SB18 processes.

Please feel free to contact me at (408) 809-7218 or via email at katethomas33@gmail.com if you have any questions or would like to discuss the project in more detail.

Sincerely,

Katherine D. Thomas

Katherine D. Thomas, M.A. RPA
Staff Archaeologist

Attachment: APE map

HELIX Environmental Planning, Inc.
11 Natoma Street
Suite 155
Folsom, CA 9530
925.788.9097 cell
www.**helixepi.com**

HELIX Environmental Planning

May 29, 2018

Tony Cerda, Chairperson
Coastanoan Rumsen Carmel Tribe
244 E. 1st Street
Pomona, CA 91766

Subject: Mowry Project

Dear Mr. Tony Cerda:

HELIX Environmental Planning Inc. (HELIX) is conducting a Cultural Resource Assessment for a project within the City of Newark, Alameda County, California. The Mowry Project area consists of four separate parcels located southwest of the intersection of Mowry Avenue and Cherry Street. They are bounded to the northeast by the Southern Pacific Railroad and the northwest by Mowry Avenue. The Mowry Project site is proposed for low to medium density residential units in four neighborhoods. The surrounding area is predominantly light industrial and small businesses. The project Area of Potential Effect (APE) consists of undeveloped and developed land that includes remnant buildings from previous use. The APE was surveyed on May 10, 2018, and there were no pre-contact resources, sites, or features identified.

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Katherine D. Thomas

Katherine D. Thomas, M.A. RPA
Staff Archaeologist

Attachment: APE map

HELIX Environmental Planning, Inc.
11 Natoma Street
Suite 155
Folsom, CA 9530
925.788.9097 cell
www.**helixepi.com**

May 29, 2018

Andrew Galvan, Chairperson
The Ohlone Indian Tribe
P.O Box 3152
Fremont, CA 94539

Subject: Mowry Project

Dear Mr. Andrew Galvan:

HELIX Environmental Planning Inc. (HELIX) is conducting a Cultural Resource Assessment for a project within the City of Newark, Alameda County, California. The Mowry Project area consists of four separate parcels located southwest of the intersection of Mowry Avenue and Cherry Street. They are bounded to the northeast by the Southern Pacific Railroad and the northwest by Mowry Avenue. The Mowry Project site is proposed for low to medium density residential units in four neighborhoods. The surrounding area is predominantly light industrial and small businesses. The project Area of Potential Effect (APE) consists of undeveloped and developed land that includes remnant buildings from previous use. The APE was surveyed on May 10, 2018, and there were no pre-contact resources, sites, or features identified.

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HELIX Environmental Planning

May 29, 2018

Katherine Erolinda Perez, Chairperson
North Valley Yokuts Tribe
P.O Box 717
Linden, CA 95236

Subject: Mowry Project

Dear Ms. Katherine Erolinda Perez:

HELIX Environmental Planning Inc. (HELIX) is conducting a Cultural Resource Assessment for a project within the City of Newark, Alameda County, California. The Mowry Project area consists of four separate parcels located southwest of the intersection of Mowry Avenue and Cherry Street. They are bounded to the northeast by the Southern Pacific Railroad and the northwest by Mowry Avenue. The Mowry Project site is proposed for low to medium density residential units in four neighborhoods. The surrounding area is predominantly light industrial and small businesses. The project Area of Potential Effect (APE) consists of undeveloped and developed land that includes remnant buildings from previous use. The APE was surveyed on May 10, 2018, and there were no pre-contact resources, sites, or features identified.

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Staff Archaeologist

Attachment: APE map

HELIX Environmental Planning, Inc.
11 Natoma Street
Suite 155
Folsom, CA 9530
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www.**helixepi.com**

May 29, 2018

Ann Marie Savers, Chairperson
Indian Canyon Mutsun Band of Costanoan
P.O Box 28
Hollister, CA 95024

Subject: Mowry Project

Dear Ms. Ann Marie Savers:

HELIX Environmental Planning Inc. (HELIX) is conducting a Cultural Resource Assessment for a project within the City of Newark, Alameda County, California. The Mowry Project area consists of four separate parcels located southwest of the intersection of Mowry Avenue and Cherry Street. They are bounded to the northeast by the Southern Pacific Railroad and the northwest by Mowry Avenue. The Mowry Project site is proposed for low to medium density residential units in four neighborhoods. The surrounding area is predominantly light industrial and small businesses. The project Area of Potential Effect (APE) consists of undeveloped and developed land that includes remnant buildings from previous use. The APE was surveyed on May 10, 2018, and there were no pre-contact resources, sites, or features identified.

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Katherine D. Thomas

Katherine D. Thomas, M.A. RPA
Staff Archaeologist

Attachment: APE map

HELIX Environmental Planning, Inc.
11 Natoma Street
Suite 155
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925.788.9097 cell
www.**helixepi.com**

HELIX
Environmental Planning

May 29, 2018

Irenne Zwierlein, Chairperson
Amah Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062

Subject: Mowry Project

Dear Ms. Irenne Zwierlein:

HELIX Environmental Planning Inc. (HELIX) is conducting a Cultural Resource Assessment for a project within the City of Newark, Alameda County, California. The Mowry Project area consists of four separate parcels located southwest of the intersection of Mowry Avenue and Cherry Street. They are bounded to the northeast by the Southern Pacific Railroad and the northwest by Mowry Avenue. The Mowry Project site is proposed for low to medium density residential units in four neighborhoods. The surrounding area is predominantly light industrial and small businesses. The project Area of Potential Effect (APE) consists of undeveloped and developed land that includes remnant buildings from previous use. The APE was surveyed on May 10, 2018, and there were no pre-contact resources, sites, or features identified.

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Sincerely,

Katherine D. Thomas

Katherine D. Thomas, M.A. RPA
Staff Archaeologist

Attachment: APE map

Appendix C

Representative Site Photos

Photo 1: Overview of APE showing typical surface visibility; facing south.

Photo 2: View of stormwater detention basins in APE; facing northwest.

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Photo 3: View of gravel road from adjacent Pick-n-Pull; facing west.

Photo 4: View of refuse in APE; facing northwest.

Photo 5: View of northern section of APE that includes tilled/aerated soil; facing south.

Photo 6: Overview of 10-acre agricultural plot on north side of APE, from plot's southwestern corner; facing east.

Photo 7: View of south side of 10-acre agricultural plot on north side of APE; facing east.

Photo 8: Example of ploughing ground disturbance in northwest quadrant of 10-acre agricultural plot; facing east.

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Photo 9: View of large rock rubble pile in the southwestern quadrant of 10-acre agricultural plot; facing north.

Photo 10: View of second example of ploughing ground disturbance in northeast quadrant of 10-acre agricultural plot; facing west.

Photo 11: View of demonstration of fill elevation used on 10-acre agricultural plot, along northern edge of plot; facing southeast.

Photo 12: View of exposed soil in northeastern quadrant of 10-acre agricultural plot; facing north.

Photo 13: View of example of modern debris and fill rocks in the southwestern quadrant of the 10-acre agricultural plot; facing northeast.

Photo 14: View of southern half of Detention Pond 1, located north of Detention Pond 2, and adjacent west of the APE's eastern boundary; facing northwest.

Photo 15: View of spoil piles and modern debris adjacent east to Mowry Drive, north of Pick-N-Pull location, from within the APE (Mowry Drive); facing east.

Photo 16: View of Union Pacific Railroad Bed, adjacent east to Mowry Drive, north of Pick-N-Pull location, from within the APE (Mowry Drive); facing east.

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Photo 17: View of northwestern extent of APE (Mowry Drive), showing current paved conditions and evidence of previous ground disturbance; facing northwest.

Photo 18: View of Union Pacific Railroad Bed, at Intended Subsurface Boring location, in northeast extension of APE; facing northwest.

Photo 19: View of Union Pacific Railroad Bed, at Intended Subsurface Boring location, in northeast extension of APE; facing southeast.

Photo 20: View of extant water management features within northeast extension of APE, north of Union Pacific Railroad Bed; facing east.

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Photo 21: View of northern most extent of Gravel Access Road, southeast adjacent to extant artificial drainage, from within northeast extension of APE, north of Union Pacific Railroad Bed; facing northeast.

Photo 22: View of southeast edge of APE, extending beyond current Pic-N-Pull fence line, from outside of APE. Area is covered in tall dense brush and inundated; facing west.

Photo 23: View of southeast edge of APE, extending beyond current Pic-N-Pull fence line, from outside of APE. Area is covered in tall dense brush and inundated; facing northwest.

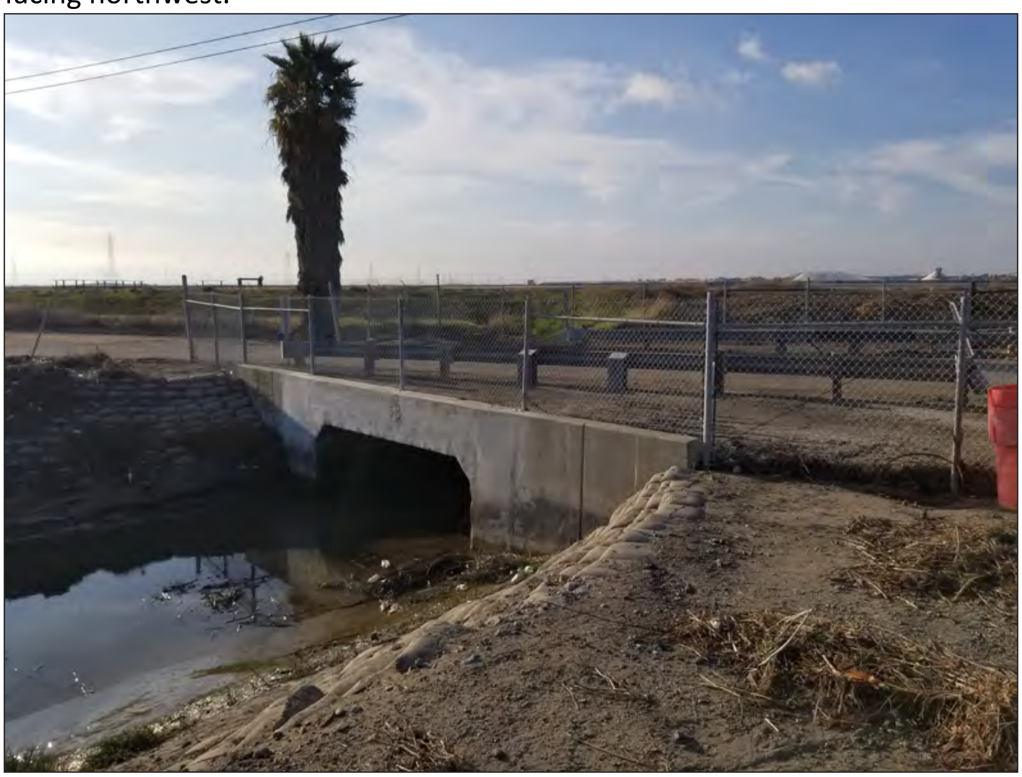

Photo 24: View of southwestern extent of APE, which extends into current Mowry Drive, and connects to nearby drainage to the south, from east of APE; facing southwest.

Photo 25: View of southwestern extent of APE, which extends into current Mowry Drive, from within APE; facing northeast.

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Appendix E
Due Diligence and Design Level Geotechnical Reports

DUE DILIGENCE GEOTECHNICAL ASSESSMENT
PROPOSED RESIDENTIAL DEVELOPMENT
PICK-N-PULL – 7400 MOWRY AVENUE
NEWARK, CALIFORNIA

For

INTEGRAL PARTNERS FUNDING, LLC

April 1, 2019

Job No. 3959.102

BERLOGAR STEVENS & ASSOCIATES

Via E-Mail Only

BERLOGAR
STEVENS &
ASSOCIATES

April 1, 2019
Job No. 3959.102

Mr. Vince Fletcher
Integral Partners Funding, LLC
500 La Gonda Way, Suite 102
Danville, California 94526

Subject: Due Diligence Geotechnical Assessment
Proposed Residential Development
Pick-N-Pull - 7400 Mowry Avenue
Newark, California

Dear Mr. Fletcher:

Berlogar Stevens & Associates (BSA) is pleased to present our Due Diligence Geotechnical Assessment report for the Proposed Residential Development at the Pick-N-Pull site, 7400 Mowry Avenue in Newark, California. The scope of this assessment, our findings and conclusions regarding geologic hazards, and the geotechnical aspects of the soils and groundwater table with respect to development of the site are presented below.

PROPOSED DEVELOPMENT

Proposed development of the site is a residential subdivision with single-family detached houses. The houses are anticipated to be two-story and possibly three-story wood frame buildings supported on structural concrete slabs-on-grade. Development of the site will require import of fill to raise site grades above design flood level. Preliminary conceptual grading plans include top of curb elevations above Elevation 11-1/2 feet. Grading of the site will include filling of the east side of the site with maximum depth of fill on the order of about 8 feet. Site development will also include construction of stormwater bioretention areas, underground utilities, and public and/or private roads.

PROJECT SITE

The proposed project site is located on the east side of Mowry Avenue at the southwestern limits of the City Newark. The site is adjacent to the marshlands area at the eastern fringe of the San Francisco Bay, as shown on the Vicinity Map, Plate 1. The subject property, along with adjacent properties investigated by BSA, are identified on the Site Plan, Plate 2. The Pick-N-Pull (PNP) site, so named due to the current ownership by Pick-N-Pull Auto Dismantlers, consists of three parcels, as identified by the County Assessor. The three parcels total approximately 28 acres. The proposed residential development will occupy about 23 of the 28 acres with the remnant left as open space along the east side of the property.

The northern parcel of the PNP site is roughly triangular in shape, occupies an area of about 10 acres and is undeveloped. Site topography indicates fill has been placed in the central area of the undeveloped parcel. The surface elevation is about Elevation 10 feet around the perimeter of the site with a mound up to about Elevation 15 feet in the center of this parcel. The middle and southern parcels of the three-parcel property, which have a combined area of about 16 acres, are in use by PNP as an active automobile salvage yard. The salvage yard contains a 13,000 square foot warehouse, a 1,500 square foot office and a 3,000 square foot covered shed. The site surface elevation is about 10 feet along the northern property line where it abuts the undeveloped PNP parcel as well as along the Mowry Avenue frontage and in the southwest area of the salvage yard where the warehouse building is located. The surface of the site throughout the main yard area varies from about Elevation 10 at the west to Elevation 5 feet at the far east end of the yard.

Salt production ponds are located on the west side of Mowry Avenue to the west of the site. The property to the north, known as the Recreation (north) site, is undeveloped. The property to the south, known as the Harwinder Singh site, was previously developed with one warehouse type structure near Mowry Avenue and the site was used as an auto-wrecking yard. The building has been demolished. There are presently no buildings on the subject site. The site paving consisting of Portland cement concrete pavement that covers much of the site remains. To the south of the Harwinder Singh site is the recreation (south) site. The sites to the north and south of the subject site are also proposed to be developed in a similar manner. The area to the east of the site is permanent open space.

PURPOSE AND SCOPE OF SERVICES

The purpose of this Due Diligence Geotechnical Assessment was to evaluate the soil and groundwater conditions, as well as potential geologic hazards, and to assess the potential impacts of those conditions on the proposed development of the site as a residential subdivision. The scope of services for this assessment included the following:

- Examination of historical topographic maps and aerial photographs of the site and vicinity,
- Review of readily available published geotechnical and geologic literature, and geologic maps pertinent to the area,
- Review of boring and test pits logs and cone penetration test interpretation plots prepared by BSA during subsurface investigations on adjoining and nearby sites, for subsurface logs,
- Review of boring logs prepared by Haley & Aldrich, Inc. in January 2019 during their environmental site assessment, and
- Preparation of this report.

GEOLOGY

GEOLOGIC SETTING

The subject site is located in the eastern portion of the San Francisco Bay Region within the Coast Ranges Geomorphic Province of California. The Coast Ranges Geomorphic Province borders the coast of California and generally consists of more or less discontinuous series northwesterly/southeasterly trending mountain ranges, ridges, and intervening valleys characterized by intense, complex folding and faulting. Numerous northwest to southeast trending faults parallel the trend of the Coast Ranges. The ridges are most often comprised of granitic, metavolcanic and metasedimentary rocks. Numerous northwest to southeast trending faults parallel the trend of the Coast Ranges.

San Francisco Bay is a broad shallow depression within the Coast Ranges that has been subsequently filled with sedimentary or alluvial deposits. The project site is located on the broad alluvial plain that surrounds San Francisco Bay. More specifically, the site is located west of the Hayward Fault, which lies along the western side of the of the Diablo Range along the eastern side of the San Francisco Bay Region.

QUATERNARY GEOLOGIC DEPOSITS

Although not shown on quaternary geologic maps reviewed in the course of preparing this report, fill soils cover the active auto recycling operation yard. Geologic mapping of the area (Helley and Graymer, 1997) show the majority of the proposed residential development site to be in an area of Holocene-age Basin Deposits (map designation Qhb, Plate 3). A small portion of the PNP site is within an area of Holocene-age Salt-affected Basin Deposits (map designation Qhbs, Plate 3). Basin deposits typically consist of very fine silty clay to clay deposits occupying flat-floored basins at the distal edge of alluvial fans adjacent to Bay Mud (map designation Qhbm). Mapping of the limits of Bay Mud deposits along the eastern shore of the southern San Francisco Bay (McDonald et. al., 1978) shows Bay Mud deposits within about 500 feet of the site to the southwest.

REGIONAL AND LOCAL FAULTS

The project site is located in the seismically active San Francisco Bay region. The San Andreas fault forms a portion of the boundary between two independent tectonic plates on the surface of the earth. In the San Francisco Bay Area, movement across this plate boundary is concentrated on the SAF; however, it is also distributed, to a lesser extent, across a number of parallel and subparallel faults which include the Seal Cove-San Gregorio, Hayward, Rodgers Creek, Calaveras, Concord-Green Valley and Greenville faults, among others. Together, these faults are referred to as the SAF system. Of these faults, the three major faults with the greatest potential of causing severe shaking at the site are the Hayward, San Andreas and Calaveras faults. The San Andreas fault (SAF) located about 14-1/4 miles to the southwest dominates the structure and seismicity of the San Francisco Bay Area. The Hayward fault is located about 3-1/4 miles northeast of the site, with the Calaveras fault mapped about 8 miles northeast of the site.

In addition to the active faults discussed above, there are several other active or potentially active faults capable of producing ground shaking at the project location. Local faults that have a potential to cause shaking at the site include the Quimby, Evergreen, Silver Creek, Monte Vista-Shannon, Sargent and Zayante-Vergeles faults. Failure along these faults could possibly be triggered by activity within the Hayward Fault Zone or along the San Andreas Fault Zone. The potentially active Silver Creek Fault is located approximately 2-1/2 miles east-southeast of the site. The Monte Vista-Shannon Fault is located approximately 11 miles southwest of the site. These faults are not known to have experienced seismic activity within the last 11,700 years, thus the classification as potentially active.

FIELD EXPLORATION

Subsurface exploration was not conducted on the PNP site due to site access restrictions and limited time available once access was authorized. Haley & Aldrich, Inc. was able to complete subsurface work consisting of borings conducted for the purposes of collecting soil and groundwater samples for analytical testing. They provided logs of eight borings completed on the PNP site in January 2019 for our review. Copies of their boring logs are presented in Appendix A.

BSA conducted field exploration on the adjacent sites to the north and south of the PNP property. The scope of those investigations included site reconnaissance, Cone Penetration Tests (CPTs), auger borings and excavation of exploratory test pits. A backhoe was used to excavate exploratory test pits. The test pits were excavated on April 25 through April 27, 2018. A member of our staff recorded logs of the test pits as the test pits were excavated. The test pit logs are presented in Appendix B. The CPTs were conducted on April 26 and 27, 2018, using a 25-ton truck-mounted CPT rig. The CPT logs presenting the data graphically along with the interpreted Soil Behavior Types for each soil profile are presented in Appendix C. Borings were drilled to further explore the subsurface conditions. The borings were drilled on May 9 and 10, 2018, using a truck-mounted drill rig equipped with hollow-stem augers. A member of our staff visually classified the soils in the field as the drilling progressed and recorded a log of each boring. The logs of the borings, which are based on field classifications as well as the results of laboratory tests, are presented in Appendix D.

The approximate locations of the CPTs, borings and test pits are shown on the attached Site Plan, Plate 2. These locations were determined based on orientation from existing features on the sites and along the site boundaries. The plotted locations should be considered accurate only to the degree implied by the methods employed.

SUBSURFACE CONDITIONS

PICK-N-PULL

Subsurface exploration was not performed by BSA at the PNP site as part of this assessment. Based on our reconnaissance of the site and review of historic USGS topographic maps and recent topography, it appears that there is about 6 feet of fill stockpiled in the central area of the undeveloped northern portion of the PNP property. The surface soils outside of the filled area are consistent with those on the adjoining Recreation (north site).

We have reviewed boring logs provided by Haley & Aldrich and have discussed their environmental investigation work on the PNP yard site with them. Based on the information Haley & Aldrich provided, it is our understanding that the PNP yard is covered with about 2 to 2-1/2 feet of fill overlying native clay soils.

The soil profile below the PNP site is anticipated to be similar to the Recreation (north) site to the north of the PNP site, and the Harwinder-Singh site to the south, with predominately clay soils in the upper 20 to 25 feet, with some clayey silt to silty clay followed by dense sands.

RECREATION SITE (NORTH)

Four borings and companion CPTs were completed on this site along with 15 test pits. We encountered fill in the northern corner of the site in the area of Boring B-8/CPT-8 and TP-1. Fill was only about one foot in depth. The near-surface natural deposits at the site consist primarily of silty clay of moderate plasticity. The clays are generally stiff with some fine-grained sand present. These surficial clay deposits are relatively consistent across the site to depths of about 20 feet. The CPT data indicates the presence of clayey silt to silty clays as the predominate soil type between about 20 feet and 30 to 35 feet bgs. Below the deposits are dense sands with occasional medium dense layers within the sand deposits.

HARWINDER-SINGH & RECREATION SITE (SOUTH)

One test pit was excavated on the Harwinder-Singh site, at about the mid-point of the property adjacent to the property line along the adjoining Recreation (south) property. We encountered about 1/2-foot of gravelly sand fill on the surface over one foot of sandy clay that is possible fill or graded soil. The soils encountered below the depth of 1-1/2 feet consist of medium stiff to stiff silty clay to depths of about 28 feet to 35 feet bgs. Interbeds of clay to silty clay as well as a few thin lenses of sandy silt/clayey silt are shown below about 24 feet in the CPTs. At CPT-4 and CPT-11, located at the west side of the two properties, clayey silt to silty clay is interpreted between 35 and 40 feet, with medium dense sand to silty sand to about 42 feet at CPT-4. Dense sands were recorded below 40 feet in CPT-11 and below 42 feet in CPT-4; the dense sands extend to the depth explored of 50 feet. Dense sands are interpreted by the CPT below 28 feet and to the depth explored of 50 feet in CPT-6. The soil profile in CPT-5 at the center of the site is similar to that of CPT-4 to the west thought there are significantly more interbeds of clayey silt to silty clay with the clay layer in the upper 40 feet of the soil profile.

GROUNDWATER

The depth to groundwater at the Pick-N-Pull yard was reported by Haley & Aldrich to vary from about 4 to 8-1/2 feet bgs, with one boring encountering free groundwater at a depth of about 13 feet. The depth to groundwater at the Harwinder-Singh property was recorded at about 11 feet bgs at the west side of the site, across from the Cargill ponds, and 8 feet bgs at the east side near the marshlands. The borings were not left open long enough to allow for the establishment of a stable groundwater level within the boring.

The groundwater map from the California Geological Survey's Seismic Hazard Zone Report 090 for Newark 7.5-Minute Quadrangle (CGS, 2003) indicates historically-high groundwater at a depth of approximately 5 feet. Actual groundwater conditions may vary depending on factors such as tidal fluctuations, seasonal rainfall, time of the year, water level in the adjacent Cargill Salt ponds and local irrigation practices.

GEOLOGIC AND SEISMIC HAZARDS

FAULTING AND SURFACE FAULT RUPTURE HAZARD ZONES

The site is located in the seismically active greater San Francisco Bay Area. The seismicity of the area is dominated by the San Andreas, Hayward and Calaveras faults. The surface fault-rupture hazards posed by active and potentially active faults are evaluated by the California Geological Survey (CGS) in accordance with the requirements of the Alquist-Priolo Earthquake Fault Zoning Act. We reviewed the CGS Earthquake Zone of Required Investigation maps for the Newark 7.5 Minute Quadrangle, which includes the Earthquake Fault Zones, Revised Official Map, released January 1982. The map shows that the site is not within or immediately adjacent to a designated State of California Alquist-Priolo Earthquake Fault Zone for active faults. According to the California Geological Survey (CGS), no known fault traces cross the site. The closest known active fault, with a State-Designated Zone of Required Investigation, is the Hayward fault about 3.2 miles to the northeast. It is our opinion that the potential for fault rupture at the site is very low.

SEISMICITY AND SEISMIC GROUND SHAKING

Although fault ground-rupture is not considered to be a concern at the subject site, the site is located in a region of high seismicity. As with all sites in the San Francisco Bay Area, the site should be expected to experience at least one moderate to large earthquake during the lifespan of the development. The probability of one or more earthquakes of magnitude 6.7 (Richter scale) or higher occurring in the San Francisco Bay Area is evaluated by the Working Group on California Earthquake Probabilities on a periodic basis, as are the probabilities of earthquakes of varying magnitudes on each of the major faults. The faults with the greater probability of a moment magnitude of 6.7 or higher earthquake between 2014 and 2044 are the Hayward fault at 14.3 percent, the Calaveras fault at 7.4 percent and the San Andreas fault at 6.4 percent, as shown on Plate 5. Some degree of structural damage due to strong seismic shaking should be expected at the site, but the risk can be reduced through adherence to seismic design codes.

The approximate center of the site is located at 37.5116 degrees north latitude and 122.0120 degrees west longitude. Based on current practices, the peak ground acceleration-geometric mean (PGA_M), obtained using an on-line tool provided by the Structural Engineers Association of California (SEAOC) and OSHPD is 0.602. California Building Code seismic design parameters determined in accordance with ASCE 7-10, using the SEAOC / OSHPD tool, are included in Appendix D. An earthquake magnitude (M_W) of 6.95 was determined for an earthquake with a 10 percent probability of exceedance in 50 years in the Hayward fault, using the USGS Earthquake Hazard Program Unified Hazard Tool deaggregation module. The Hayward fault is the largest deaggregation contributor at 48.7 percent. Earthquake magnitudes (M_W) of 7.91 and 7.16 were determined for an earthquake with a 10 percent probability of exceedance in 50 years in the San Andreas and Calaveras faults, respectively, with deaggregation contributions of 8.5 and 8.3 percent, respectively. A copy of the report generated using the USGS Earthquake Hazard Program tools is included in Appendix E.

SEISMIC HAZARD ZONES IN CALIFORNIA

The Seismic Hazards Mapping Act requires that the State Geologist delineate various seismic hazards zones on Seismic Hazards Zones Maps. Seismic Hazard Zone Maps are produced by the CGS. The hazard zones are based on areas where there have been historic occurrences of liquefaction and/or landslide movement, or where local topographic, local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements. Specifically, the maps identify areas where soil liquefaction and earthquake-induced landslides are most likely to occur. Review of the CGS Earthquake Zone of Required Investigation, Newark Quadrangle Map, which includes the Seismic Hazard Zones, Official Map, released July 2003, shows the site to be within an area of required investigation for liquefaction potential. Our assessment of the liquefaction potential of the site is discussed below.

LIQUEFACTION AND LIQUEFACTION INDUCED GROUND DEFORMATIONS

Liquefaction

Liquefaction is a temporary transformation of saturated soil into a viscous liquid during strong to violent ground shaking from a major earthquake. This transformation occurs as a result of a substantial loss of strength due to excess pore pressure within the soil matrix generated by strong ground shaking. Current practice in liquefaction evaluation now includes sands, silty sands and gravels, as well as silts and even some clay soils. In general, soils consisting of plastic silts or clays, do not generate excess pore water pressure to the same extent or as quickly as relatively clean sands. Thus, silty and clayey soils tend to be less susceptible to liquefaction-type behaviors than sandy soils. Primary factors affecting the potential for a soil to undergo liquefaction include: depth to groundwater, soil type, relative density of granular soils, moisture content and Plasticity Index of fine-grained soils, initial confining (overburden) pressure, and intensity and duration of ground shaking. The impact of liquefaction to surface structures is generally limited to liquefaction of soils within about 50 feet of the ground surface.

While fine-grained soil (clays and silts) may not undergo complete liquefaction, these soils may be susceptible to cyclic softening. Liquefaction and cyclic softening both result in reduced shear strength. In general, compressible soils, consisting of plastic silts or clays, do not generate excess pore water pressure to the same extent or as quickly as less compressible soils such as relatively clean sands. Thus, silty and clayey soils tend to be less susceptible to liquefaction-type behaviors than sandy soils.

The occurrence of liquefaction can cause loss of, or reduced, support for foundations, significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998), and ground-surface disruption (fissures and sand boils). During a major earthquake, buildings, structures, railroads, roadways and utilities underlain by potentially liquefiable soil may experience differential settlement through reconsolidation of the liquefied soil.

The adjacent sites were investigated with CPTs. The CPT data was used to analyze the liquefaction and liquefaction-related ground disturbance potential using the software CLiq by GeoLogismiki Geotechnical Software (version 2.3.1.15). Our analyses were conducted in accordance with the recognized procedures based on the current state of practice for liquefaction analysis as discussed in the CGS Special Publication 117A. We performed our analyses based on the work of Boulanger and Idriss (2014), as well as Moss (2006) and Robertson (2009). The liquefaction calculation results indicate that the sand, silty sand and sandy silt layers at the adjacent sites have a moderate to high potential to liquefy during the design earthquake. The effects of liquefaction on the adjacent site are expected to be ground surface settlement (subsidence) and structure settlement due to consolidation of the liquefied layers. The calculated vertical free field settlement of the site based on the raw data, without correction for inclusions of settlement associated with clays soils is between approximately 1 and 2-1/2 inches. CPT-5 indicates the presence of liquefiable soils beginning at a depth of 4 feet (assumed groundwater level) and continuing to a depth of about 18 feet. The soils interpreted as liquefiable have soil behavior type (SBT) of clay and silty clay. Boring B-5, drilled adjacent to CPT-5 encountered garbage mixed with soil to about 8 feet bgs, with very stiff silty clay to the depth explored of 21-1/2 feet. The liquefaction calculated overstates the settlement potential at this location due to the limitations of the CPT probe and data interpretation. If the settlement within the landfill soils is disregarded, seismic-induced site settlement associated with liquefaction of deeper sand and silty sand layers is about 1-1/2 inch. Comparative settlement analysis results based on the three methods noted above are presented graphically in Appendix F.

Lateral Spreading

Lateral spreading is a potential hazard associated with liquefaction. This phenomenon occurs when a subsurface soil layer liquefies and the upper non-liquefiable crust slides down gradient as large blocks over the liquefied soil toward a free-face (such as a descending slope, an incised river channel or open body of water), creating extensional ground cracking or fissures. Based on the results of the liquefaction analysis it is our opinion that the potential for lateral spreading to occur at the site is low.

Liquefaction-Induced Ground Surface Disruption Potential

Liquefaction-induced ground-surface disruption or sand boils occur when the sudden increase in pore water pressure in a layer of saturated, clean, loose sand or silty sand results in sufficient water pressure to break through the overlying soil mantle with venting to the ground surface. When this occurs, the liquefied sand blows out through the rupture, which is referred to as ejecta, resulting in ground-surface disruption. The occurrence of ground-surface disruption can result in diminished support for foundations and increased differential settlement of structures on shallow foundations. Where structures are founded on shallow foundations with integral concrete slabs-on-grade floors, or mat-slab concrete foundations, increased settlement typically occurs at the building perimeter where supporting soils are displaced from below the foundation.

For liquefaction-induced surface ground failure to occur, the pore water pressure generated within the liquefied strata would need to exert a force sufficient to break through the overlying soil and vent to the surface, resulting in sand boils or fissures. We evaluated the potential for liquefaction-induced ground surface disruption to occur at the site based on work by Youd and Garris (1995), and prior work by Ishihara (1985). The potential for ground surface disruption is a function of the thickness of non-liquefiable material over a liquefiable layer. We evaluated the site data based on the empirical relationships developed by Youd and Garris (Figure 6). It is our opinion that the potential for ground-surface disruption to occur is low.

Cyclic Softening of Fine-Grained Soils

Given the information developed over the past several years, it is reasonable to conclude that the clays and stiff to very stiff clayey silts encountered are not liquefiable. Where very high soil moisture contents are present and soils identified through CPT testing as soil behavior types including clay & silty clay, and sandy silt/silty sand, the soils may be susceptible to cyclic softening or strength reduction. However, with the use of post-tensioned concrete slab-on-grade foundations for the planned residential structures, it is our opinion that the temporary softening of these soils is not expected to have a significant impact on the proposed structures.

SEISMIC-INDUCED COMPACTION OF UNSATURATED SANDS

Strong ground shaking associated with seismic activity can cause settlement or densification of unsaturated sands. The potential impact of seismic-induced settlement of sands or fills above the groundwater is settlement of the ground surface and structures supported on shallow foundations on the site. Loose sands are generally not present within the upper 5 feet of the site. Where they were encountered the layers are relatively thin. Based on our assessment it is our opinion that settlement of the sand deposits would be on the order of 1 inch or less under severe seismic shaking.

CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

General

From a geotechnical engineering standpoint, we believe the proposed development of the site with a residential development is generally feasible. However, several site conditions identified during this assessment will need to be further addressed in a design-level geotechnical investigation, and subsequent design and construction phases of site development. These include:

- Uncontrolled fill,
- Seismic-induced (liquefaction) site settlement potential of 1 to 2-1/2 inches,
- Moderately compressible soils,
- Expansive soils, and
- Corrosive soils

It should be noted that the preliminary conclusions and recommendations are intended to assist in evaluating and early planning the project. These preliminary conclusions and recommendations are insufficient for the design of the proposed residential and park site developments at this site. Design-level geotechnical investigations, including additional field exploration and laboratory testing, will be required. The preliminary conclusions and recommendations contained in this report are subject to modification, depending on the findings from the design-level geotechnical investigation.

Uncontrolled Fill

Portions of the site consisting of the PNP yard are presently developed. This area is blanketed by uncontrolled fills estimated to be on the order of 2 to 2-1/2 feet thick. Stockpiled uncontrolled fill was identified in the central area of the undeveloped portion of the PNP site. The uncontrolled fill should be removed down to undisturbed native soils. Excavated soils generally free of debris and constituents of concern (environmental hazards) may be replaced as engineered fill.

Mitigation Of Liquefaction-Induced Impacts On Buildings

As discussed above, liquefiable soils have been identified at adjoining sites. Similar conditions are anticipated at the PNP site. Based on the liquefaction analysis performed using the CLiq program, liquefaction-induced free field settlement will range from about 1-1/4 to 3-1/2 inches. Where total settlement is not expected to exceed 4 inches, mitigation of liquefaction-induced settlement through ground improvement is not required though “structural mitigation” (CGS SP-117A) is needed. Structural mitigation should, at a minimum, include the use of relatively stiff structural concrete slab-on-grade foundations, such as a post-tensioned concrete slabs-on-grade. Structural mitigation could potentially be achieved by designing the foundations to resist the effects of liquefaction-induced differential settlement and possibly strengthening connections within the structure.

COMPRESSIBLE SOIL - CONSOLIDATION SETTLEMENT

The application of new loads in excess of prior loading history on sites underlain by fine-grained soil deposits can result in consolidation of the soils over time. This in turn will result in surface settlement and settlement of structures on shallow foundations. The actual magnitude of total and differential settlements that will occur at the site and time rate of consolidation settlement are dependent on a number of variables including: 1) the thickness and variation in the thickness of the compressible soils, 2) the presence or absence of sand layers within the deposit, 3) compressibility and permeability of the soil, 4) prior loading history, and 5) the magnitude of new loads.

The native clay soils below the proposed residential development area are normally to slightly over-consolidated. As such, they are slightly to moderately compressible. We conducted a preliminary analysis of the potential settlement of the clay soils due to static loading of 1,200 pounds per square foot (assumes 6 feet of fill plus 400 psf for foundation loads). The potentially compressible soils are estimated to range in thickness from about 10 to 20 feet across the site. Based on our analysis, we estimate that settlement due to primary consolidation may be on the order of 4 to 11 inches over the next 20 years.

The actual settlement potential should be evaluated as part of the design level geotechnical investigation based on laboratory test data from soil samples collected from the site, the design grading and the building loads provided by the project designers. Preconsolidating the site through the placement of a surcharge may need to be considered for improved overall site performance. In areas that are not preconsolidated through a surcharge program, surface gradients along roadways and sanitary and storm drain systems that rely on gravity should be designed for post-construction settlement.

EXPANSIVE SOILS

The surficial native clay soils in the area have a moderate expansion potential. Post-tensioned concrete slab-on-grade foundations are frequently used for support of residential structures supported by expansive soils. The expansion potential of the site soils should be evaluated during the design level geotechnical investigation.

FOUNDATION CONSIDERATIONS

For a shallow foundation system to be feasible, settlement due to consolidation combined with any seismic induced settlement would need to be considered in foundation design and must be within an acceptable range for the selected performance level. This may include designing the foundation based on life-safety and recognizing that large-scale settlement could occur with a design level earthquake. Seismic-induced settlement is estimated at less than 4 inches with differential across any single residence estimated at 1 inch or less. At this magnitude of total and differential settlement, shallow foundations for the proposed residential development consisting of post-tensioned concrete slabs-on-grade appear to be feasible. With slightly or moderately compressible soils present below the site and the potential that fill on the order of 8 feet or less in depth will be placed to raise site grades, site settlement and more importantly differential settlement potential will need to be addressed. This may entail placement of a surcharge fill to reduce future settlement thereby allowing for the use of shallow foundations.

CORROSION CONSIDERATIONS

Soils in the area are known to be moderately to severely corrosive due to high chloride ion concentrations, which is sufficient to attack steel embedded in a concrete mortar coating, and high sulfate ion concentrations, which is corrosive to concrete in contact with the ground. Testing of the on-site soils should be performed during the design level geotechnical investigation, for determination of chloride and sulfate ion concentrations, as well as soil resistivity values, for use in design of concrete structures and underground utilities.

ADDITIONAL GEOTECHNICAL ENGINEERING SERVICES

A design level geotechnical investigation of the site is needed. Additional site exploration and analyses of the site conditions should be conducted specific to the site plan and with consideration of the planned grading activities at the site. With the complex geology at the site and past development history, a design-level geotechnical investigation must be performed to more fully investigate the liquefaction-induced settlement and compressibility of the soils. Additional subsurface exploration will also aid in the development of a remedial grading plan to address uncontrolled fills and disturbed soils on the site. Project-specific recommendations can then be developed based on the additional data and analyses as well as with consideration of the developer's desires regarding site ground improvement and foundation types to be used.

LIMITATIONS

The conclusions and preliminary recommendations presented in this report are based upon the project information provided to us by Integral Partners Funding, LLC, information obtained from published geologic reports and maps, subsurface conditions encountered at the boring, CPT and test pit locations on adjoining sites, engineering analyses and professional judgment. The findings and preliminary recommendations presented herein are subject to modification or revisions based on data obtained and the engineering analyses performed during the recommended design level geotechnical investigation.

Site conditions described in this report are those existing at the times of our field explorations and are not necessarily representative of such conditions at other locations or times. The boring and test pit logs, and CPT plots, show subsurface conditions at the locations and on the dates indicated. It is not warranted that they are representative of such conditions elsewhere or at other times. The locations of the field explorations as plotted should be considered approximate only.

The information provided herein was developed for use by Integral Partners Funding, LLC for due diligence purposes for the project as described herein. In the event that changes in the nature, design or location of the proposed project are planned, or revisions are made to the Building Code that are related to Geotechnical Engineering, the conclusions and preliminary recommendations in this report shall be considered invalid, unless the changes are reviewed and the conclusions and recommendations are confirmed or modified in writing by BSA. In light of this, there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that two years from the date of this report be considered a reasonable time for the usefulness of this report.

This geotechnical assessment has been conducted, and the opinions, conclusions and preliminary recommendations presented in this report were developed, in accordance with accepted geotechnical engineering practices that exist in the San Francisco Bay Area at the time this report was prepared. No warranty, expressed or implied, is offered, inferred or made, by or through our performance of professional services.

Please contact the undersigned if you have any questions regarding the contents of this report.

Respectfully submitted,
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Attachments:

- References
- Plate 1 – Vicinity Map
- Plate 2 – Site Plan
- Plate 3 – Quaternary Geology
- Plate 4 – Bay Mud Map
- Plate 5 – Earthquake M ≥6.7 Probability
- Plate 6 – Earthquake Hazard Zones Map
- Appendix A – Boring Logs – Halley & Aldrich
- Appendix B – Test Pit Logs
- Appendix C – CPT Data Plots and Interpretations
- Appendix D – Boring Logs
- Appendix E – U.S. Seismic Design Maps and U.S.G.S. Unified Hazard Tool Report
- Appendix F – Liquefaction-Induced Settlement Potential

Copies: Addressee

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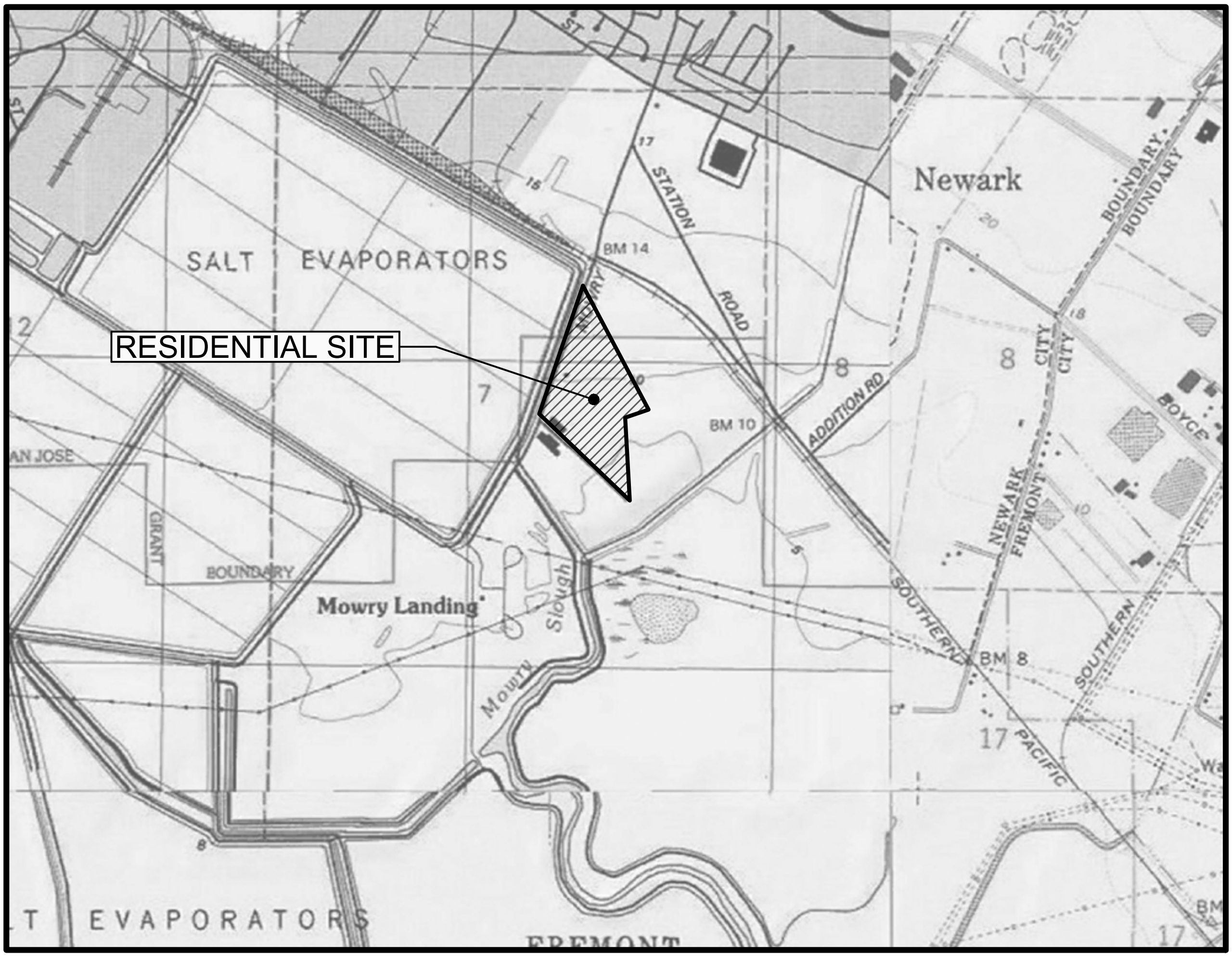
Working Group on California Earthquake Probabilities, 2014, Uniform California Earthquake Rupture Forecast, Version 3 (UCERF 3), USGS FS 2-15-3009, available at: https://pubs.usgs.gov/fs/2015/3009/pdf/fs2015-3009.pdf.

Youd, T.L. and Garris, C.T., 1995, Liquefaction-Induced Ground-Surface Disruption: Journal of Geotechnical Engineering, Vol. 121, No. 11, pp. 805 - 809.

Zhang, G., Robertson, P.K. and Brachman, R.W.I., 2002, Estimating Liquefaction-Induced Ground Settlements from CPT For Level Ground, Canadian Geotechnical Journal 39, pp.1168-1180.

PLATES

JOB NUMBER: 3959.102 DATE: 4-1-19 BY: CC



0 2000

1"=2000'

N

VICINITY MAP

PROPOSED RESIDENTIAL DEVELOPMENT

PICK-N-PULL 7400 MOWRY AVENUE

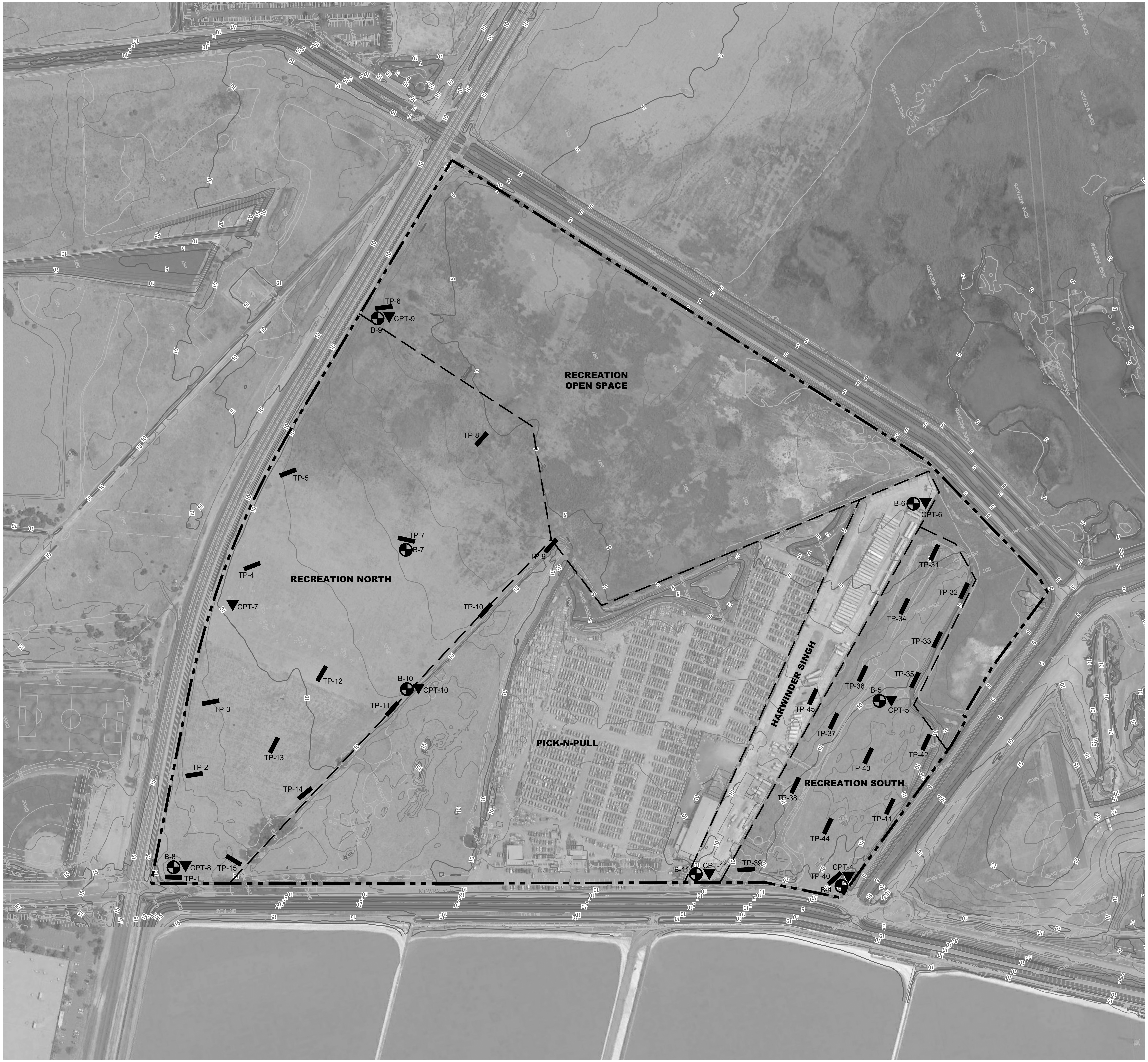
NEWARK, CALIFORNIA

FOR

INTEGRAL COMMUNITIES

BASE: PORTION OF U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES,
NEWARK AND NILES, CALIFORNIA, AT A SCALE OF 1:24,000.

JOB NUMBER: 3959.102 DATE: 4-1-19 DRAWN BY: CC



N

0 100 200 400

SCALE: 1"=200'

EXPLANATION

PROJECT BOUNDARY

B-11 BORING LOCATION

CPT-11 CPT LOCATION

TP-45 TEST PIT LOCATION

SITE PLAN

PROPOSED RESIDENTIAL DEVELOPMENT

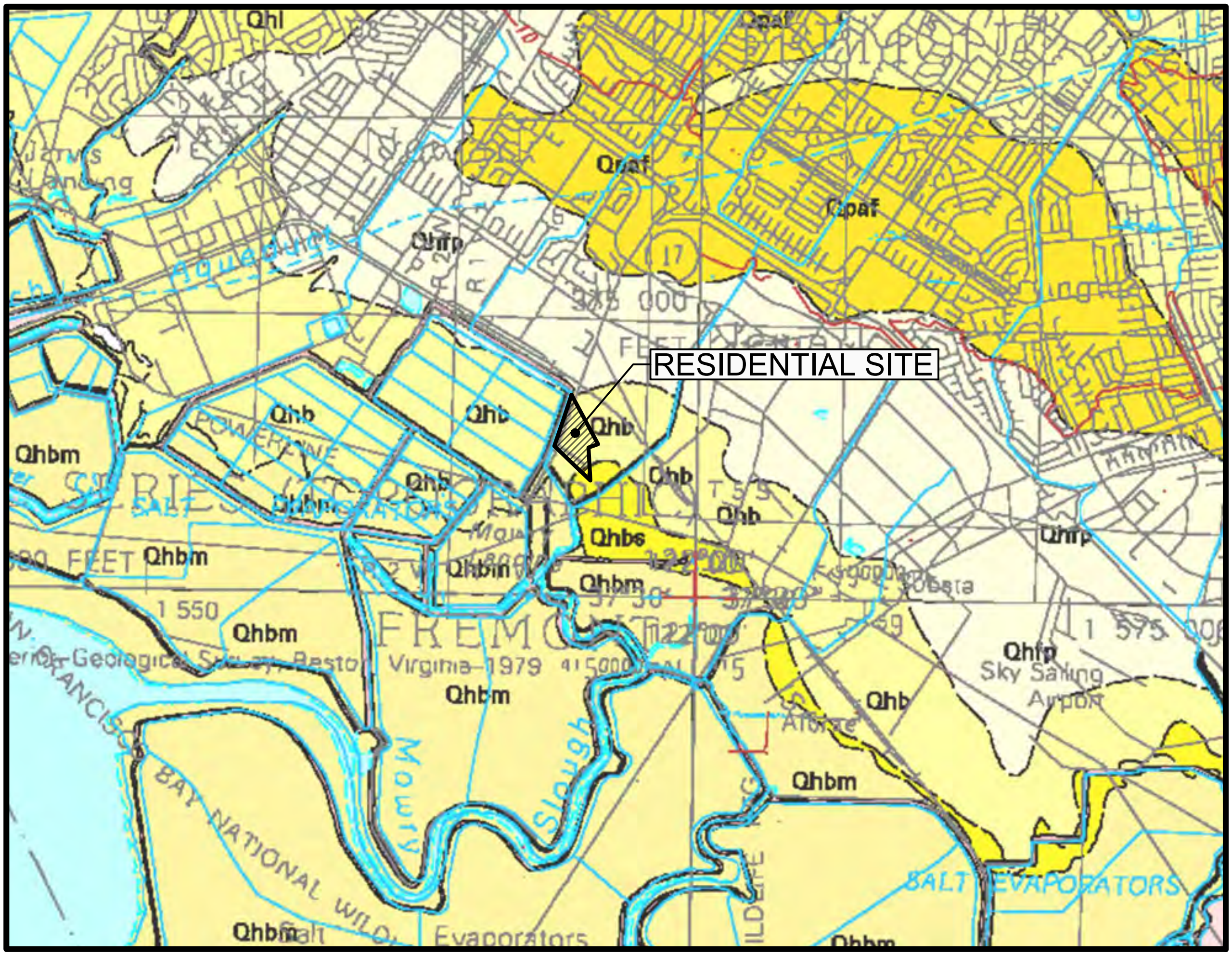
PICK-N-PULL 7400 MOWRY AVENUE
NEWARK, CALIFORNIA
FOR
INTEGRAL COMMUNITIES

Berlogar Stevens & Associates

SOIL ENGINEERS * ENGINEERING GEOLOGISTS

BASE: CONCEPTUAL SITE PLAN, PREPARED BY: CARLSON BARBEE & GIBSON, DATED: 2-15-18

JOB NUMBER: 3959.102 DATE: 4-1-19 BY: CC



N

0 5000

1"=5000'

EXPLANATION

Qhb — **BASIN DEPOSITS (HOLOCENE)**--VERY FINE SILTY CLAY TO CLAY DEPOSITS OCCUPYING FLAT -FLOORED BASINS AT THE DISTAL EDGE OF ALLUVIAL FAN S ADJACENT TO THE BAY MU D (QHBM). ALSO OCCUPYING FLAT AREAS IN THE BRENTWOOD DUNE FIELD WHERE THE BASIN DEPOSITS BURY OLDER ERODED SAND DUNES (QDS).

Qhbs — **FLOODBASIN DEPOSITS** (SALT-AFFECTED) (HOLOCENE)--CLAY TO VERY FINE SILTY-CLAY DEPOSITS SIMILAR TO THE QHB DEPOSITS EXCEPT THAT THEY CONTAIN CARBONATE NODULES AND IRON-STAINED MOTTLES (SOIL CONSERVATION SERVICE, 1958). THESE DEPOSITS MAY HAVE BEEN FORMED BY THE INTERACTION OF BICARBONATE-RICH UPLAND WATER AND SALINE WATER OF THE SAN FRANCISCO BAY ESTUARY. WITH MINOR EXCEPTIONS, SALT-AFFECTED BASIN DEPOSITS ARE IN CONTACT WITH ESTUARY DEPOSITS, QHBM.

Qhbm — **BAY MUD** (HOLOCENE)--WATER-SATURATED ESTUARINE MUD, PREDOMINANTLY GRAY, GREEN AND BLUE CLAY AND SILTY CLAY UNDERLYING MARSHLANDS AND TIDAL MUD FLATS OF SAN FRANCISCO BAY AND CARQUINEZ STRAIT. THE UPPER SURFACE IS COVERED WITH CORDGRASS (SPARTINA SP.) AND PICKLEWEED (SALICORNIA SP.). THE MUD ALSO CONTAINS A FEW LENSES OF WELL-SORTED, FINE SAND AND SILT, A FEW SHELLY LAYERS (OYSTERS), AND PEAT. THE MUD INTERFINGERS WITH AND GRADES INTO FINE-GRAINED DEPOSITS AT THE DISTAL EDGE OF HOLOCENE FANS, AND WAS DEPOSITED DURING THE POST-WISCONSIN RISE IN SEA-LEVEL, ABOUT 12 KA TO PRESENT (IMBRIE AND OTHERS, 1984). ESTIMATED THICKNESS: 0-40 M. IN PLACES IT RESTS UNCONFORMABLY ON BEDROCK.

QUATERNARY GEOLOGY

PROPOSED RESIDENTIAL DEVELOPMENT

PICK-N-PULL 7400 MOWRY AVENUE

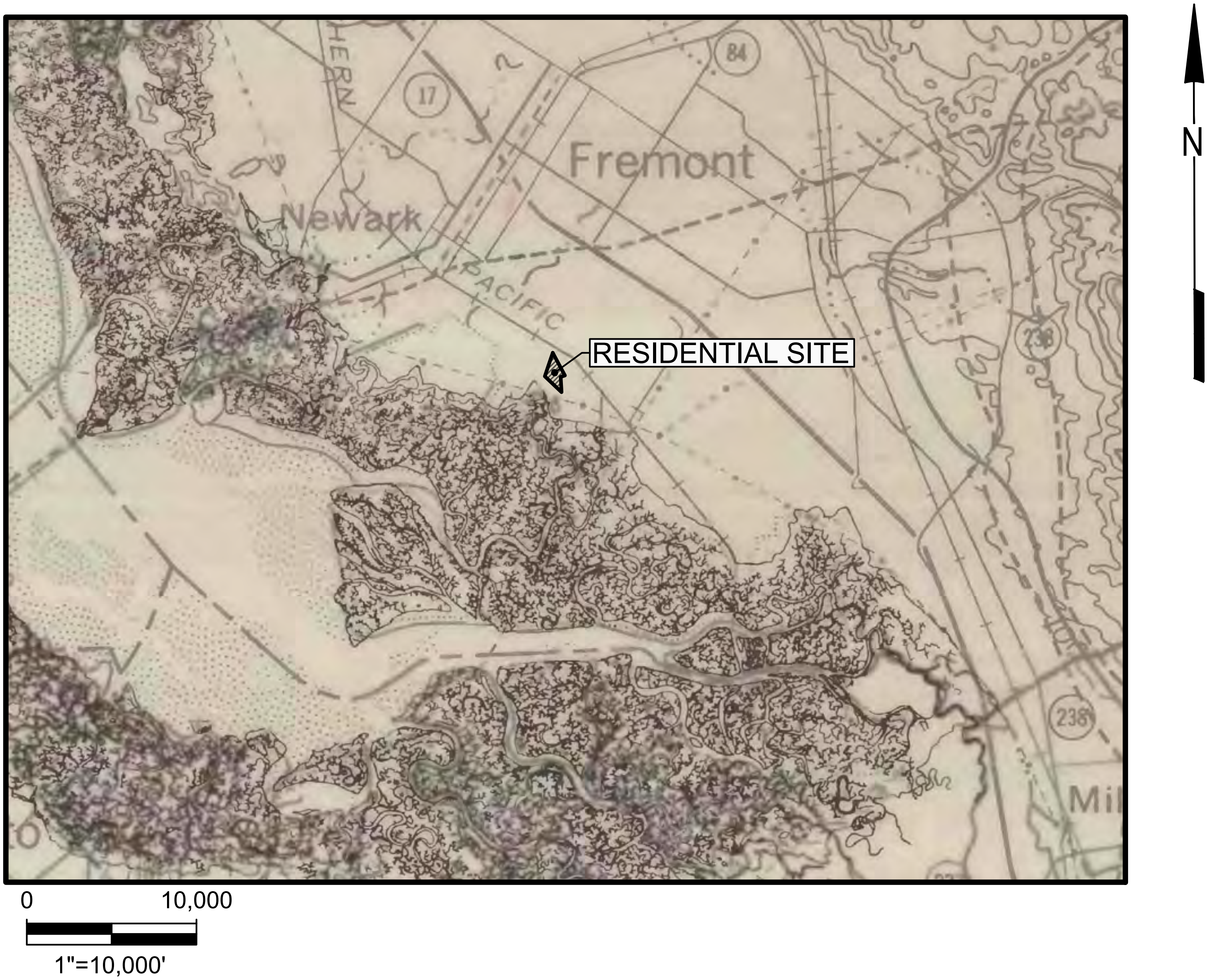
NEWARK, CALIFORNIA

FOR

INTEGRAL COMMUNITIES

BASE: PORTION OF QUATERNARY GEOLOGY OF ALAMEDA COUNTY, AND SURROUNDING AREAS: DERIVED FROM THE DIGITAL DATABASE OPEN-FILE REPORT 97-97

JOB NUMBER: 3959.102 DATE: 4-1-19 BY: CC



BAY MUD MAP

PROPOSED RESIDENTIAL DEVELOPMENT

PICK-N-PULL 7400 MOWRY AVENUE

NEWARK, CALIFORNIA

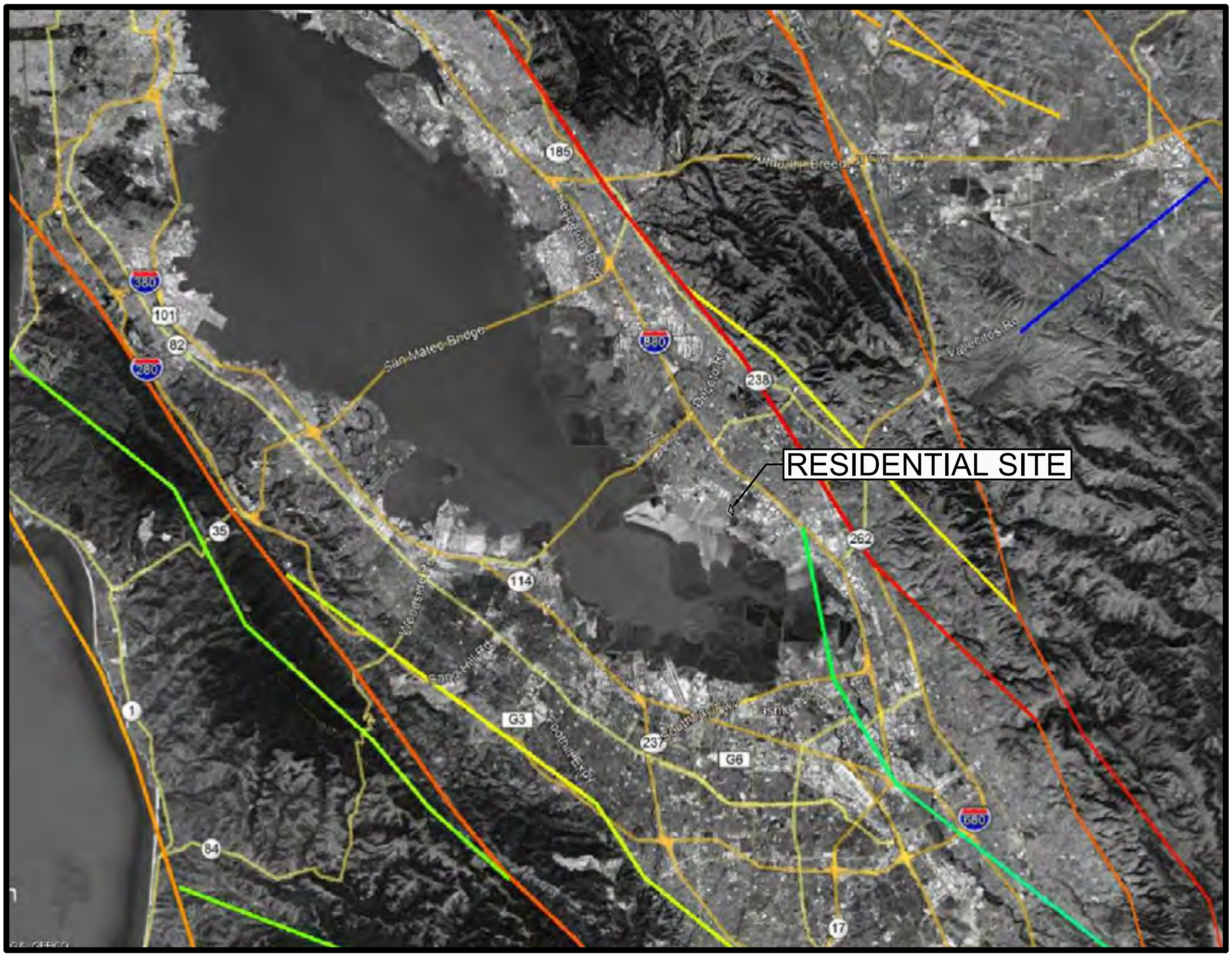
FOR

INTEGRAL COMMUNITIES

BASE: PORTION OF PRELIMINARY MAP OF HISTORIC MARGINS OF MARSHLAND SAN FRANCISCO BAY, CALIFORNIA, BY: DONALD R. NICHOLS AND NANCY A. WRIGHT 1971

PLATE 4

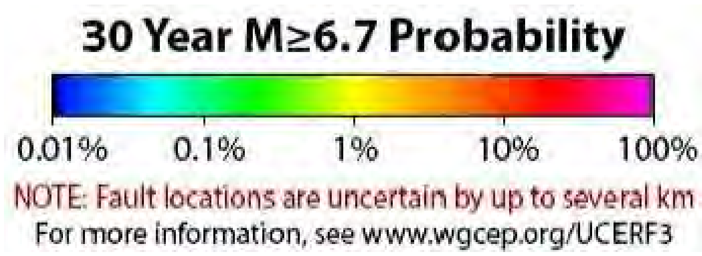
JOB NUMBER: 3959.102 DATE: 4-1-19 BY: CC



N

0 7 miles

1"=7 miles



EARTHQUAKE M ≥6.7 PROBABILITY

PROPOSED RESIDENTIAL DEVELOPMENT

PICK-N-PULL 7400 MOWRY AVENUE

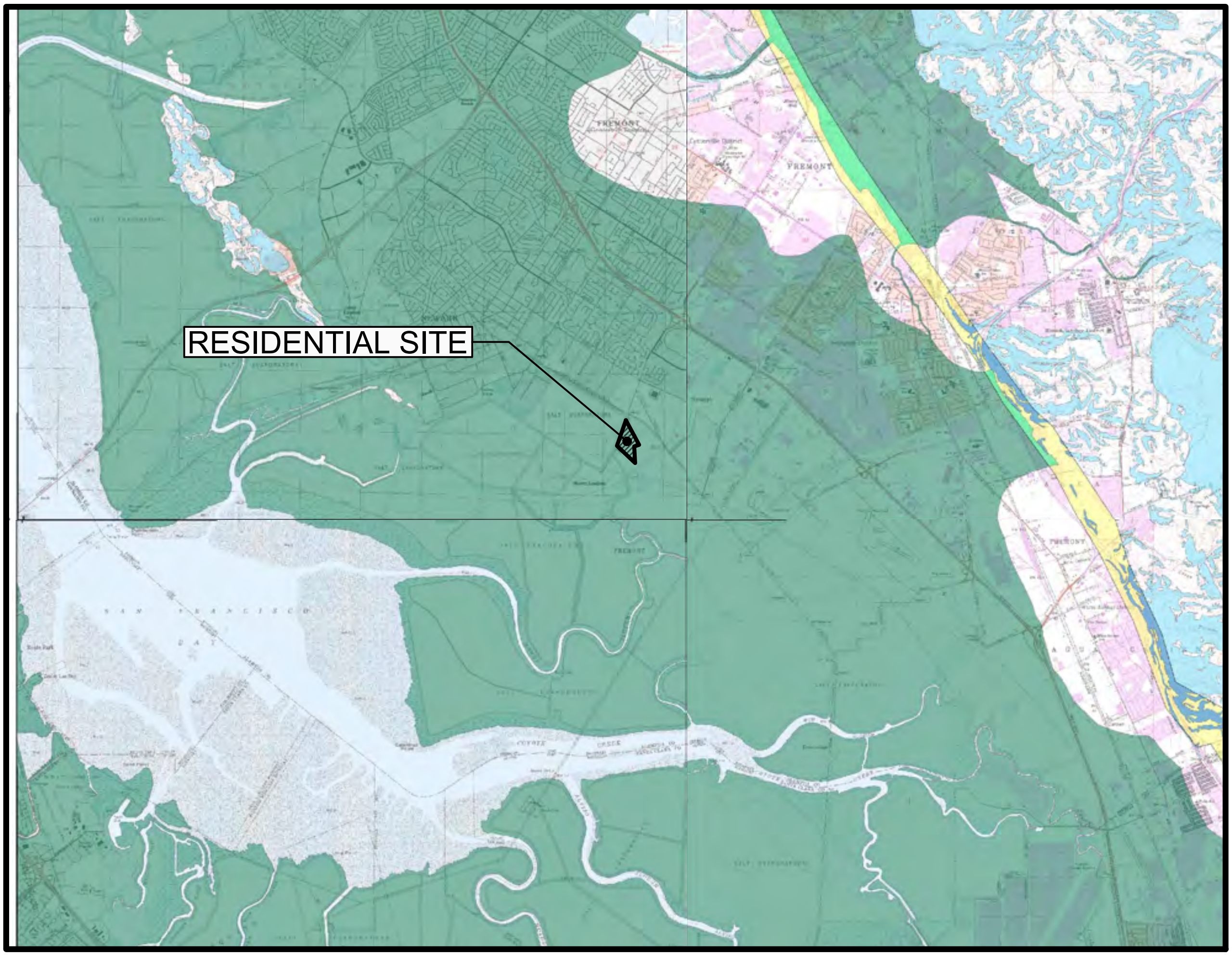
NEWARK, CALIFORNIA

FOR

INTEGRAL COMMUNITIES

BASE: UCERF3: A NEW EARTHQUAKE FORECAST FOR CALIFORNIA'S COMPLEX FAULT SYSTEM, BY EDWARD H. FIELD AND MEMBERS OF THE 2014 WGCEP

JOB NUMBER: 3959.102 DATE: 4-1-19 BY: CC



MAP EXPLANATION

EARTHQUAKE FAULT ZONES

Earthquake Fault Zones
Zone boundaries are delineated by straight-line segments; the boundaries define the zone encompassing active faults that constitute a potential hazard to structures from surface faulting or fault creep such that avoidance as described in Public Resources Code Section 2621.5(a) would be required.

Active Fault Traces
1906 C ? ?
Faults considered to have been active during Holocene time and to have potential for surface rupture: Solid Line in Black or Red where Accurately Located; Long Dash in Black or Solid Line in Purple where Approximately Located; Short Dash in Black or Solid Line in Orange where Inferred; Dotted Line in Black or Solid Line in Rose where Concealed; Query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by fault creep.

SEISMIC HAZARD ZONES

Liquefaction Zones
Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslide Zones
Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

OVERLAPPING EARTHQUAKE FAULT AND SEISMIC HAZARD ZONES

Overlap of Earthquake Fault Zone and Liquefaction Zone
Areas that are covered by both Earthquake Fault Zone and Liquefaction Zone.

Overlap of Earthquake Fault Zone and Earthquake-Induced Landslide Zone
Areas that are covered by both Earthquake Fault Zone and Earthquake-Induced Landslide Zone.

EARTHQUAKE ZONES OF REQUIRED INVESTIGATION

PROPOSED RESIDENTIAL DEVELOPMENT

PICK-N-PULL 7400 MOWRY AVENUE

NEWARK, CALIFORNIA

FOR

INTEGRAL COMMUNITIES

0 10,000

1"=10,000'

BASE: PORTION OF STATE OF CALIFORNIA EARTHQUAKE ZONES OF REQUIRED INVESTIGATION, NILES, NEWARK, MILPITAS AND MOUNTAIN VIEW QUADRANGLES, CALIFORNIA AT A SCALE OF 1:24,000

PLATE 6

APPENDIX A

Haley & Aldrich 2019 Boring Logs

HALEY ALDRICH

TEST BORING REPORT

BORING NO. SS-1

Page ___ of ___

PROJECT	Mowry Phase II	H&A FILE NO.	131942-002
LOCATION	Pick n Pull Newark, CA	PROJECT MGR.	V. Tilotta
CLIENT	Integral	FIELD REP.	A. Piestrzeniewicz
CONTRACTOR	Penecore	DATE STARTED	1/4/19
DRILLER	Miguel M.	DATE FINISHED	1/4/19

Elevation ___ ft. Datum ___

Hammer | Weight | Drop

Boring Location

Rig Make & Model

☐ Truck ☐ Tripod ☐ Cat-Head
☐ ATV ☐ Geoprobe ☐ Winch
☐ Track ☐ Air Track ☐ Roller Bit
☐ Skid ☐ ______ ☐ Cutting Head

Casing Advance Type/Depth

Latitude

Longitude

Drilling Notes:

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0							grayish brown to brown silty gravelly sand dry, loose								
							black silty clay (CL), damp								
							olive gray silty clay (CL) damp								
5							olive brown silty clay (CL), damp								
					▽		olive gray to yellowish brown clayey sand (SC), wet, mottled								
10							olive gray to yellowish brown ~~fat~~ clay (CH), damp to moist								
							~~olive gray to ... silty~~ increase in sand content								
15							TD= 15 ft bgs								
20															
25															

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary

Overburden (Linear ft.) ______

Number of Samples ______

BORING NO.

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

i #1000

HALEY ALDRICH

TEST BORING REPORT

BORING NO. SS-5

Page of

PROJECT	Mowry Ph II	H&A FILE NO.	131942-002
LOCATION	Pick N Pull, Newark, CA	PROJECT MGR.	U. Tilotta
CLIENT	Integral	FIELD REP.	A. Pliesenmeurer
CONTRACTOR	Penecore	DATE STARTED	1/3/19
DRILLER	Miguel M.	DATE FINISHED	1/3/19

Elevation ft. Datum

Boring Location

Casing Advance Type/Depth

Latitude

Longitude

Hammer	Weight	Drop

Rig Make & Model

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☐ Geoprobe ☐ Winch
- ☐ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ ☐ Cutting Head

Drilling Notes:

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0						SP	silty gravelly sand, grayish brown, dry								
					0.5	ML	brown clayey sandy silt, damp								
							increase in clay content, change in color to dk brown.								
5					5	CL	olive silty clay, damp								
					▼ 5.5?	CH	olive fat clay, wet, mottled								
10					10	CL	olive silty clay, damp, tight, mottled								
					13	CH	olive fat clay, wet, mottled								
					14										
15															
							TD = 14 ft GW encountered @ ~ 14.5 ft bgs Rose to 6 ft bgs Backfilled w/ cement slurry.								
20															
25															

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary

Overburden (Linear ft.)

Number of Samples

BORING NO. SS-5

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

#3000

HALEY ALDRICH

TEST BORING REPORT

BORING NO.	SS-6
Page	1 of 1

PROJECT	MOWRY PH. II	H&A FILE NO.	131942-002
LOCATION	PICK N PULL NEWARK, CA	PROJECT MGR.	U. TILOTTA
CLIENT	INTEGRAL	FIELD REP.	A. PIESTRZEN...
CONTRACTOR	PENECORE	DATE STARTED	1/3/19
DRILLER	MIGUEL M.	DATE FINISHED	1/3/19

Elevation ft. Datum

Boring Location

Hammer	Weight	Drop

Rig Make & Model: ☐ Truck ☐ Tripod ☐ Cat-Head ☐ ATV ☑ Geoprobe ☐ Winch ☑ Track ☐ Air Track ☐ Roller Bit ☐ Skid ☐ ☐ Cutting Head

Casing Advance Type/Depth

Latitude

Longitude

Drilling Notes:

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0						GM	lt. brown silty sandy gravel, sc. glass and concrete fragments dry								
					2	SM	lt. grayish brown silty gravelly sand, dry, mottled								
					▽2										
5					5	CL	black to dark gray silty clay, damp, minor organic fragments								
							olive gray to yellowish brown silty clay, damp to moist, mottled								
10															
					▽1		olive gray silty f. sandy clay, wet								
15							olive gray silty clay, damp to moist								
							TD = 15 ft bgs GW encountered @ ~12 ft bgs rose to ~4.5 ft bgs. Backfilled w/ cement slurry.								
20															
25															

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary

Overburden (Linear ft.)

Number of Samples

BORING NO. SS-6

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

HALEY ALDRICH

TEST BORING REPORT

BORING NO.	SS-8
Page	of

PROJECT	~~Old Canyon Road Geotechnical Investigation~~ MOWRY PH. II	H&A FILE NO.	~~127956-010~~ 131942
LOCATION	~~2225 Old Canyon Road, Fremont, CA~~ PICK N PULL NEWARK, CA	PROJECT MGR.	~~Dalwasa~~ U. TWITTY
CLIENT	~~BBG KRG Inc~~ INTEGRAL	FIELD REP.	~~S. Hinze~~ A. Piestrzeniewicz
CONTRACTOR	~~Gulf Shore Exploration~~ PENECORE	DATE STARTED	~~12/18/2018~~ 1/3/19
DRILLER	MIGUEL M.	DATE FINISHED	~~12/18/2018~~ 1/3/19

Elevation	ft.	Datum		Boring Location		
Hammer	Weight	Drop		Rig Make & Model	Casing Advance Type/Depth	Latitude
Automatic	140-lb	30-inch		☐ Truck ☐ Tripod ☐ Cat-Head		
				☐ ~~ATV~~ ☑ Geoprobe ☐ Winch		Longitude
				☑ Track ☐ Air Track ☐ Roller Bit		
				☐ Skid ☐ ____ ☐ Cutting Head	Drilling Notes:	

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0						SM	Surface: gray brown sandy gravel brown to gray brown gravelly silty sand, dry								
					1	ML	brown sandy silt, dry								
5					4.2	CL	black silty clay, damp								
							olive clay, damp, mottled								
					8		olive sandy clay wet, mottled								
10															
							olive clay, damp, mottled								
15															
20															
25															

TD = 15 ft bgs
GW initially @ ~ 8 ft bgs
rose to ~ 4.5 ft bgs
after ~ 10 min.

soil sample collected
@ 0.5 ft bgs

GW grab sample collected
Backfilled w/ cement slurry

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary	
Overburden (Linear ft.)	
Number of Samples	
BORING NO.	SS-8

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

#3000

HALEY ALDRICH

TEST BORING REPORT

BORING NO. SS-9

Page of

PROJECT	MOWRY PH. II	H&A FILE NO.	136442-002
LOCATION	PICK N PULL NEWARK, CA	PROJECT MGR.	V. TILOTTA
CLIENT	INTEGRAL	FIELD REP.	A. PIESZKIEWICZ
CONTRACTOR	PENECORE	DATE STARTED	1/3/19
DRILLER	MIGUEL M.	DATE FINISHED	1/3/19

Elevation ft. Datum

Boring Location

Hammer	Weight	Drop

Rig Make & Model

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ ~~Track~~ ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ ☐ Cutting Head

Casing Advance Type/Depth

Latitude

Longitude

Drilling Notes:

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0						SM	Surface: white silty f. sand, sc f. gravel clay								
					0.5	GC	brown sandy clayey gravel, sc asphalt fragments, damp								
					4	CL	v. dk gray to blk silty clay, damp								
5															
				▽			olive gray to yellowish brown silty clay, damp to wet, mottled								
10															
15							TD = 15 ft bgs GW encountered @ ~ 8 ft bgs. Backfilled w/ cement slurry.								
20															
25															

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary

Overburden (Linear ft.)

Number of Samples

BORING NO. SS-9

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

HALEY ALDRICH

TEST BORING REPORT

BORING NO. SS-11

Page of

PROJECT	MOWRY PH. II	H&A FILE NO.	134442-002
LOCATION	PICK N PULL NEWARK, CA	PROJECT MGR.	U. TROTTA
CLIENT	INTEGRAL	FIELD REP.	A. PIESTRZENIEWICZ
CONTRACTOR	PENEWRE	DATE STARTED	1/4/19
DRILLER	MIGUEL M.	DATE FINISHED	1/4/19

Elevation ft. Datum

Boring Location

Hammer	Weight	Drop

Rig Make & Model: ☐ Truck ☐ Tripod ☐ Cat-Head ☐ ATV ☑ Geoprobe ☐ Winch ☑ Track ☐ Air Track ☐ Roller Bit ☐ Skid ☐ ☐ Cutting Head

Casing Advance Type/Depth

Latitude

Longitude

Drilling Notes:

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0						SM	brown silty sand, f to m. sand, sc. f. gravel, damp								
					4	CL	lt. yellowish brown to grayish brown silty clay								
5							olive gray silty sandy clay, moist								
					8'		wet and increase in sand content								
10							olive gray mottled w/ yellowish brown lean clay, damp to moist								
15							TD=15 ft bgs GW encountered @ ~8 ft bgs Backfilled w/ cement slurry.								
20															
25															

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary

Overburden (Linear ft.)

Number of Samples

BORING NO. SS-11

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

#3000

HALEY ALDRICH

TEST BORING REPORT

BORING NO. SS-12

Page 1 of 1

PROJECT	MOWRY PH-II	H&A FILE NO.	131942-002
LOCATION	PICK N PULL NEWARK, CA	PROJECT MGR.	V. TILOTTA
CLIENT	INTEGRAL	FIELD REP.	A. PIESTRZENIEWICZ
CONTRACTOR	PENECORE	DATE STARTED	1/4/19
DRILLER	MIGUEL M.	DATE FINISHED	1/4/19

Elevation	ft.	Datum	Boring Location		
Hammer	Weight	Drop	Rig Make & Model	Casing Advance Type/Depth	Latitude
			☐ Truck ☐ Tripod ☐ Cat-Head		
			☐ ATV ☑ Geoprobe ☐ Winch		Longitude
			☑ Track ☐ Air Track ☐ Roller Bit		
			☐ Skid ☐ ☐ Cutting Head	Drilling Notes:	

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0						SM	~~[illegible]~~ med. brown silty clayey sand, damp, sc. f. gravel, minor organics								
					2.5	CL	black sandy silty clay, damp, transitions to grayish brown color w/ depth								
5							olive gray to yellowish brown sandy clay. fi sand, damp to moist, mottled								
					9	CH	~~[illegible]~~ olive gray to yellowish brown fat clay, damp to moist, mottled.								
10															
					13 ▽	CL	olive gray to yellowish brown sandy clay, wet, mottled								
15					14.5	CH	olive gray to yellowish brown fat clay moist, mottled								
							TD = 15 ft bgs GW encountered @ ~13 ft bgs Backfilled w/ cement slurry.								
20															
25															

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary

Overburden (Linear ft.)

Number of Samples

BORING NO. SS-12

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

#3000

HALEY ALDRICH

TEST BORING REPORT

BORING NO. SS-13

Page 1 of 1

PROJECT	Mowry TM-11	H&A FILE NO.	131942-002
LOCATION	Pick N Pull Newark, CA	PROJECT MGR.	V. Tilotta
CLIENT	Integral	FIELD REP.	A. Piestrzeniewicz
CONTRACTOR	Penecore	DATE STARTED	1/4/19
DRILLER	Miguel M	DATE FINISHED	1/4/19

Elevation ft.	Datum	Boring Location	
Hammer	Weight	Drop	Rig Make & Model

Rig Make & Model: ☐ Truck ☐ ATV ☑ Track ☐ Skid ☐ Tripod ☑ Geoprobe ☐ Air Track ☐ ____ ☐ Cat-Head ☐ Winch ☐ Roller Bit ☐ Cutting Head

Casing Advance Type/Depth

Latitude

Longitude

Drilling Notes:

Depth (ft.)	Sample Type	Recovery (in.)	Shelby Tube Pressure (psi)	Blows per 6-in	Stratum Change (ft.)	USCS Symbol	Visual-Manual Identification & Description (GROUP NAME & SYMBOL, density/consistency, particle size range, color, moisture, odor, dilatancy, plasticity, toughness, strength, additional comments)	Pocket Pen (tsf)	Torvane Shear Strength (psf)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines
0						SM	brown clayey silty fine sand, damp, sc. f. gravel and organics								
							increase in sand content, decrease in clay								
					3	CL	black silty clay, damp, sc. caliche								
5															
						CL	olive gray to dk gray sandy clay, damp								
					▽										
					8	CH	olive gray to yellowish brown clayey sand, wet, mottled								
10							olive gray to yellowish brown fat clay, moist, mottled								
15															
							TD= 15 ft. bgs GW encountered @ ~ 7 ft bgs Backfilled w/ cement slurry								
20															
25															

Samples	
MCS	Modified California Sampler (2.5" ID)
SPT	Standard Penetration Test Sampler
SHELBY	Shelby Tube Sampler

Notes

Summary

Overburden (Linear ft.) ______

Number of Samples ______

BORING NO. SS-13

NOTE: Soil identifications based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

APPENDIX B

Test Pit Logs – Adjoining & Nearby Sites

Test Pit Logs April 25 through 27, 2018

RECREATION SITE (NORTH)

TP-1

0.0’ – 1.0’	FILL - Mixed Crushed Rock (2 to 2.5” in diameter) and Silty Sand, light gray-brown, and Sandy Clay, gray-brown, moist, loose/medium stiff, Minor plastic/debris
1.0’ – 3.5’	Silty Clay, dark to medium gray-brown, moist, stiff
3.5’ – 6.0’	Silty Clay, light gray-brown, moist, stiff to very stiff
6.0’ – 8.5’	Sandy Clay, light gray-brown, wet, soft, fine grained sand
8.5’ – 10.0’	Silty Clay, mottled light gray-brown and gray, moist to saturated, stiff, limonite stains
	9.5’ Seepage

TP-2

0.0’ – 2.0’	Silty Clay, dark gray-brown, moist, stiff, trace fine to medium grained sand
2.0’ – 3.5’	Silty Clay, brown-gray, moist, stiff
3.5’ – 6.5’	Silty Clay, light gray-brown, moist, stiff
6.5’ – 10.0’	Silty Clay, light gray-brown, Stiff to medium stiff, saturated, test pit caving
	6.5’ Seepage

TP-3

0.0’ – 2.5’	Silty Clay, dark gray-brown, moist, stiff, trace fine to medium grained sand
2.5’ – 3.5’	Silty Clay, light brown-gray, moist, stiff
3.5’ – 5.5’	Silty Clay, light gray-brown, moist, stiff
5.5’ – 10.0’	Silty Clay, light gray-brown, Wet to saturated, stiff, limonite stains
	5.5’ Seepage

TP-4

0.0’ – 1.0’	Silty Clay, dark gray-brown, moist, medium stiff to stiff, trace fine to medium grained sand
1.0’ – 2.5’	Silty Clay, light brown-gray, moist, stiff
2.5’ – 5.5’	Silty Clay, light gray-brown, moist, stiff
5.5’ – 10.0’	Silty Clay, light gray-brown, moist, stiff, limonite stains, saturated
	5.5’ Seepage

TP-5

0.0' – 1.0'	Silty Clay, dark gray-brown, moist, stiff
1.0' – 2.5'	Silty Clay, light brown-gray, moist, stiff, trace dark gray mottling
2.5' – 4.0'	Silty Clay, mottled light brown-gray and gray-brown, moist
4.0' – 10.0'	Silty Clay, mottled light brown-gray and gray-brown, wet to saturated, stiff to medium stiff, pit caving in
	4.0' Seepage

TP-6

0.0' – 2.0'	Silty Clay, dark gray-brown, moist, stiff, trace fine to medium grained sand and fine gravel
2.0' – 3.5'	Silty Clay, mottled light brown-gray and gray-brown, moist, stiff, limonite stains
3.5' – 10.0'	Silty Clay, light brown-gray, moist, stiff, wet to saturated, limonite stains
	3.5' Seepage

TP-7

0.0' – 1.0'	Silty Clay, dark gray-brown, moist, stiff
1.0' – 4.0'	Silty Clay, light brown-gray, moist, stiff
4.5' – 10.0'	Silty Clay, light gray-brown, wet to saturated, stiff, limonite stains
	4.0' Seepage

TP-8

0.0' – 2.0'	Silty Clay, dark gray-brown, moist, stiff, trace fine to medium grained sand
2.0' – 10.0'	Silty Clay, light brown-gray, moist to wet, stiff
	2.0' Minor Seepage

TP-9

0.0' – 1.0'	Silty Clay, dark gray-brown, moist, stiff
1.0' – 2.5'	Silty Clay, light gray, moist, stiff
2.5' – 10.0'	Silty Clay, light brown-gray, moist, medium stiff to stiff, limonite stains, sporadic black mottling
	4.0' – 10.0' Seepage

TP-10

0.0' – 2.0'	Silty Clay, dark gray-brown, moist, stiff
2.0' – 3.0'	Silty Clay, light gray, moist, stiff, black mottling
3.0' – 5.5'	Silty Clay, light brown-gray, moist, stiff, limonite stains, dark brown mottling
5.5' – 10.0'	Silty Clay, light brown-gray, wet to saturated, some limonite stains
	5.5' Seepage

TP-11

0.0' – 2.0'	Silty Clay, dark gray-brown, moist, stiff, trace fine to medium grained sand
2.0' – 3.5'	Silty Clay, light gray, moist, stiff
3.5' – 6.0'	Silty Clay, light brown-gray, moist, stiff, limonite stains
6.0' – 10.0'	Silty Clay, light brown-gray, wet to saturated, stiff, limonite stains
	6.0' Seepage

TP-12

0.0' – 2.0'	Silty Clay, dark gray-brown, moist, stiff, trace fine grained sand
2.0' – 3.5'	Silty Clay, light gray, moist, stiff
3.5' – 10.0'	Silty Clay, light brown-gray, moist, stiff, limonite stains, occasional black and brown mottling, Slightly less stiff below 5.5'
	5.5' Seepage

TP-13

0.0' – 2.0'	Silty Clay, dark gray-brown, moist, stiff
2.0' – 3.5'	Silty Clay, mottled light and medium gray, moist, stiff
3.5' – 5.5'	Sandy Clay, light gray-brown, moist, stiff, fine grained sand, some silt
5.5' – 10.0'	Silty Clay, light gray-brown, moist, stiff, lightly limonite stained
	No groundwater encountered.

TP-14

0.0’ – 0.0’ Minor concrete debris on surface

0.0’ – 2.0’ Silty clay, dark gray-brown, moist, stiff, trace fine to medium grained sand and fine gravel

2.0’ – 3.5’ Silty Clay, light brown-gray, moist, stiff

3.5’ – 10.0’ Silty Clay, light gray-brown, moist, stiff, limonite stained (slightly), Minor caving below 6.5’

6.5’ Seepage

TP-15

0.0’ – 4.0’ Sandy Clay, dark gray-brown, dry to moist, hard, fine to medium grained sand, some silt, trace fine gravel and cobbles

4.0’ – 5.5’ Mixed Silty and Sandy Clay, mottled light and medium gray-brown, moist, very stiff, fine to medium grained sand

5.5’ – 9.0’ Clayey Silty, light gray-brown, moist, stiff, trace fine grained sand

9.0’ – 10.0’ Silty Clay, light gray-brown, moist, stiff

9.0’ Seepage

HARWINDER-SINGH

TP-45

0.0' – 0.5'	FILL - Gravelly Sand, gray-brown, moist, fine to coarse grained sand, fine to coarse gravel
0.5' – 1.5'	FILL - Sandy Clay, light gray-brown, moist, stiff, fine to coarse grained sand, trace fine gravel
1.5' – 4.0'	Silty Clay, medium to dark gray, moist, stiff
4.0' – 6.0'	Silty Clay, light gray, wet, stiff
6.0' – 10.0'	Silty Clay, mottled light gray and orange-yellow, saturated, soft to medium stiff
	4.0' – 10.0' Caving very badly
	Groundwater encountered at 3.0'

RECREATION SITE (SOUTH)

TP-31

0.0' – 3.0'	FILL - Silty Clay, gray-brown, moist, stiff, some fine to coarse grained sand, trace gravel and glass debris/fragments, plastic, wood, glass, metal debris mixed in, rags and straps
3.0' – 5.0'	Silty Clay, dark gray-brown, wet to saturated, stiff
5.0' – 10.0'	Silty Clay, light gray, saturated, stiff to medium stiff, gray mottling, minor limonite stains
	Groundwater encountered at 3.0'

TP-32

0.0' – 1.5'	FILL - Sandy Clay, gray-brown, dry to moist, medium stiff to stiff, some fine to coarse grained sand and fine to coarse gravel, debris: chunks of asphalt concrete and concrete debris, plastic, fabric, canvas, glass, plastic piping, bottles, straps
1.5' – 4.0'	Silty Clay, gray-brown, moist, stiff, trace fine to medium grained sand and fine gravel
4.0' – 5.5'	Clayey Sand, medium to dark brown-gray, moist, medium dense, fine to coarse grained sand, trace fine to coarse gravel
5.5' – 7.0'	Silty Clay, mottled green and black, wet, medium stiff to stiff
7.0' – 10.0'	Silty Clay, light gray-green, wet, stiff, dark gray mottling
	Groundwater encountered at 4.0'

TP-33

0.0' – 5.0' FILL - Mixed Debris with Gravelly Sand, light gray-brown, wood, glass/bottles, shoes, anything, concrete chunks, water seeping, pouring in fast, strong odor of organic decomposition

Groundwater encountered at 4.0'

TP-34

0.0' – 4.0' FILL - Silty Clay, gray-brown, moist, mixed with garbage from surface down: red bricks, plastic, car tires, glass, bottles, jars, rags, canvas, wires, wood, timber, plastic pipe debris, sheet metal, white mottling, (white material, granular to powder, possibly lime or sheet rock)

No groundwater encountered.

TP-35

0.0' – 1.0' FILL - Clayey Sand, light to medium gray-brown, dry to moist, loose, fine to coarse grained sand, trace fine to coarse gravel

1.0' – 3.0' FILL - Mixed Garbage in Sandy Clay Matrix: moderate strong odor of organic decomposition, white granulated mottling, (white material, granular to powder, possibly lime or sheet rock)

No groundwater encountered.

TP-36

0.0' – 1.5' FILL - Mixed Clayey Sand and Sandy Clay, gray-brown, dry to moist, loose, fine to coarse grained sand, trace fine gravel, minor debris mixed in, white mottling, (white material, granular to powder, possibly lime or sheet rock)

1.5' – 4.0' FILL - Mixed Silty and Sandy Clay with Garbage: glass, shoes, textiles, wood, ceramics

Groundwater encountered at 2.5'

TP-37

0.0' – 1.5' FILL - Silty Sand, light to medium gray-brown, dry to moist, loose, trace clay, fine to coarse grained sand, trace fine gravel and garbage

1.5' – 4.0' FILL - Mixed Silty Clay and Sandy Clay and Garbage: car tires, glass, bottles, wood, lumber, canvas rags, plastic, metal, broken ceramics, red bricks, tiles

No groundwater encountered.

TP-38

0.0' – 1.0'	FILL - Gravel ½" to 3" in diameter, gray-brown, very dense
1.0' – 5.0'	FILL - Mixed Silty and Sandy Clay, brown-gray, moist, stiff to very stiff, mixed-in debris: steel, glass, wood/lumber, tires, textiles
	No groundwater encountered.

TP-39

0.0' – 3.0'	FILL - Clayey Sand, gray-brown, moist, loose, fine to coarse grained sand, trace fine gravel, some garbage
3.0' – 4.0'	Silty Clay, light gray, moist, stiff
4.0' – 7.0'	Silty Clay, dark gray-brown to black, moist, stiff
	No groundwater encountered.

TP-40

0.0' – 1.0'	FILL - Silty Sand, brown-gray, dry to moist, loose, fine to coarse grained sand, trace fine to coarse gravel, some garbage, trace clay
1.0' – 7.0'	FILL - As above but with more garbage mixed in: glass, lots of broken wood, lumber, clothing pieces, metal, rubbish, plastic, concrete
	No groundwater encountered.

TP-41

0.0' – 1.0'	FILL - Mixed Silty and Sandy Clay and Clayey Sand, light to medium gray-brown, dry to moist, medium stiff/loose, fine to coarse grained sand, trace debris
1.0' – 5.0'	FILL - Landfill Debris in Clayey Sand Matrix, mottled light red-brown and gray-brown, moist, medium dense to loose, bottles, jars, steel, wired, bricks, cables, rags, plastic, broken tiles and ceramics
	No groundwater encountered.

TP-42

0.0' – 4.0'	FILL - Clayey Sand, gray-brown, dry to moist, loose to medium dense, trace debris, glass and broken dishes, etc., landfill debris
4.0' – 5.0'	FILL - Heavily Concentrated Landfill garbage at 4', strong odor of organic decomposition
	No groundwater encountered.

TP-43

0.0' – 1.0' FILL - Clayey Sand, gray-brown, dry to moist, loose, fine to coarse grained sand, trace fine to coarse gravel, trace debris: glass, broken ceramics, etc.

1.0' – 4.0' FILL - Heavily Concentrated Landfill Debris and Gravelly Sand Matrix, mottled gray-brown and light gray-brown, dry to moist, medium dense, car tires, car parts, glass, bottles, red bricks, tiles and broken tiles, concrete, rags, plastic, wire, paper, wood, rotten lumber, etc.

No groundwater encountered.

TP-44

0.0' – 2.0' FILL - Clayey Sand, gray-brown, dry to moist, loose, fine to coarse grained sand, trace fine to coarse gravel, various debris, glass and broken materials

2.0' – 4.0' FILL - White dumped sheetrock in landfill

4.0' – 5.5' FILL - Garbage, tires and all previously mentioned debris, moderate odor

Groundwater encountered at 5.0'

APPENDIX C

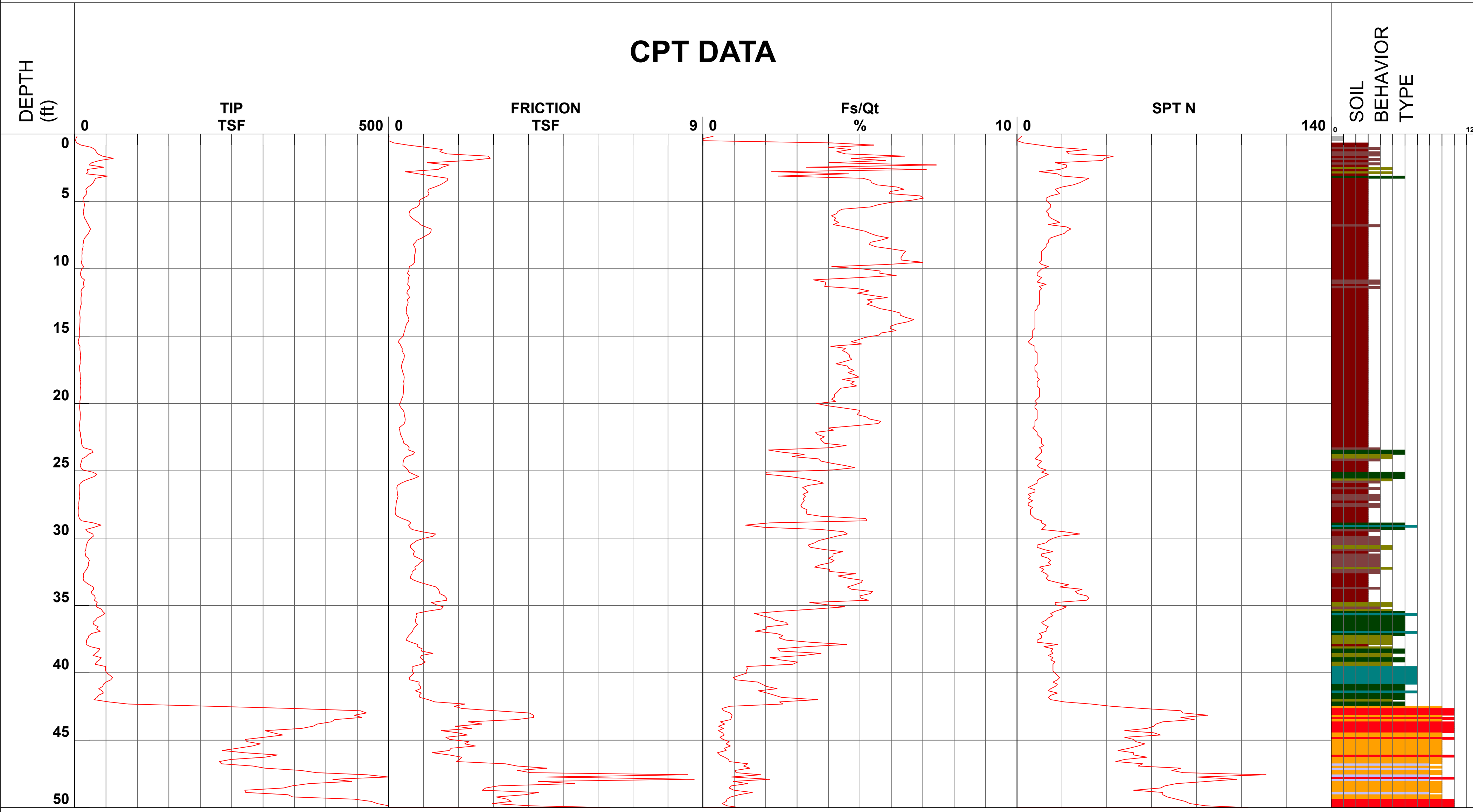
CPT Data Interpretation Plots – Adjoining & Nearby Sites

Berlogar Stevens & Associates

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(031).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-04	Date and Time	4/26/2018 12:19:26 PM	Maximum Depth	50.52 ft
EST GW Depth During Test			2.00 ft		

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

Cone Size 10cm squared

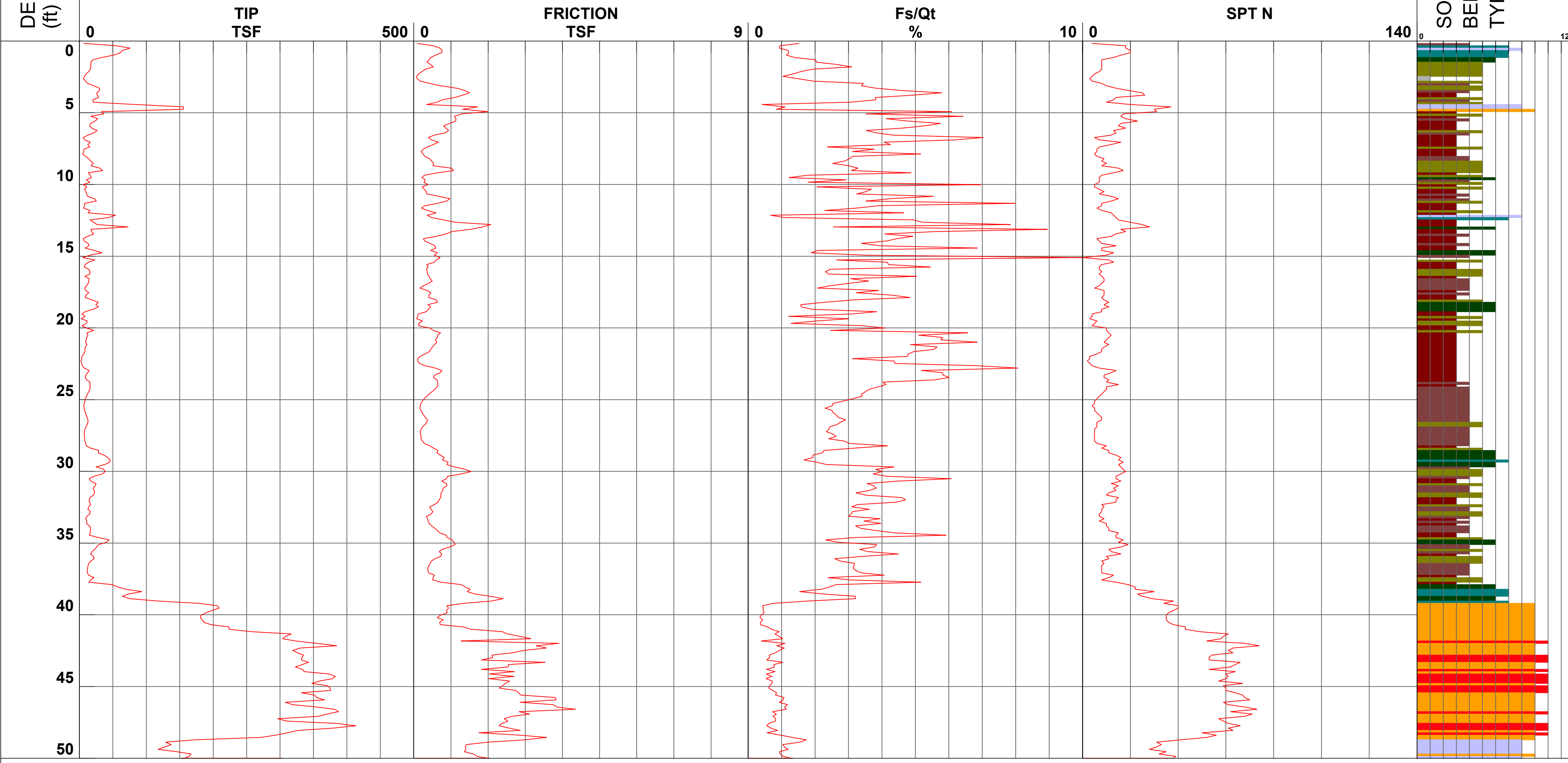
S*Soil behavior type and SPT based on data from UBC-1983

Berlogar Stevens & Associates

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(032).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-05	Date and Time	4/26/2018 1:35:03 PM	Maximum Depth	50.52 ft
EST GW Depth During Test		3.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

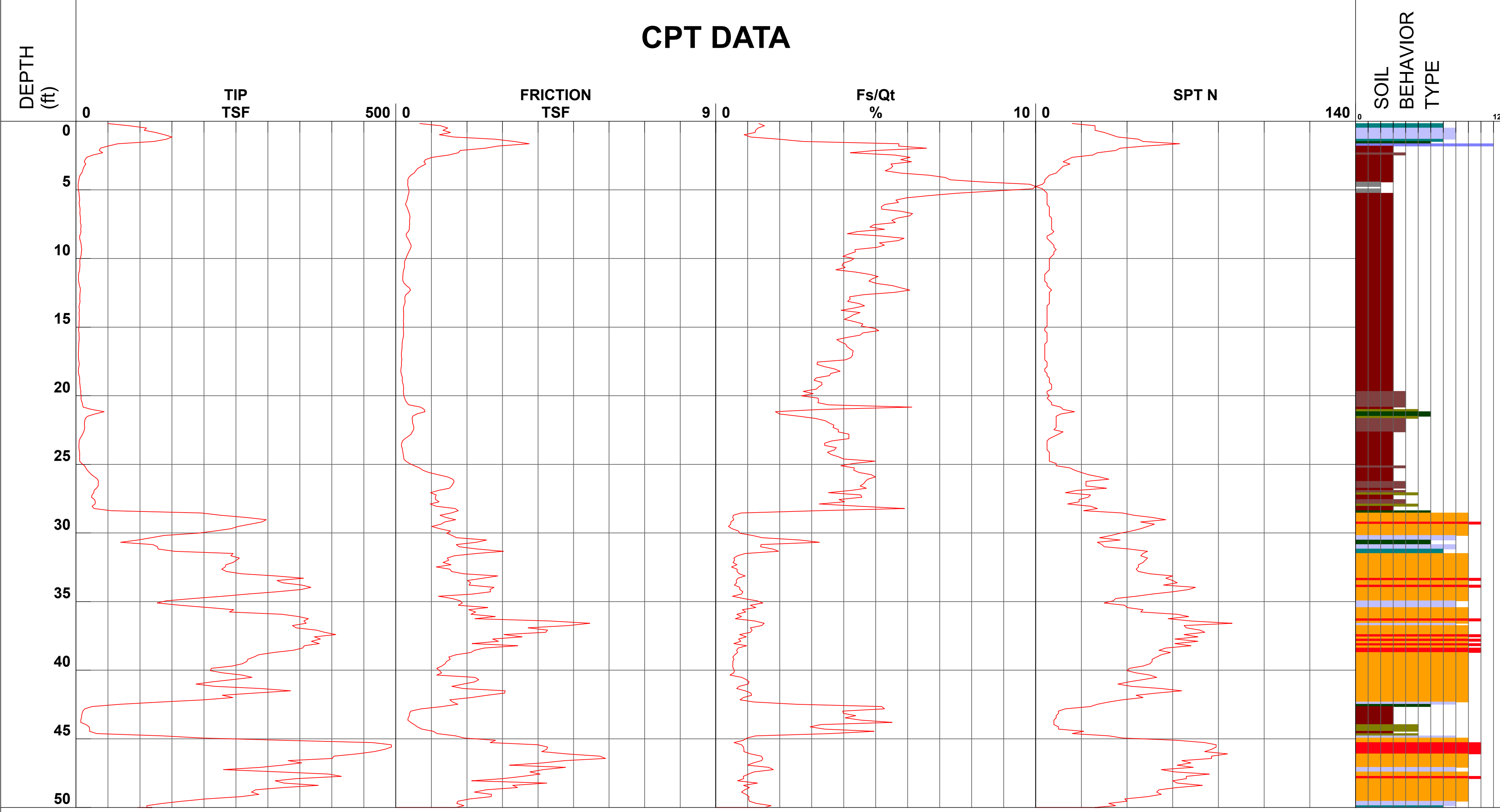
S*Soil behavior type and SPT based on data from UBC-1983

Berlogar Stevens & Associates

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(037).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-06	Date and Time	4/27/2018 10:29:17 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		1.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

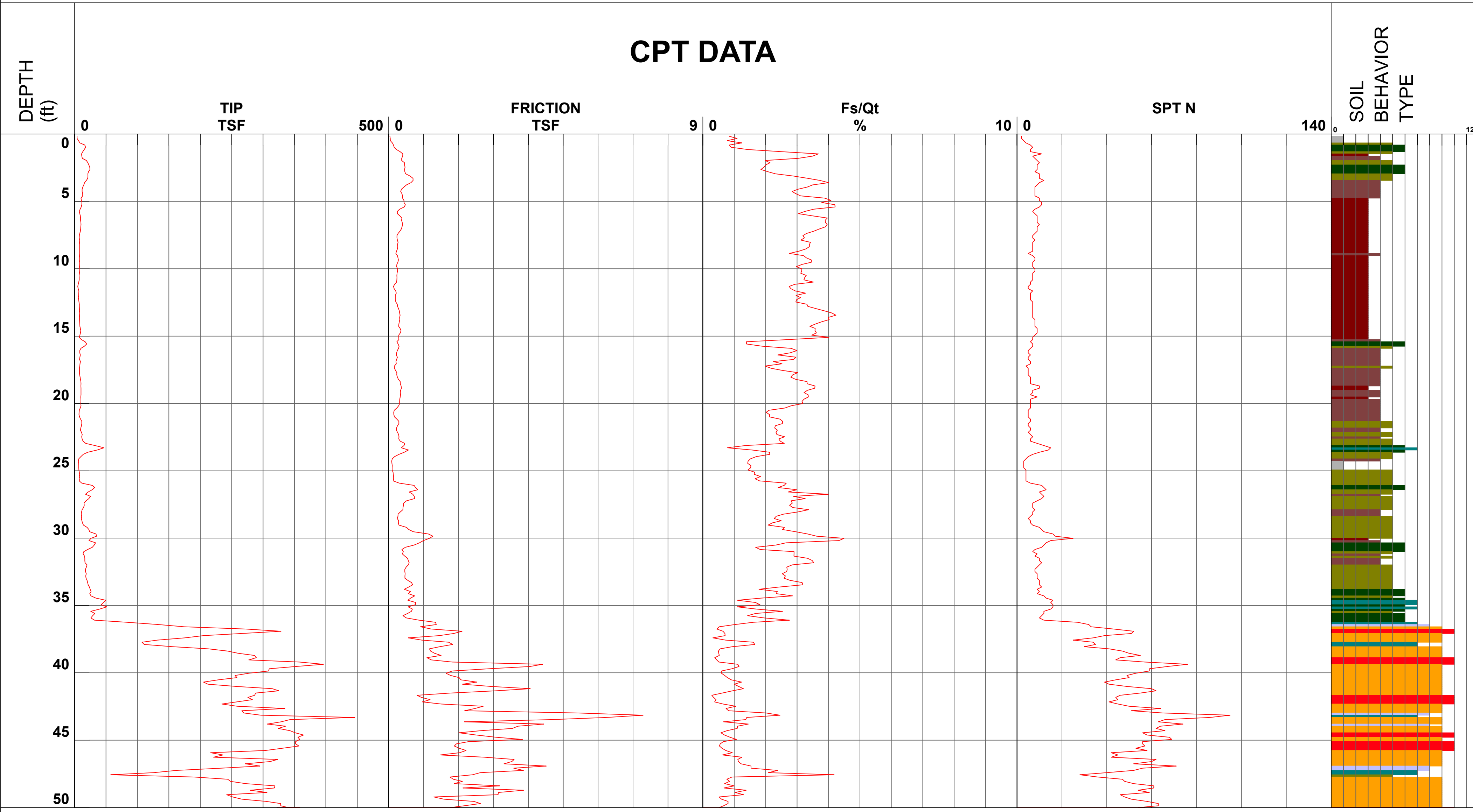
S*Soil behavior type and SPT based on data from UBC-1983

Berlogar Stevens & Associates

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(034).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-07	Date and Time	4/27/2018 6:53:02 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		2.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

Cone Size 10cm squared

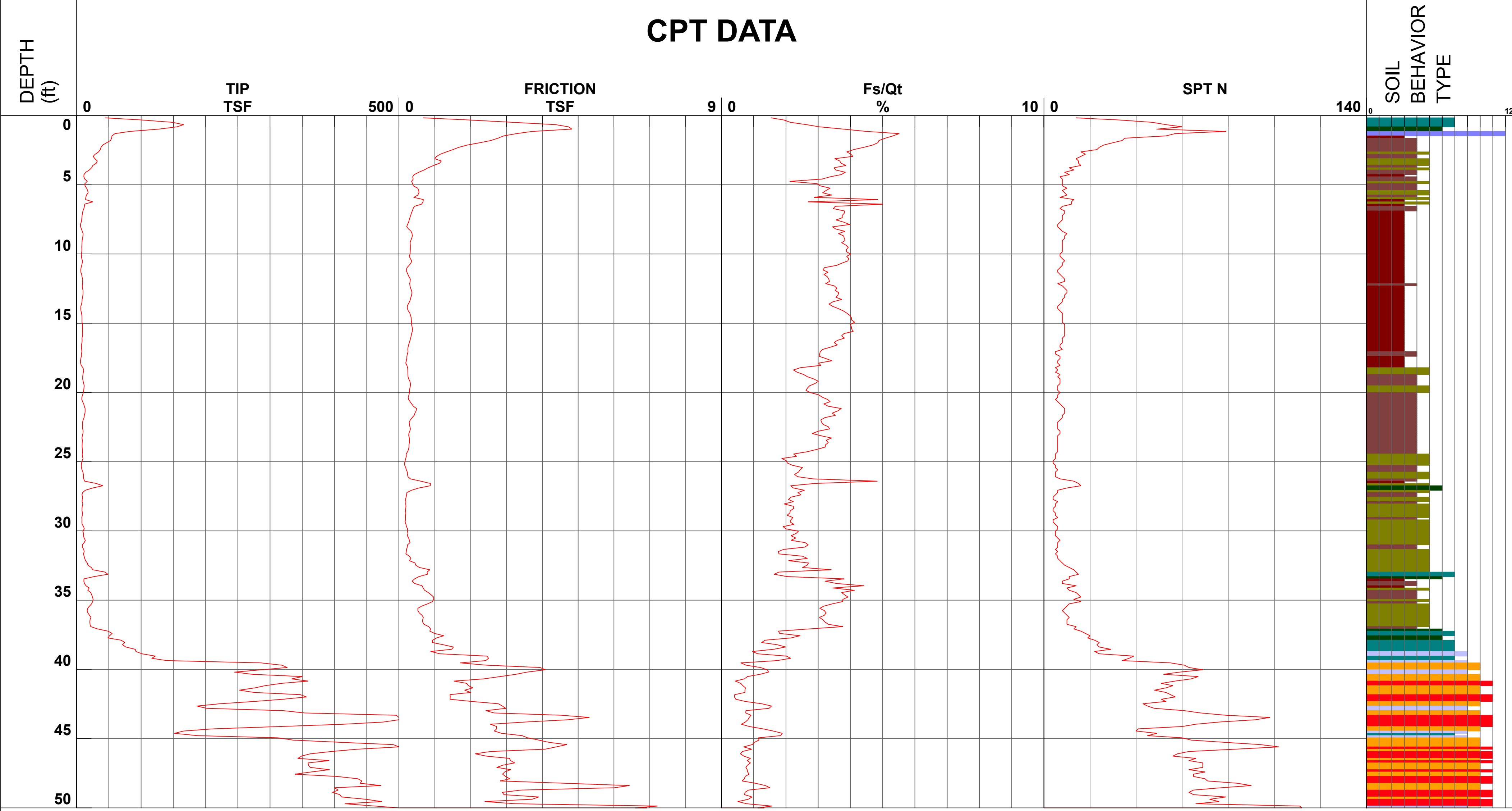
S*Soil behavior type and SPT based on data from UBC-1983

Berlogar Stevens & Associates

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(033).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-08	Date and Time	4/26/2018 3:03:54 PM	Maximum Depth	50.52 ft
EST GW Depth During Test		3.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

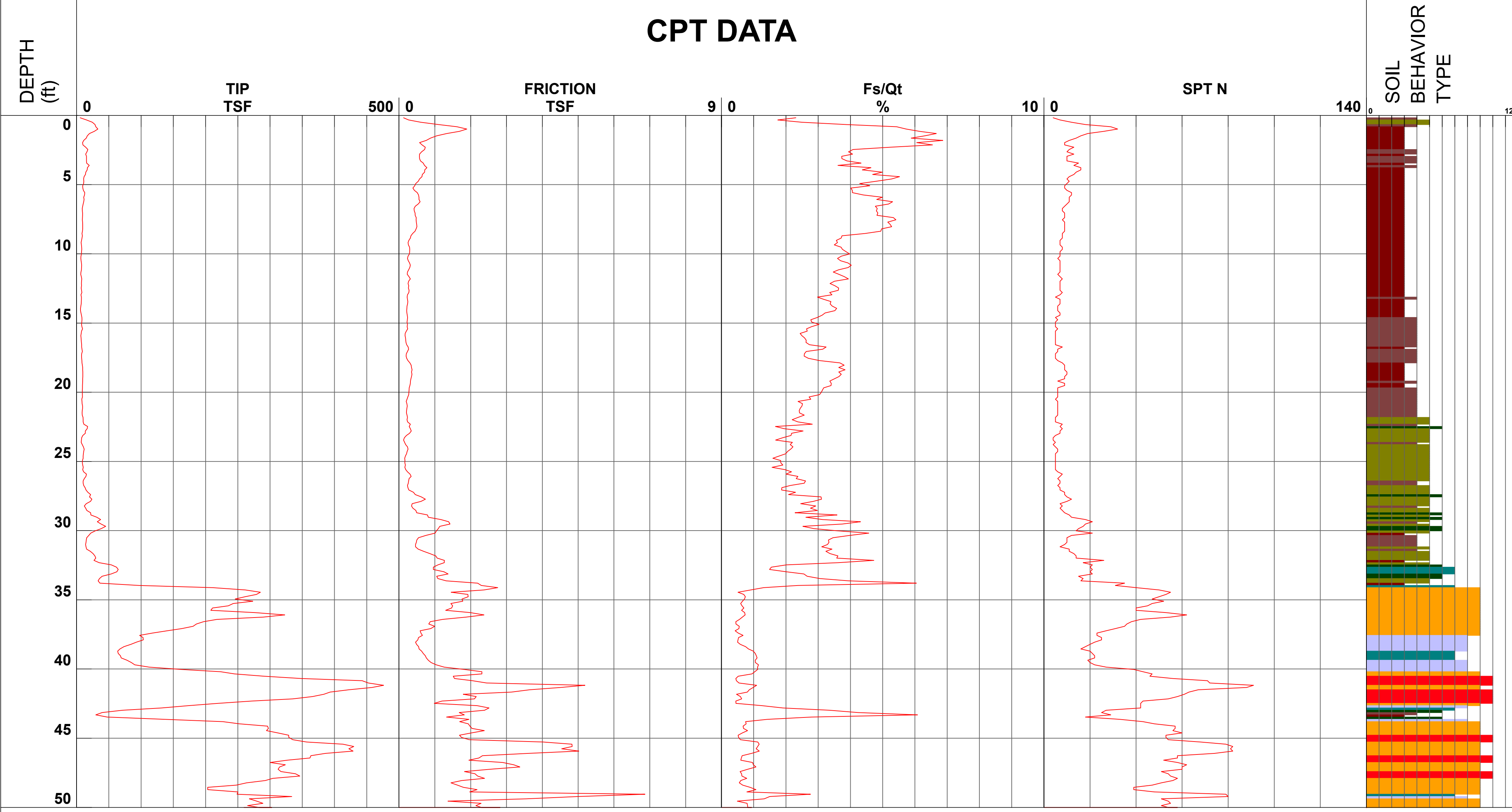
S*Soil behavior type and SPT based on data from UBC-1983

Berlogar Stevens & Associates

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(035).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-09	Date and Time	4/27/2018 7:59:27 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		1.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

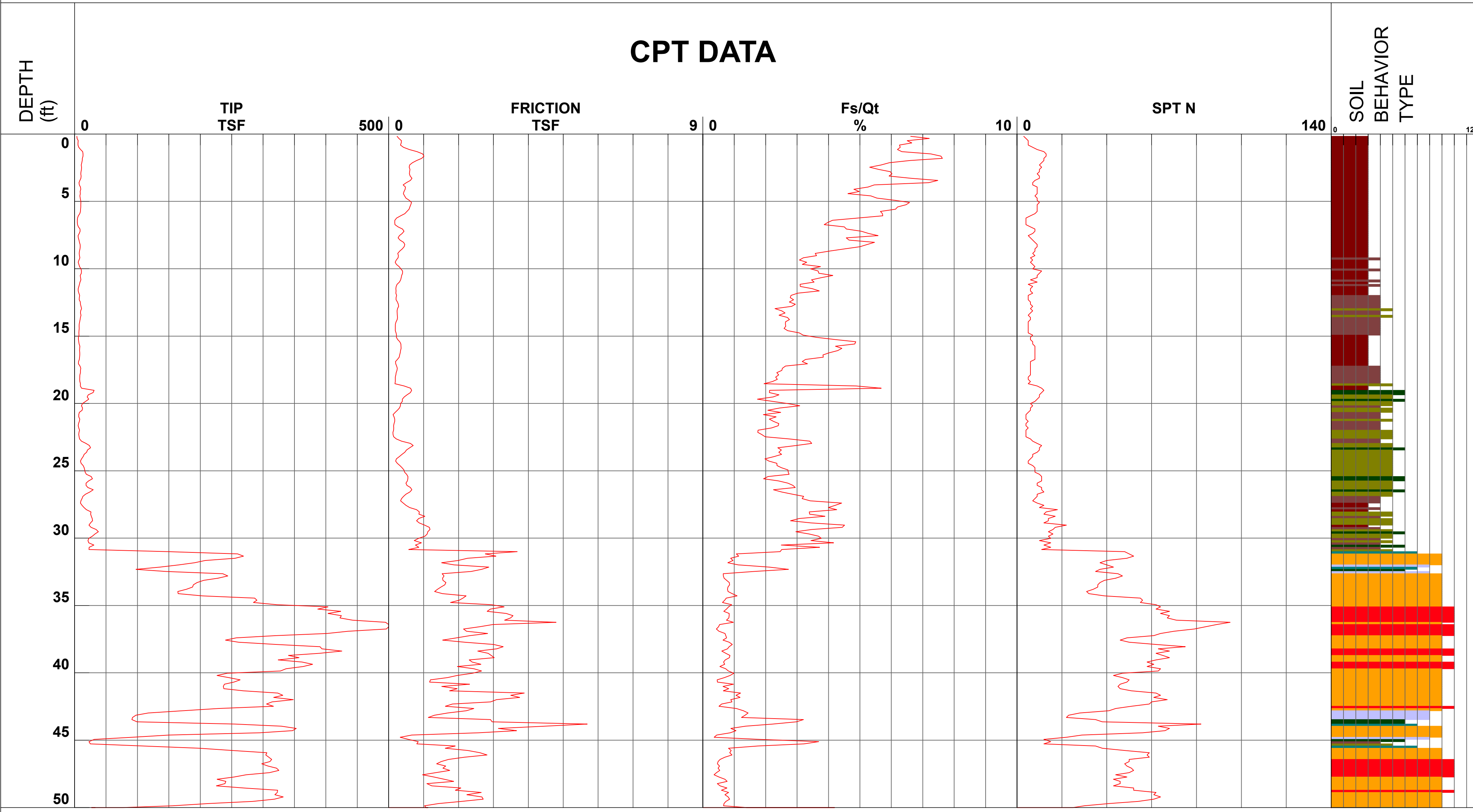
Berlogar Stevens & Associates

Middle Earth Geo Testing Inc.

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(036).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-10	Date and Time	4/27/2018 9:06:37 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		1.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

Cone Size 10cm squared

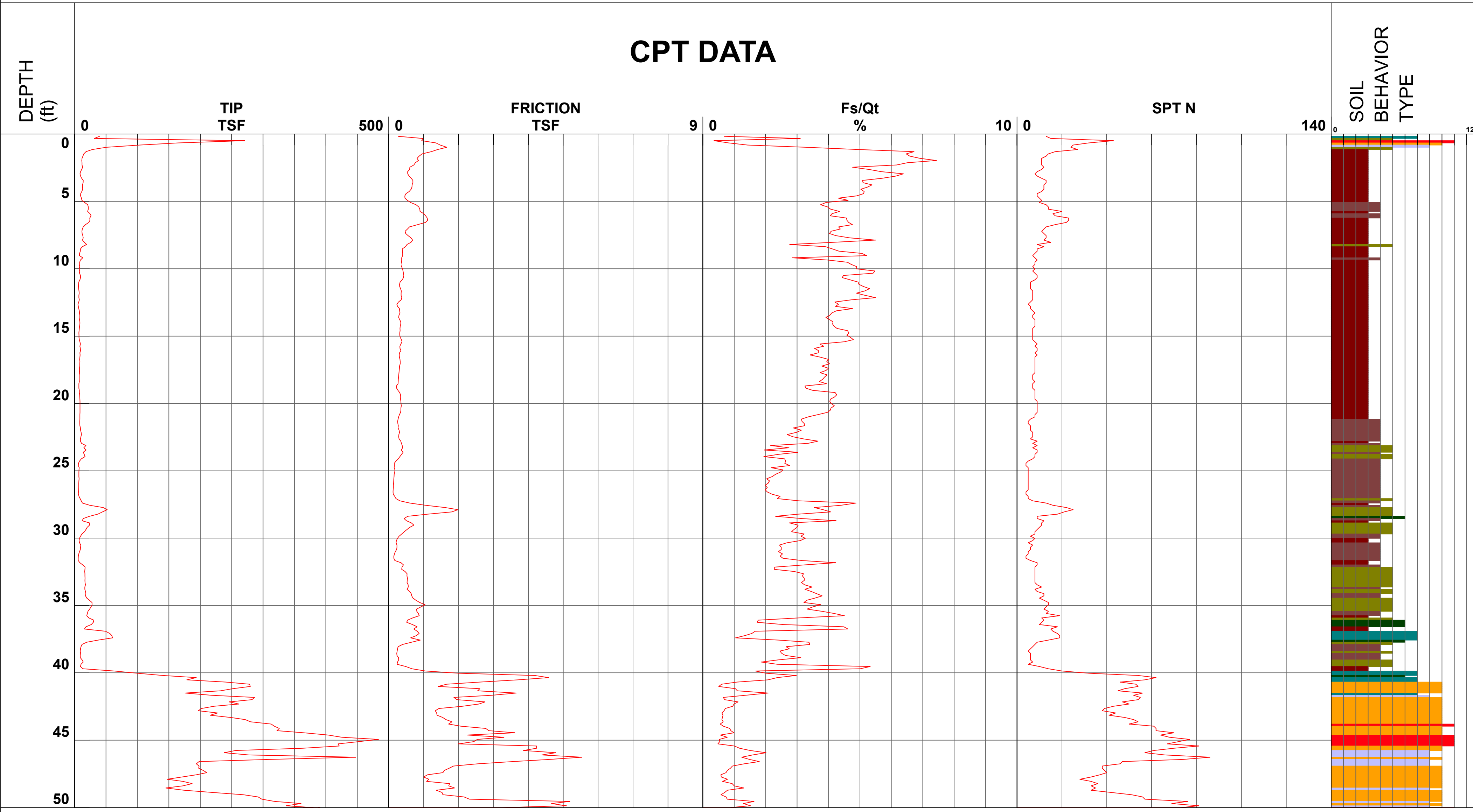
S*Soil behavior type and SPT based on data from UBC-1983

Berlogar Stevens & Associates

Project	Mowry Newark	Operator	RB-JM	Filename	SDF(038).cpt
Job Number	3959.100	Cone Number	DDG1350	GPS	
Hole Number	CPT-11	Date and Time	4/27/2018 11:45:19 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		1.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

APPENDIX D

Boring Logs – Adjoining & Nearby Sites

Berlogar Stevens & Associates
5587 Sunol Boulevard
Pleasanton, CA 94566

BORING NUMBER B-4

CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/9/18 **COMPLETED** 5/9/18
GROUND ELEVATION 11 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER: ∇ **AT TIME OF DRILLING** 8.00 ft / Elev 3.00 ft
▼ **AT END OF DRILLING** 8.00 ft / Elev 3.00 ft
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler
Shelby Tube

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
ML	SANDY SILT, CLAYEY, gray-brown, moist, very stiff, fine-to medium-grained sand, mixed with garbage, trace fine gravel, bottles, iron, sheetrock	10	0	Modified California	25	80	22.0	35	8	56
	below 3 feet, light gray-brown mottling			Modified California	35					
CL	SILTY CLAY, light brown-gray, moist, very stiff (fill)		5							
	plastic	5		Modified California	43	100	25.0			
	▼		10							
CL	SILTY CLAY, light gray, saturated, very stiff, trace organic matter	0		Modified California	41	89	33.0	46	21	
SM	SILTY SAND, light gray-brown, satuarated, medium dense, fine-grained sand		15							
		-5								
CH/CL	SILTY CLAY, light gray, saturated, stiff			Shelby Tube		82	36.0			
	below 19 feet, black to dark gray-brown									

Bottom of borehole at 19.5 feet.

**BERLOGAR WITH GROUNDWATER (2018) - GINT STD US.GDT - 4/1/19 09:44 - S:\PROJECTS\3959.102\3959.102 BORINGS.GPJ

Berlogar Stevens & Associates
5587 Sunol Boulevard
Pleasanton, CA 94566

BORING NUMBER B-5

CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/9/18 **COMPLETED** 5/9/18
GROUND ELEVATION 10.5 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER: ~~No Groundwater Encountered~~
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
			0							
CL	SILTY CLAY, gray-brown, moist, hard, trace fine-to medium-grained sand, white mottling	10								
				X	53					
CL	SILTY CLAY, mottled dark and light gray-brown, moist, medium stiff to hard, trace garbage mixed in glass and fabric etc..., some fine-to medium-grained sand									
				X	10	51	50.0			
		5	5							
				X	92					
CL/CH	SILTY CLAY, light gray, moist, very stiff									
		0	10							
				X	36					
		-5	15							
				X	37		32.0			
			20							

(Continued Next Page)

Berlogar Stevens & Associates
5587 Sunol Boulevard
Pleasanton, CA 94566

CLIENT Integral Communities

PROJECT NAME Proposed Residential Development

PROJECT NUMBER 3959.102

PROJECT LOCATION Mowry Avenue, Newark CA

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL/CH	SILTY CLAY, light gray, moist, very stiff *(continued)* below 20 feet, trace organic matter	-10	20		31	73	46.0			

Bottom of borehole at 21.5 feet.

**BERLOGAR NO GROUNDWATER (2018) - GINT STD US.GDT - 4/1/19 09:45 - S:\PROJECTS\3959.102\3959.102 BORINGS.GPJ

Berlogar Stevens & Associates
5587 Sunol Boulevard
Pleasanton, CA 94566

BORING NUMBER B-6

CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/10/18 **COMPLETED** 5/10/18
GROUND ELEVATION 4 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER: ▽ **AT TIME OF DRILLING** 8.00 ft / Elev -4.00 ft
▼ **AT END OF DRILLING** 8.00 ft / Elev -4.00 ft
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler
Shelby Tube

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL	SILTY CLAY, mottled light and medium gray-brown, moist, very stiff to hard, trace fine-to medium grained sand (fill)		0	Modified California Sampler	48	115	13.0	29	13	
CL/CH	SILTY CLAY, dark gray-brown, moist, stiff, trace fine-grained sand	0		Modified California Sampler	22	57	62.0			
CL	SILTY CLAY, mottled light gray and black, moist, stiff		5							
CL/CH	SILTY CLAY, light gray, moist, stiff			Modified California Sampler	20	87	33.0			
	▼	-5	10							
	below 12 feet, trace organic matter	-10	15	Shelby Tube						
		-15	20							

(Continued Next Page)

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Pleasanton, CA 94566

BORING NUMBER B-6

CLIENT Integral Communities

PROJECT NUMBER 3959.102

PROJECT NAME Proposed Residential Development

PROJECT LOCATION Mowry Avenue, Newark CA

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
SM	SILTY SAND, light gray-brown, saturated, medium dense, fine-grained sand		20		33	104	23.0			67
CL	SANDY CLAY, light gray-brown, saturated, very stiff									

Bottom of borehole at 21.5 feet.

**BERLOGAR WITH GROUNDWATER (2018) - GINT STD US.GDT - 4/1/19 09:44 - S:\PROJECTS\3959.102\3959.102 BORINGS.GPJ

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER B-7

CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/10/18 **COMPLETED** 5/10/18
GROUND ELEVATION 8 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER ▽ **AT TIME OF DRILLING** 18.00 ft / Elev -10.00 ft
▼ **AT END OF DRILLING** 18.00 ft / Elev -10.00 ft
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL	SILTY CLAY, dark gray-brown, moist, stiff		0							
CL	SILTY CLAY, light brown-gray, moist, stiff				31					
CL	SILTY CLAY, light gray, moist to wet, medium stiff to stiff, limonite stains	5			18	90	31.0			
			5		20					
		0								
	below 10 feet, very stiff		10		24					
CL/CH	SILTY CLAY, green-gray, moist, very stiff, dark gray mottling	-5								
			15		31	86	35.0			
CL	▼ SILTY CLAY, dark green-gray, saturated, hard, some fine-grained sand, trace organic matter	-10								
			20							

(Continued Next Page)

CLIENT Integral Communities

PROJECT NUMBER 3959.102

PROJECT NAME Proposed Residential Development

PROJECT LOCATION Mowry Avenue, Newark CA

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL	SILTY CLAY, dark green-gray, saturated, hard, some fine-grained sand, trace organic matter *(continued)*		20		46	100	24.0			

Bottom of borehole at 21.5 feet.

**BERLOGAR WITH GROUNDWATER (2018) - GINT STD US.GDT - 4/1/19 09:44 - S:\PROJECTS\3959.102\3959.102 BORINGS.GPJ

Berlogar Stevens & Associates
5587 Sunol Boulevard
Pleasanton, CA 94566

BORING NUMBER B-8

CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/10/18 **COMPLETED** 5/10/18
GROUND ELEVATION 13 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER: ▽ **AT TIME OF DRILLING** 5.00 ft / Elev 8.00 ft
▼ **AT END OF DRILLING** 5.00 ft / Elev 8.00 ft
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler | Shelby Tube

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL	SILTY CLAY, medium to dark gray-brown, moist, very stiff, trace fine-to medium-grained sand, crushed rock on surface		0							
				Modified California	42					
CL/ML	SILTY CLAY/CLAYEY SILT, some sand, light gray-brown, moist, very stiff	10								
				Modified California	38	107	19.0			83
SM	▼ SILTY SAND, light gray-brown, saturated, medium dense, fine-grained sand		5							
				Modified California	16	99	23.0			47
		5								
CL	SILTY CLAY, light gray-brown, saturated, stiff to very stiff									
			10							
		0		Shelby Tube						
CL/CH	SILTY CLAY, gray, saturated, stiff to very stiff, limonite stains			Shelby Tube		85	32.0			
			15							
		-5								
			20							

(Continued Next Page)

CLIENT Integral Communities
PROJECT NUMBER 3959.102
PROJECT NAME Proposed Residential Development
PROJECT LOCATION Mowry Avenue, Newark CA

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
			20							
CL/CH	SILTY CLAY, gray, saturated, stiff to very stiff, limonite stains *(continued)*									
		-10			18	85	36.0			

Bottom of borehole at 23.5 feet.

Berlogar Stevens & Associates
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Pleasanton, CA 94566

BORING NUMBER B-9

CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/10/18 **COMPLETED** 5/10/18
GROUND ELEVATION 6 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER ∇ **AT TIME OF DRILLING** 13.00 ft / Elev -7.00 ft
▼ **AT END OF DRILLING** 13.00 ft / Elev -7.00 ft
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler
Shelby Tube

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL/CH	SILTY CLAY, dark gray-brown, moist, very stiff	5	0							
				Modified California Sampler	31	90	29.0			
CL	SILTY CLAY, light gray, moist, very stiff, limonite stains									
				Modified California Sampler	36					
CL/ML	SILTY CLAY/CLAYEY SILT, light to medium gray, moist, very stiff, medium dense, limonite stains	0	5	Modified California Sampler	26	92	32.0			
CL	SILTY CLAY, light to medium gray, moist, very stiff, limonite stains	-5	10	Shelby Tube		84	32.0			
OL	▼ ORGANIC CLAYEY SILT, black, saturated, stiff									
CL/CH	ORGANIC SILTY CLAY, light gray, saturated, very stiff, trace gray mottling	-10	15	Modified California Sampler	26	91	32.0			
CL/ML	CLAY SILT/CLAY, light gray-brown, saturated, medium dense, fine-grained sand		20							

(Continued Next Page)

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Pleasanton, CA 94566

CLIENT Integral Communities

PROJECT NAME Proposed Residential Development

PROJECT NUMBER 3959.102

PROJECT LOCATION Mowry Avenue, Newark CA

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
			20							
CL/ML	SILTY CLAY/CLAYEY SILT, light gray-brown, saturated, medium dense, trace fine-grained sand, limonite stains	-15			22	98	27.0	27	6	

Bottom of borehole at 21.5 feet.

**BERLOGAR WITH GROUNDWATER (2018) - GINT STD US.GDT - 4/1/19 09:44 - S:\PROJECTS\3959.102\3959.102 BORINGS.GPJ

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Pleasanton, CA 94566

CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/10/18 **COMPLETED** 5/10/18
GROUND ELEVATION 9 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER: ▽ **AT TIME OF DRILLING** 8.00 ft / Elev 1.00 ft
▼ **AT END OF DRILLING** 8.00 ft / Elev 1.00 ft
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler
Shelby Tube

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL	SILTY CLAY, dark gray-brown, moist, very stiff, some fine-to coarse-grained sand, trace fine-to coarse gravel, minor debris , bricks and concrete on surface (fill)		0							
				Modified California	25	97	25.0			86
CL	SILTY CLAY, light brown-gray, moist, very stiff, limonite stains									
		5		Modified California	35					
			5	Modified California	27	93	31.0			
CL	▼ SILTY CLAY, light gray, moist to wet, very stiff, limonite stains	0								
			10	Modified California	28					
CL	SILTY CLAY, gray, moist, very stiff, minor dark gray mottling	-5								
			15	Modified California	24					
		-10	20							

(Continued Next Page)

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CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
CL	SILTY CLAY, gray, moist, very stiff, minor dark gray mottling *(continued)*		20			84	35.0			

Bottom of borehole at 22.5 feet.

**BERLOGAR WITH GROUNDWATER (2018) - GINT STD US.GDT - 4/1/19 09:44 - S:\PROJECTS\3959.102\3959.102 BORINGS.GPJ

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CLIENT Integral Communities
PROJECT NAME Proposed Residential Development
PROJECT NUMBER 3959.102
PROJECT LOCATION Mowry Avenue, Newark CA
DATE STARTED 5/10/18 **COMPLETED** 5/10/18
GROUND ELEVATION 10 ft **LOGGED BY** ROV
DRILLING CONTRACTOR EGI
GROUNDWATER: ▽ **AT TIME OF DRILLING** 12.00 ft / Elev -2.00 ft
▼ **AT END OF DRILLING** 12.00 ft / Elev -2.00 ft
DRILLING EQUIPMENT
HAMMER
NOTES

Modified California Sampler | Shelby Tube

USCS	MATERIAL DESCRIPTION	ELEVATION (ft)	DEPTH (ft)	SAMPLER	BLOW COUNT	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	FINES CONTENT PASSING #200
		10	0							
SP	GRAVELLY SAND, gray-brown, moist, medium dense, fine-to coarse-grained sand, fine-to coarse gravel, trace concrete and asphalt concrete debris, trace clay and silt (fill)									
CL	SILTY CLAY, gray-brown, moist, very stiff, trace fine-to medium-grained sand			Modified California Sampler	37					
				Modified California Sampler	32					
CL	SILTY CLAY, light gray, moist, very stiff	5	5							
				Modified California Sampler	30					
CL/CH	SILTY CLAY, light to medium gray, moist, very stiff, limonite stains									
		0	10							
				Modified California Sampler	41					
	▼									
ML/CL	SILTY CLAY/CLAYEY SILT, light gray, saturated, medium dense									
		-5	15							
				Shelby Tube		75	43.0			
OL	ORGANIC CLAYEY SILT, black, saturated									

Bottom of borehole at 18.5 feet.

**BERLOGAR WITH GROUNDWATER (2018) - GINT STD US.GDT - 4/1/19 09:44 - S:\PROJECTS\3959.102\3959.102 BORINGS.GPJ

APPENDIX E

U.S. Seismic Design Maps and
U.S. Geological Survey Unified Hazard Tool Report

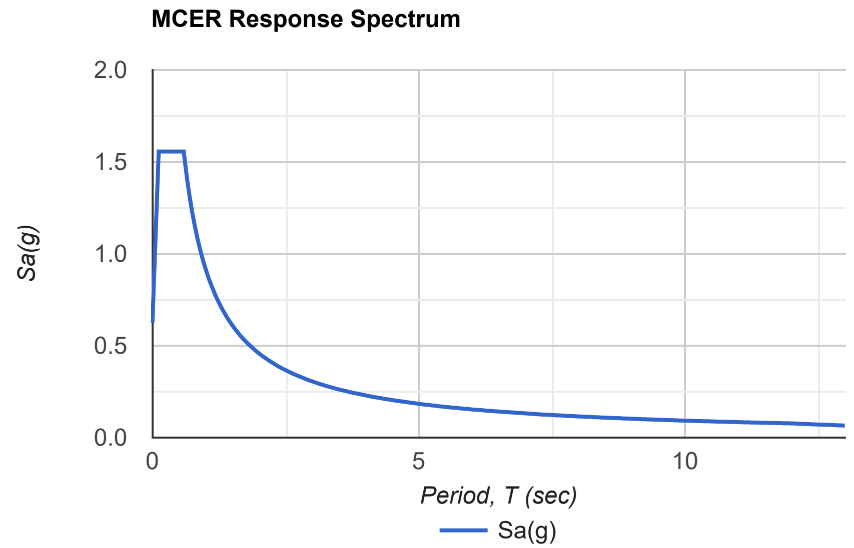
Pick-N-Pull

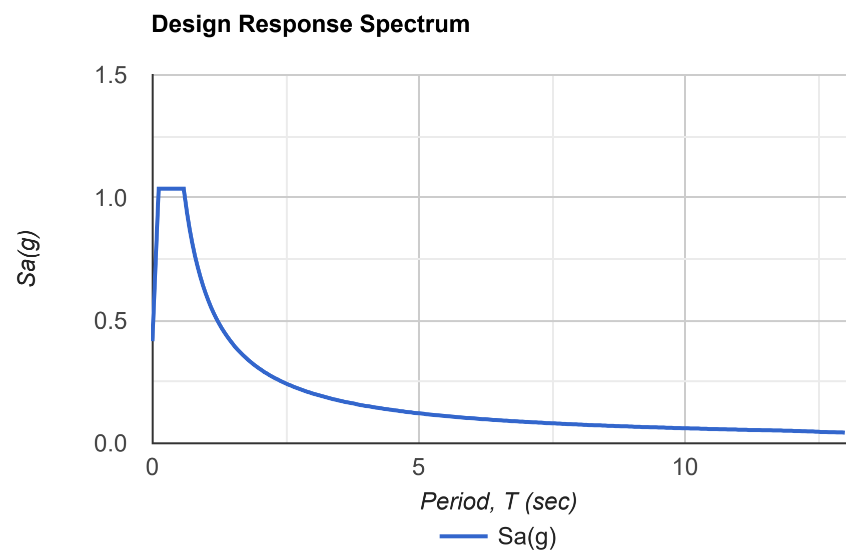
Latitude, Longitude: 37.5116, -122.0120

Date	4/1/2019, 9:15:28 AM
Design Code Reference Document	ASCE7-10
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.555	MCE_R ground motion. (for 0.2 second period)
S_1	0.61	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.555	Site-modified spectral acceleration value
S_{M1}	0.915	Site-modified spectral acceleration value
S_{DS}	1.037	Numeric seismic design value at 0.2 second SA
S_{D1}	0.61	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	D	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.602	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.602	Site modified peak ground acceleration
T_L	12	Long-period transition period in seconds
SsRT	2.409	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.267	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.555	Factored deterministic acceleration value. (0.2 second)
S1RT	0.864	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.838	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.61	Factored deterministic acceleration value. (1.0 second)
PGAd	0.602	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	1.063	Mapped value of the risk coefficient at short periods
C_{R1}	1.031	Mapped value of the risk coefficient at a period of 1 s





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U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (v4.1.

Spectral Period

Peak ground acceleration

Latitude

Decimal degrees

37.5116

Time Horizon

Return period in years

475

Longitude

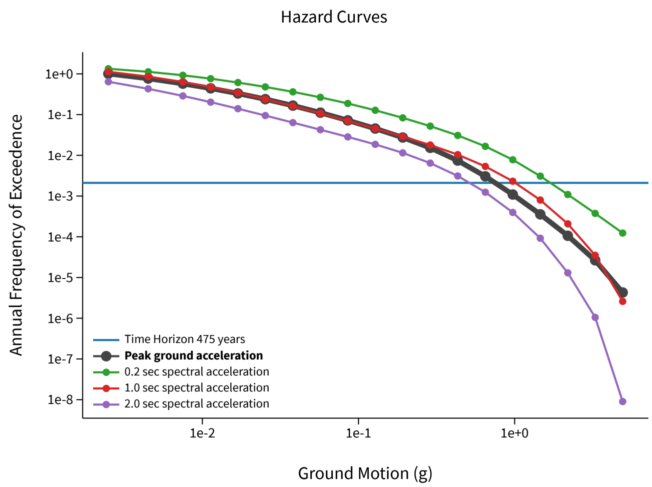
Decimal degrees, negative values for western longitudes

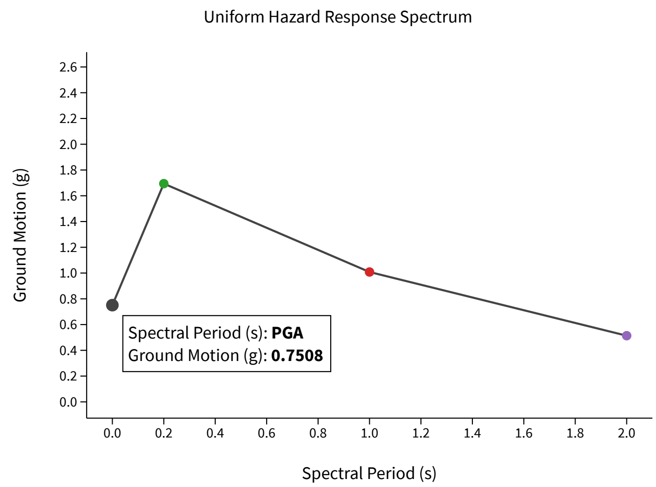
-122.012

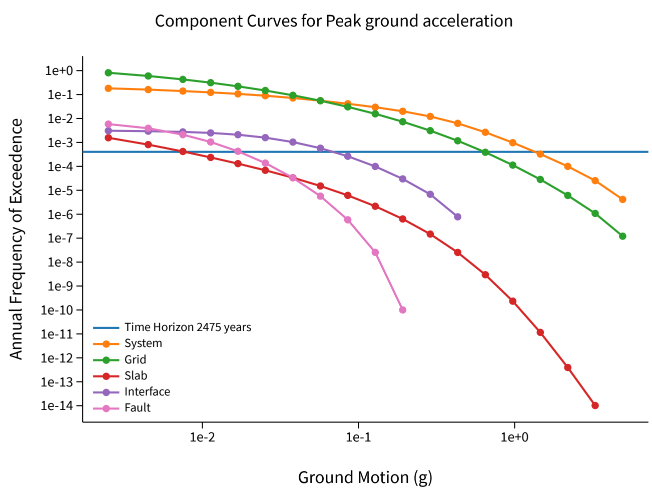
Site Class

259 m/s (Site class D)

Hazard Curve





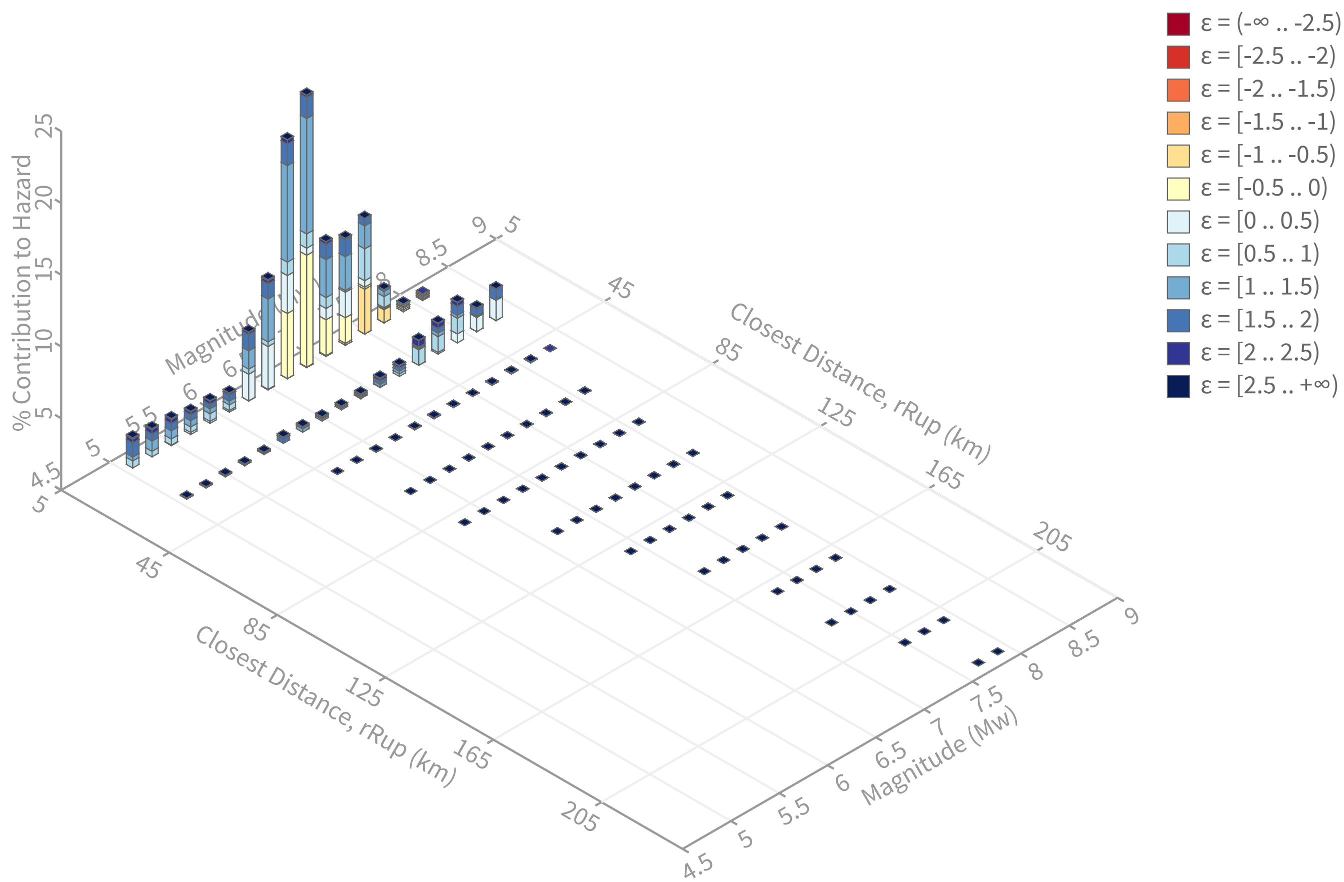


View Raw Data

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 475 yrs
Exceedance rate: 0.0021052632 yr^{-1}
PGA ground motion: 0.75078461 g

Recovered targets

Return period: 518.20484 yrs
Exceedance rate: 0.0019297388 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.17 %

Mean (for all sources)

r: 11.24 km
m: 6.88
ε_0: 0.85 σ

Mode (largest r-m bin)

r: 7.97 km
m: 6.88
ε_0: 0.67 σ
Contribution: 18.97 %

Mode (largest ε_0 bin)

r: 7.29 km
m: 6.88
ε_0: 1.26 σ
Contribution: 8.04 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

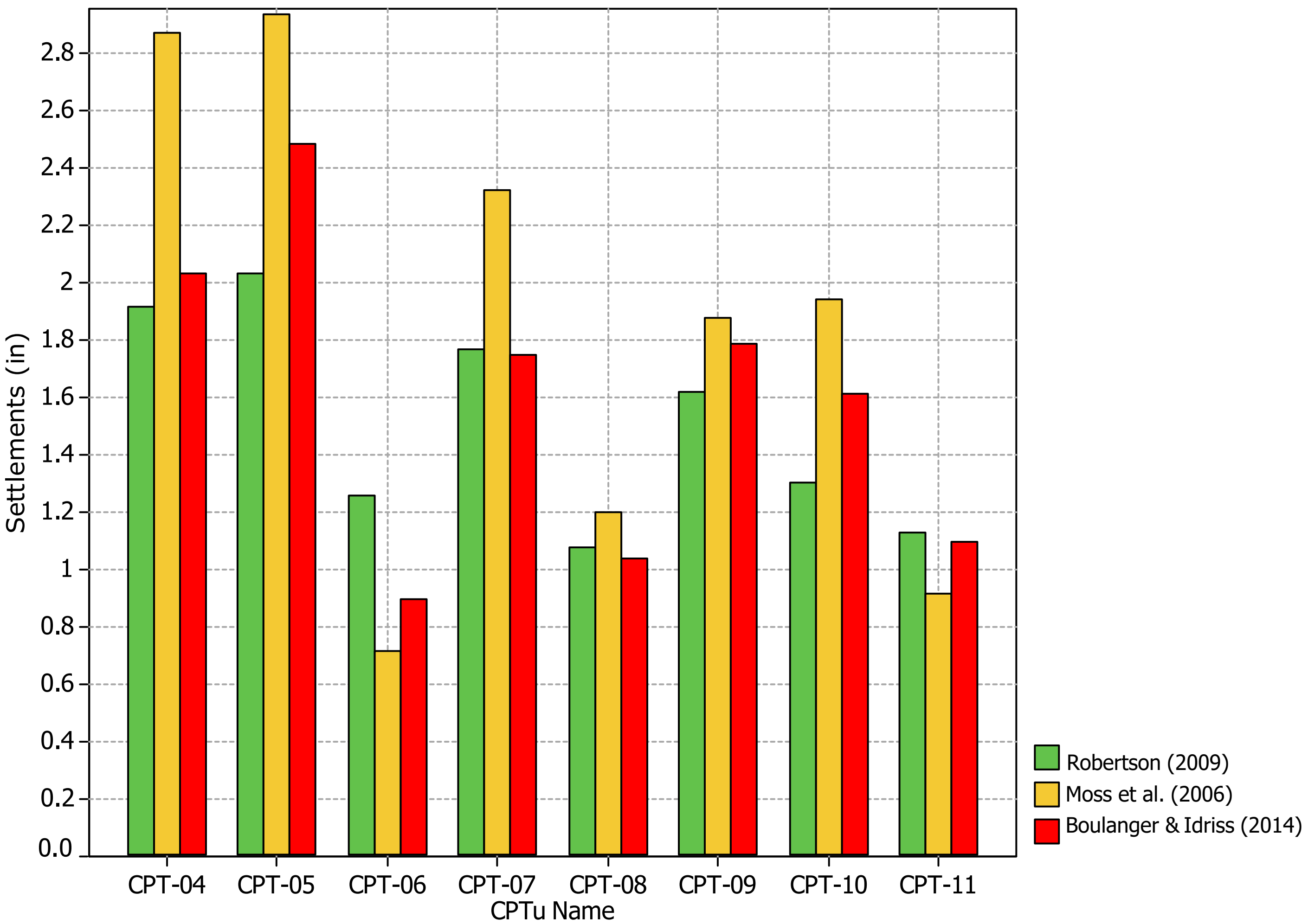
Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM31	System							44.51
Hayward (So) [2]		7.19	6.95	0.59	121.947°W	37.538°N	62.80	24.39
San Andreas (Peninsula) [4]		23.98	7.91	0.94	122.233°W	37.386°N	234.45	4.21
Calaveras (No) [5]		14.29	7.16	0.98	121.864°W	37.554°N	69.95	4.10
Hayward (So) [3]		7.23	6.75	0.70	121.953°W	37.545°N	54.08	3.45
Mission (connected) [4]		8.32	6.77	0.77	121.944°W	37.563°N	46.05	1.67
UC33brAvg_FM32	System							44.17
Hayward (So) [2]		7.19	6.95	0.59	121.947°W	37.538°N	62.80	24.30
San Andreas (Peninsula) [4]		23.98	7.91	0.94	122.233°W	37.386°N	234.45	4.25
Calaveras (No) [5]		14.29	7.15	0.99	121.864°W	37.554°N	69.95	4.18
Hayward (So) [3]		7.23	6.75	0.70	121.953°W	37.545°N	54.08	3.58
Mission (connected) [4]		8.32	6.76	0.78	121.944°W	37.563°N	46.05	1.47
UC33brAvg_FM32 (opt)	Grid							5.66
PointSourceFinite: -122.012, 37.525		5.28	5.47	1.05	122.012°W	37.525°N	0.00	1.02
PointSourceFinite: -122.012, 37.525		5.28	5.47	1.05	122.012°W	37.525°N	0.00	1.02
UC33brAvg_FM31 (opt)	Grid							5.66
PointSourceFinite: -122.012, 37.525		5.28	5.47	1.05	122.012°W	37.525°N	0.00	1.02
PointSourceFinite: -122.012, 37.525		5.28	5.47	1.05	122.012°W	37.525°N	0.00	1.02

APPENDIX F

Liquefaction-Induced Settlement Potential

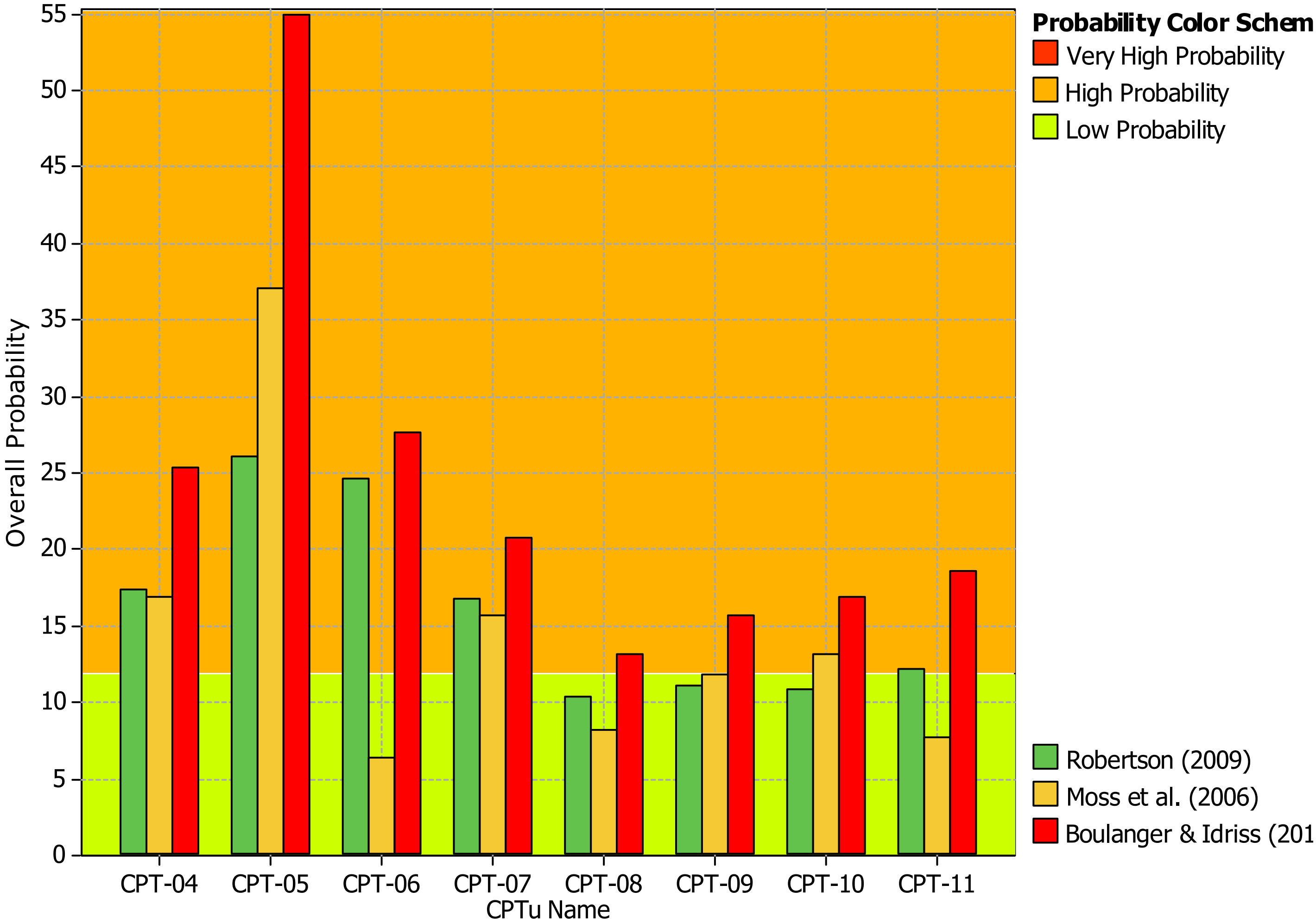
Overall Parametric Assessment Method



:: CPT main liquefaction parameters details ::

CPT Name	Earthquake Mag.	Earthquake Accel.	GWT in situ (ft)	GWT earthq. (ft)
CPT-04	6.95	0.60	4.00	4.00
CPT-05	6.95	0.60	4.00	4.00
CPT-06	6.95	0.60	4.00	4.00
CPT-07	6.95	0.60	4.00	4.00
CPT-08	6.95	0.60	4.00	4.00
CPT-09	6.95	0.60	4.00	4.00
CPT-10	6.95	0.60	4.00	4.00
CPT-11	6.95	0.60	4.00	4.00

Overall Parametric Assessment Method



:: CPT main liquefaction parameters details ::

CPT Name	Earthquake Mag.	Earthquake Accel.	GWT in situ (ft)	GWT earthq. (ft)
CPT-04	6.95	0.60	4.00	4.00
CPT-05	6.95	0.60	4.00	4.00
CPT-06	6.95	0.60	4.00	4.00
CPT-07	6.95	0.60	4.00	4.00
CPT-08	6.95	0.60	4.00	4.00
CPT-09	6.95	0.60	4.00	4.00
CPT-10	6.95	0.60	4.00	4.00
CPT-11	6.95	0.60	4.00	4.00

DRAFT
DESIGN LEVEL GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
PICK-N-PULL – 7400 MOWRY AVENUE
NEWARK, CALIFORNIA

For

THE MOWRY PROJECT OWNER, LLC

June 15, 2021

Job No. 4093.101

BERLOGAR STEVENS & ASSOCIATES

Via E-Mail Only

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ASSOCIATES

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Job No. 4093.101

Mr. Vince Fletcher
The Mowry Project Owner, LLC
500 La Gonda Way, Suite 102
Danville, California 94526

Subject: **DRAFT**
Design Level Geotechnical Investigation
Proposed Residential Development
Pick-N-Pull - 7400 Mowry Avenue
Newark, California

Dear Mr. Fletcher:

Berlogar Stevens & Associates (BSA) is pleased to present our Design Level Geotechnical Investigation report for the Proposed Residential Development at the Pick-N-Pull site, 7400 Mowry Avenue in Newark, California. We previously provided a Due Diligence Geotechnical Assessment for the site dated April 19, 2019. The scope of this assessment, our findings and conclusions regarding geologic hazards, and the geotechnical aspects of the soils and groundwater table with respect to development of the site are presented below.

PROPOSED DEVELOPMENT

Proposed development of the site is a residential subdivision with single-family detached houses. The houses are anticipated to be two-story and possibly three-story wood frame buildings supported on structural concrete slabs-on-grade. Based on the Preliminary Grading and Drainage Plans dated April 28, 2021 by CBG, the proposed subdivision will consist of 204 Lots and 2 water quality bioretention basins. Development of the site will require import of fill to raise site grades. Preliminary conceptual grading plans include pad elevations between 13 and 16 feet. Grading of the site will include filling the southern portion of the site between 5 and 8 feet and filling the northern portion of the site between 3 and 5 feet. Site development will also include construction of underground utilities, and public and/or private roads.

PROJECT SITE

The proposed project site is located on the east side of Mowry Avenue at the southwestern limits of the City Newark. The site is adjacent to marshlands at the eastern fringe of the San Francisco Bay, as shown on the Vicinity Map, Plate 1. The subject property is identified on the Site Plan, Plate 2. The southern portion of site, currently is being operated on by Pick-N-Pull Auto Dismantlers (PN). The northern portion of the site is a grass field, which appears to have been routinely disced. The site totals approximately 28 acres.

The northern parcel of the site is roughly triangular in shape, occupies an area of about 10 acres and is undeveloped. Topography indicates fill has been placed in the central area of the undeveloped parcel. The surface elevation is about Elevation 10 feet around the perimeter of the site with rising to about Elevation 15 feet in the center of this parcel.

The southern portion of the site has an area of about 18 acres. Site topography is slightly sloping with an approximate elevation 10 feet on the west and 4 ½ feet on the east. The Pick N Pull salvage yard contains a 13,000 square foot warehouse, a 1,500 square foot office and a 3,000 square foot covered shed presumably supported on shallow foundations

PURPOSE AND SCOPE OF SERVICES

The purpose of this Design Level Geotechnical Investigation was to further evaluate the soil and groundwater conditions, as well as potential geologic hazards, and to assess the potential impacts of those conditions on the proposed development of the site as a residential subdivision. The scope of services for this assessment included the following:

- Examination of historical topographic maps and aerial photographs of the site and vicinity,
- Review of readily available published geotechnical and geologic literature, and geologic maps pertinent to the area,
- Review of boring and test pits logs and cone penetration test interpretation plots prepared by BSA during subsurface investigations on adjoining and nearby sites, for subsurface logs,
- Review of boring logs prepared by Haley & Aldrich, Inc. in January 2019 during their environmental site assessment, and
- Obtain a Drilling Permit from Alameda County Water District (ACWD)
- Perform 3 Cone Penetration Tests (CPTs). The Seismic CPT extended to a depth of 100 feet. The other CPT's extended to a depth of 50 feet.
- Excavate 15 test pits to depths ranging between 5 and 8 feet.
- Preparation of this report.

GEOLOGY

Geologic Setting

The subject site is located in the eastern portion of the San Francisco Bay Region within the Coast Ranges Geomorphic Province of California. The Coast Ranges Geomorphic Province borders the coast of California and generally consists of more or less discontinuous series northwesterly/southeasterly trending mountain ranges, ridges, and intervening valleys characterized by intense, complex folding and faulting. Numerous northwest to southeast trending faults parallel the trend of the Coast Ranges. The ridges are most often comprised of granitic, metavolcanic and metasedimentary rocks. Numerous northwest to southeast trending faults parallel the trend of the Coast Ranges.

San Francisco Bay is a broad shallow depression within the Coast Ranges that has been subsequently filled with sedimentary or alluvial deposits. The project site is located on the broad alluvial plain that surrounds San Francisco Bay. More specifically, the site is located west of the Hayward Fault, which lies along the western side of the of the Diablo Range along the eastern side of the San Francisco Bay Region.

Quaternary Geologic Deposits

Although not shown on quaternary geologic maps reviewed in the course of preparing this report, fill soils cover the active auto recycling operation yard. Geologic mapping of the area (Helley and Graymer, 1997) show the majority of the proposed residential development site to be in an area of Holocene-age Basin Deposits (map designation Qhb, Plate 3). A small portion of this site is within an area of Holocene-age Salt-affected Basin Deposits (map designation Qhbs, Plate 3). Basin deposits typically consist of very fine silty clay to clay deposits occupying flat-floored basins at the distal edge of alluvial fans adjacent to Bay Mud (map designation Qhbm). Mapping of the limits of Bay Mud deposits along the eastern shore of the southern San Francisco Bay (McDonald et. al., 1978) shows Bay Mud deposits within about 500 feet of the site to the southwest.

Regional and Local Faults

The project site is located in the seismically active San Francisco Bay region. The San Andreas fault forms a portion of the boundary between two independent tectonic plates on the surface of the earth. In the San Francisco Bay Area, movement across this plate boundary is concentrated on the SAF; however, it is also distributed, to a lesser extent, across a number of parallel and subparallel faults which include the Seal Cove-San Gregorio, Hayward, Rodgers Creek, Calaveras, Concord-Green Valley and Greenville faults, among others. Together, these faults are referred to as the SAF system. Of these faults, the three major faults with the greatest potential of causing severe shaking at the site are the Hayward, San Andreas and Calaveras faults. The San Andreas fault (SAF) located about 14-1/4 miles to the southwest dominates the structure and seismicity of the San Francisco Bay Area. The Hayward fault is located about 3-1/4 miles northeast of the site, with the Calaveras fault mapped about 8 miles northeast of the site.

In addition to the active faults discussed above, there are several other active or potentially active faults capable of producing ground shaking at the project location. Local faults that have a potential to cause ground shaking at the site include the Quimby, Evergreen, Silver Creek, Monte Vista-Shannon, Sargent and Zayante-Vergeles faults. Failure along these faults could possibly be triggered by activity within the Hayward Fault Zone or along the San Andreas Fault Zone. The potentially active Silver Creek Fault is located approximately 2-1/2 miles east-southeast of the site. The Monte Vista-Shannon Fault is located approximately 11 miles southwest of the site. These faults are not known to have experienced seismic activity within the last 11,700 years, thus the classification as potentially active.

FIELD EXPLORATION

Subsurface exploration was performed during April & May 2021 and consisted of the following:

- April 30, 2021 – Perform 3 Cone Penetration Tests (CPT) using a 25-ton truck-mounted CPT rig.
    - 1 CPT was advanced to a depth of 100 feet. Shear wave velocity tests were performed at 5-foot intervals for Site Class Characterization
    - 2 CPTs were advanced to depths of 50 feet.
- May 4th & 5th 2021 – Excavated 15 test pits to depths between 5 and 8 feet with a backhoe

Materials encountered in the test pits were characterized by a member of our engineering staff in accordance with the United Soil Classification System (USCS). At each of the locations a log was recorded including the depth and UCSC classification. The CPT Plots are presented in Appendix A and the Test Pit Logs are presented in Appendix B.

Upon completion of each CPT test, the holes were backfilled in accordance with ACWD standards and were inspected by a representative of ACWD. After completion of logging the materials encountered in the Test Pits, the test pit excavations were loosely backfilled.

SUBSURFACE CONDITIONS

The northern portion of the site was found to have between 2 ½ and 4 feet of uncontrolled fill. The uncontrolled fill was composed of sandy clay, clayey sand and some concrete rubble. The uncontrolled fill is underlain by medium stiff silty clays and fat clays. The southern portion of the site was blanketed by about 1 foot of sandy gravel (aggregate base). The sandy gravel was underlain by medium stiff silty clays and fat clays.

Using the procedures by Robertson, data from the CPTs was interpreted to classify materials by their soil behavior type. The CPTs 1 & 2 encountered clays and silty clays to depths between 30 and 35 feet. The clays were underlain by sand and silty sands to a depth of about 50 feet. CPT 3 encountered clays and silty clays to a depth of about 45 feet that were underlain by sands and silty sands.

Groundwater was reported at a depth of 4 feet in the 3 CPT's. Free groundwater was not encountered in the Test Pits, but all Test Pits were terminated in very moist soils. The Test Pits were not open long enough to observe and document groundwater levels.

GEOLOGIC AND SEISMIC HAZARDS

FAULTING AND SURFACE FAULT RUPTURE HAZARD ZONES

The site is located in the seismically active greater San Francisco Bay Area. The seismicity of the area is dominated by the San Andreas, Hayward and Calaveras faults. The surface fault-rupture hazards posed by active and potentially active faults are evaluated by the California Geological Survey (CGS) in accordance with the requirements of the Alquist-Priolo Earthquake Fault Zoning Act. We reviewed the CGS Earthquake Zone of Required Investigation maps for the Newark 7.5 Minute Quadrangle, which includes the Earthquake Fault Zones, Revised Official Map, released January 1982. The map shows that the site is not within or immediately adjacent to a designated State of California Alquist-Priolo Earthquake Fault Zone for active faults. According to the California Geological Survey (CGS), no known fault traces cross the site. The closest known active fault, with a State-Designated Zone of Required Investigation, is the Hayward fault about 3.2 miles to the northeast. It is our opinion that the potential for fault rupture at the site is very low.

SEISMICITY AND SEISMIC GROUND SHAKING

Although fault ground-rupture is not considered to be a concern at the subject site, the site is located in a region of high seismicity. As with all sites in the San Francisco Bay Area, the site should be expected to experience at least one moderate to large earthquake during the lifespan of the development. The probability of one or more earthquakes of magnitude 6.7 (Richter scale) or higher occurring in the San Francisco Bay Area is evaluated by the Working Group on California Earthquake Probabilities on a periodic basis, as are the probabilities of earthquakes of varying magnitudes on each of the major faults. The faults with the greater probability of a moment magnitude of 6.7 or higher earthquake between 2014 and 2044 are the Hayward fault at 14.3 percent, the Calaveras fault at 7.4 percent and the San Andreas fault at 6.4 percent, as shown on Plate 5. Some degree of structural damage due to strong seismic shaking should be expected at the site, but the risk can be reduced through adherence to current seismic design codes.

The approximate center of the site is located at 37.5116 degrees north latitude and 122.0120 degrees west longitude. Based on current practices, the peak ground acceleration-geometric mean (PGA_M), obtained using an on-line tool provided by the Structural Engineers Association of California (SEAOC) and OSHPD is 0.773. California Building Code seismic design parameters determined in accordance with ASCE 7-16, using the SEAOC / OSHPD tool, are included in Appendix D. An earthquake magnitude (M_W) of 6.87 was determined for an earthquake with a 10 percent probability of exceedance in 50 years in the Hayward fault, using the USGS Earthquake Hazard Program Unified Hazard Tool deaggregation module.

SEISMIC HAZARD ZONES IN CALIFORNIA

The Seismic Hazards Mapping Act requires that the State Geologist delineate various seismic hazards zones on Seismic Hazards Zones Maps. Seismic Hazard Zone Maps are produced by the CGS. The hazard zones are based on areas where there have been historic occurrences of liquefaction and/or landslide movement, or where local topographic, local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements. Specifically, the maps identify areas where soil liquefaction and earthquake-induced landslides are more likely to occur. Review of the CGS Earthquake Zone of Required Investigation, Newark Quadrangle Map, which includes the Seismic Hazard Zones, Official Map, released July 2003, shows the site to be within an area of required investigation for liquefaction potential. Our assessment of the liquefaction potential of the site is discussed below.

LIQUEFACTION AND LIQUEFACTION INDUCED GROUND DEFORMATIONS

Liquefaction

Liquefaction is a temporary transformation of saturated soil into a viscous liquid during strong to violent ground shaking from a major earthquake. This transformation occurs as a result of a substantial loss of strength due to excess pore pressure within the soil matrix generated by strong ground shaking. Current practice in liquefaction evaluation now includes sands, silty sands and gravels, as well as silts and even some clay soils. In general, soils consisting of plastic silts or clays, do not generate excess pore water pressure to the same extent or as quickly as relatively clean sands. Thus, silty and clayey soils tend to be less susceptible to liquefaction-type behaviors than sandy soils. Primary factors affecting the potential for a soil to undergo liquefaction include: depth to groundwater, soil type, relative density of granular soils, moisture content and Plasticity Index of fine-grained soils, initial confining (overburden) pressure, and intensity and duration of ground shaking. The impact of liquefaction to surface structures is generally limited to liquefaction of soils within about 50 feet of the ground surface.

While fine-grained soil (clays and silts) may not undergo complete liquefaction, these soils may be susceptible to cyclic softening. Liquefaction and cyclic softening both result in reduced shear strength. In general, compressible soils, consisting of plastic silts or clays, do not generate excess pore water pressure to the same extent or as quickly as less compressible soils such as relatively clean sands. Thus, silty and clayey soils tend to be less susceptible to liquefaction-type behaviors than sandy soils.

The occurrence of liquefaction can cause loss of, or reduced, support for foundations, significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998), and ground-surface disruption (fissures and sand boils). During a major earthquake, buildings, structures, railroads, roadways and utilities underlain by potentially liquefiable soil may experience differential settlement through reconsolidation of the liquefied soil.

The CPT data was used to analyze the liquefaction and liquefaction-related ground disturbance potential using the software CLiq by GeoLogismiki Geotechnical Software (version 2.3.1.15). Our analyses were conducted in accordance with the recognized procedures based on the current state of practice for liquefaction analysis as discussed in the CGS Special Publication 117A. Our analyses used the following criteria:

- Analysis Method – Boulanger and Idriss (2014)
- Average Fill Depth of 8 feet (125 pcf)
- Depth to groundwater 12 feet (existing ground water is at 4 feet plus 8 feet of fill)
- Peak Ground Acceleration (PGA_M) – 0.77 g
- Earthquake Magnitude – 6.87

Based on our analyses, the liquefaction induced settlement potential was found to range between 1.6 and 2.8 inches. The analyses showed that the predominant contributor to the settlement potential a sand layer at depths between 30 and 40 feet. Based on our analyses and the geologic setting of the site, we estimate liquefaction induced differential settlement could be up to ½ inch across 100 feet.

We also analyzed the data using methods by Robertson (2009) and Moss (2006) and the results were found to be comparable to those of Boulanger and Idriss (2014).

Lateral Spreading

Lateral spreading is a potential hazard associated with liquefaction. This phenomenon occurs when a subsurface soil layer liquefies and the upper non-liquefiable crust slides down gradient as large blocks over the liquefied soil toward a free-face (such as a descending slope, an incised river channel or open body of water), creating extensional ground cracking or fissures. Based on the results of the liquefaction analysis and the local topography, it is our opinion that the potential for lateral spreading to occur at the site is low.

Liquefaction-Induced Ground Surface Disruption Potential

Liquefaction-induced ground-surface disruption or sand boils occur when the sudden increase in pore water pressure in a layer of saturated, clean, loose sand or silty sand results in sufficient water pressure to break through the overlying soil mantle with venting to the ground surface. When this occurs, the liquefied sand blows out through the rupture, which is referred to as ejecta, resulting in ground-surface disruption. The occurrence of ground-surface disruption can result in diminished support for foundations and increased differential settlement of structures on shallow foundations. Where structures are founded on shallow foundations with integral concrete slabs-on-grade floors, or mat-slab concrete foundations, increased settlement typically occurs at the building perimeter where supporting soils are displaced from below the foundation.

For liquefaction-induced surface ground failure to occur, the pore water pressure generated within the liquefied strata would need to exert a force sufficient to break through the overlying soil and vent to the surface, resulting in sand boils or fissures. We evaluated the potential for liquefaction-induced ground surface disruption to occur at the site based on work by Youd and Garris (1995), and prior work by Ishihara (1985). The potential for ground surface disruption is a function of the thickness of non-liquefiable material over a liquefiable layer. We evaluated the site data based on the empirical relationships developed by Youd and Garris (Figure 6). It is our opinion that the potential for ground-surface disruption to occur is low.

Cyclic Softening of Fine-Grained Soils

Given the information developed over the past several years, it is reasonable to conclude that the clays and stiff to very stiff clayey silts encountered are not liquefiable. Where very high soil moisture contents are present and soils identified through CPT testing as soil behavior types including clay & silty clay, and sandy silt/silty sand, the soils may be susceptible to cyclic softening or strength reduction. However, with the use of post-tensioned concrete slab-on-grade foundations for the planned residential structures, it is our opinion that the temporary softening of these soils should not have a significant impact on the proposed structures.

SEISMIC-INDUCED COMPACTION OF UNSATURATED SANDS

Strong ground shaking associated with seismic activity can cause settlement or densification of unsaturated sands. The potential impact of seismic-induced settlement of sands or fills above the groundwater is settlement of the ground surface and structures supported on shallow foundations on the site. Sands were not encountered above the (shallow) groundwater. Therefore, there is no potential for seismic-induced compaction of unsaturated sands.

CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

GENERAL

From a geotechnical engineering standpoint, we believe the proposed development of the site with a residential development is generally feasible. Several site conditions that could impact the proposed development were identified during this investigation. These include:

- Uncontrolled fill,
- Seismic-induced (liquefaction) site settlement potential of 1 to 2-1/2 inches,
- Moderately compressible soils,
- Expansive soils, and
- Corrosive soils

UNCONTROLLED FILL

The northern portion of the site (field portion) is blanketed by uncontrolled fills ranging from 2 ½ to 4 feet thick. The southern portion of the site (Pick-N-Pull portion) of the site is blanketed by approximately 1 foot of sandy gravels (aggregate base). The uncontrolled fill in the northern and southern portion should be completely overexcavated to expose firm native soils. The overexcavated uncontrolled fill may reused as engineered fill as long as it is free of debris and vegetation.

EXPANSIVE SOILS

The surficial native clay soils in the area have a moderate to high expansion potential. Post-tensioned concrete slab-on-grade foundations are frequently used for support of residential structures supported by expansive soils. Following the recommendations presented below in the *Site Preparation and Grading* and *Foundation* sections below will help reduce the potential impacts of the expansive soils.

SITE PREPARATION AND GRADING

Our general site preparation and grading recommendations are as follows:

1. Existing structures, abandoned utilities, and buried structures such as septic systems and wells should be demolished and removed from the site.

2. The surficial soil containing organics in the northern portion of the site should be stripped and may be used as non-structural fill in landscaping areas. The amount of stripping will be evaluated just before grading commences. The site can be disced in advance of grading to reduce the amount of necessary stripping.

3. Engineered fill should be moisture conditioned and compacted in accordance with requirements below.

    a. Soils with low expansion potential (PI of 20 or less) should be moisture conditioned to at least 3 percent above the optimum moisture content and compacted to at least 90 percent relative compaction.
    b. Expansive soils (PI more than 20) should be brought to a moisture content of at least 7 percent above the optimum moisture content and compacted to between 84 and 88 percent relative compaction.

4. Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density determined by ASTM D1557 compaction test procedure. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.

5. Fill should be properly moisture conditioned and placed in thin lifts (normally 6 to 8 inches depending on the compaction equipment) and compacted as discussed above.

6. Observation and soil density tests should be performed during grading to assist the contractor in obtaining the required degree of compaction and proper moisture content. Where the compaction is outside the range required, additional effort and adjustments to the moisture content should be made until the specified compaction and moisture conditioning is achieved.

7. The soils engineer should be notified at least 48 hours prior to any grading operations. The procedure and methods of grading may then be discussed between the contractor and the soils engineer.

8. The on-site soils are generally suitable for engineered fill, provided they are free of debris, significant vegetation, rocks greater than 4 inches in largest dimension and other deleterious matter.

9. Import fill should contain no deleterious matter or rocks greater than 4 inches in largest dimension and should have a PI less than 20. Fill materials should be subject to the evaluation of the soil engineer prior to their use. Import fill should also be cleared of toxic or hazardous materials prior to importing to the site.

UTILITY TRENCH EXCAVATION AND BACKFILL

Excavations should conform to applicable State and Federal industrial safety requirements. Where trench excavations are more than 5 feet deep, they should be sloped and/or shored. Trench walls should be sloped no steeper than 1½ H:1V in dry granular soils, and no steeper than 1H:1V in dry cohesive soils. Flatter trench slopes may be required if seepage is encountered during construction or if exposed soil conditions differ from those encountered by the test pits and borings.

Materials quality, placement procedures and compaction operations for utility pipe bedding and shading materials should meet applicable agency requirements. Utility trench backfill above the shading materials may consist of native soils processed to remove rubble, rock fragments over 4 inches in largest dimension, rubbish, vegetation and other undesirable substances. Backfill materials should be placed in level lifts about 6 to 8 inches in loose thickness, moisture conditioned and mechanically compacted according to the requirements contained in the *Site Preparation and Grading* section. No jetting is permissible on this project.

Post-Tensioned Slab Foundations

Post-Tensioned Concrete Slab Foundations (PT Slab Foundations) should be designed in accordance with the design provisions as presented in the document "Standard Requirements for Design and Analysis of Post-Tensioned Concrete Foundations on Expansive Soils," published by the Post-Tensioning Institute (PTI), publication PTI DC10.5-12. Based on our field exploration and laboratory testing, we recommend the following criteria be incorporated into the design of the PT Slab Foundations:

Post-Tension Concrete Foundation Design Parameters	
Allowable Bearing Capacity (may be increased by 1/3 for seismic and wind loads at the discretion of the Structural Engineer)	1,500 psf
Passive Equivalent Fluid Pressure (neglect the upper foot if the ground surface is not confined by slabs or pavement)	250 pcf
Friction Coefficient – Seismic Sliding	0.30
Friction Coefficient – Prestress Loss (*minimum* – higher value may be warranted as determined by the Structural Engineer)	0.75
Edge Moisture Variation Distance Center Lift Edge Lift	 7.5 feet 4.0 feet
Differential Swell Center Lift Edge Lift	 1.28 inches 1.56 inches
Stiffness Coefficient, C_Δ Center Lift Edge Lift	 360 720

PT slab foundations can be constructed on properly prepared subgrade soils. The upper foot of the subgrade soils should be moisture conditioned prior to concrete placement. The moisture conditioned pads should not be allowed to dry out to less than the recommended moisture content before concrete is placed. Subgrade moisture should be observed by a BSA representative prior to concrete placement.

Compacted subgrade soils may become disturbed during utility trench excavation and backfilling. These soils should be uniformly moisture conditioned to near optimum moisture content and compacted prior to concrete placement.

Where residences are to have a porch structure tied into the residences, the residence's PT slab foundation should be designed such that it includes the porch.

Where moisture vapor through the slabs would be objectionable, the use of a vapor retarder and capillary moisture break should be considered. The slab designer should determine the thickness of the slab and rock cushion layers.

Seismic Design Parameters

We performed a 100-foot-deep SCPT near the center of the site. Shear wave velocities were obtained at a 5-foot interval. The average shear wave velocity (calculated per ASCE 7-16) was 686 ft/s. Per the 2019 California Building Code (CBC), the Site Class is D – Stiff Soil. We are providing the following 2019 CBC seismic design criteria for the site using the SEAOC/OSHPD Seismic Design Maps Tool:

2019 California Building Code	
Latitude (Degrees North)	37.5116
Longitude (Degrees West)	122.0120
Risk Category	II
Peak Ground Acceleration (PGA_M)	0.773
Mapped Spectral Acceleration for Short Periods, Ss	1.67
Mapped Spectral Acceleration for 1-Second Period, S1	0.632
Site Class	D
Site Coefficient Fa	1.0
Acceleration Parameter SMS	1.67
Acceleration Parameter, SDS	1.113
Seismic Design Category	D

The OSHPD Seismic Design Map Report is presented in Appendix C.

RETAINING WALLS

Lateral Earth pressures

Backfill soils for cantilever-type concrete or masonry walls should have a PI of 20 or less for soil placed within 5 feet of the wall. The following are our recommended lateral earth pressures for walls retaining less than 6 feet in height.

Active Equivalent Fluid Pressure (Level backfill and drained conditions)	55 pcf
Active Equivalent Fluid Pressure (2H:1V backfill and drained condition)	80 pcf
At-Rest Equivalent Fluid Pressure (Level backfill and drained conditions)	80 pcf
At-Rest Equivalent Fluid Pressure (2H:1V backfill and drained condition)	110 pcf
Surcharge Load, where applicable	Determined by structural engineer

Should retaining walls be planned to exceed 6 feet in height, we should be contacted to provide specific recommendations including seismically induced lateral earth pressures.

Retaining Wall Foundations

Conventional retaining walls can be supported on shallow foundations. The following may be used to design the retaining wall foundations:

Allowable Bearing Capacity (DL + LL) (may be increased by one-third for seismic and wind loads at the discretion of the structural engineer)	2,500 psf
Allowable Passive Equivalent Fluid Pressure (neglect the upper foot) *	350 pcf
Allowable Base Friction Coefficient *	0.30
Minimum Footing Depth	1 ½ feet

* no reduction is required when combining passive resistance and friction

Retaining Wall Drainage

The above recommended lateral pressure on retaining walls assumes drained conditions. To prevent hydrostatic pressure build-up, the retaining walls should be provided with permanent backdrains. The backdrain should consist of a 12-inch thick vertical blanket of Class 2 Permeable Material (conforming to Section 68-2.02F (3) of the State of California Standard Specifications)) and a 4-inch diameter perforated PVC pipe (SDR 35). The vertical blanket should start at the base of the retaining wall and extend vertically to 12 inches below finish grade. The perforated pipe should have two rows of holes and be placed face down at the bottom of the wall to carry collected water to a suitable gravity discharge. The perforated pipe should be placed on top of 2 inches of Class 2 Permeable Material and should have 6 inches of Class 2 Permeable Material on the sides and top of the pipe. The subdrain pipe should tie into a solid pipe into a suitable gravity discharge or storm drain system.

Alternately, a geocomposite can be used in lieu of the Class 2 Permeable system as follows:

1. Install Miradrain 6200 at the back wall extending from the top of footing to 12 inches below the top of backfill. The plastic side of the Miradrain should be placed tightly against the back of the retaining wall.

2. Place Advanedge (12 inch) Drain tightly against the Miradrain at the base of the wall. Install a round pipe adaptor and install a solid round pipe to carry water to a suitable gravity surcharge.

3. Use caution during backfilling not to collapse the MiraDrain.

Pavement Recommendations

Flexible Pavement Section – Asphalt Concrete

R-value testing on two bulk sample collected during our investigation resulted in a value of 5 & 7. The following preliminary pavement analyses are based upon an R-value of 5 for the subgrade soil, the Caltrans Design Method for Flexible Pavement (20-year life cycle), and traffic indices (TI), which are indications of load frequency and intensity. We recommend that Final pavement Sections be based on R-Value Testing once the pavement subgrade is established.

Pavement Sections			
Traffic Index	AC (in)	Class 2 AB (in)	Total (in)
4.5	3	8	11
5	3	10	13
6	3.5	12.5	16
7	4	15.5	19.5

Subgrade and Aggregate Base

Prior to subgrade preparation, utility trench backfill should be properly placed and compacted. Subgrade soils for asphalt concrete pavement should be rolled to at least 95 percent relative compaction to provide a smooth, unyielding surface. Subgrade soils should be maintained in a moist and compacted condition until covered with the complete pavement section.

Class 2 Aggregate Base should conform to the requirements in Section 26, Caltrans Standard Specifications. The aggregate base should be placed in thin lifts in a manner to prevent segregation, uniformly moisture conditioned, and compacted to at least 95 percent relative compaction to provide a smooth, unyielding surface.

Pavement Edge Drains

Pavement edge drains should be installed on the downhill side of cross-sloped and along both sides of crowned streets. Recommendations for pavement edge drain locations for private streets should be provided after reviewing the project improvement plans. Pavement edge drains should be constructed under the curb and gutter as shown on Plate 6, Pavement Edge Drains.

CORROSION CONSIDERATIONS

Three samples of soils in the upper 8 feet were collected for corrosion testing. Corrosion testing included pH, resistivity, redox potential, sulfate, sulfide and chloride. Samples 1 and 2 were found to be corrosive to buried iron and steel. Sample 3 as found to be moderately corrosive to buried iron and steel.

Sample 2 had a chloride concentration of 540 mg/kg, which is considered to be corrosive to reinforcing steel.

The corrosivity test results and a brief evaluation are presented in Appendix D. The results should be forwarded to the underground utility designer, the civil engineer and the structural engineer to allow them to take the results into consideration with their design. Additional corrosion testing should be performed after completion of import fill placement and before installation of underground utilities.

ADDITIONAL GEOTECHNICAL ENGINEERING SERVICES

Prior to construction, our firm should be provided the opportunity to review the plans and specifications to determine if the recommendations of this report have been implemented in those documents. We would appreciate the opportunity to meet with the contractors prior to the start of site grading, underground utility installation and pavement construction to discuss the procedures and methods of construction. This can facilitate the performance of the construction operation and minimize possible misunderstanding and construction delays.

To a degree, the performance of the proposed project is dependent on the procedures and quality of the construction. Therefore, we should provide observations of the contractor's procedures, the exposed soil conditions, and field and laboratory testing during site preparation and grading, placement and compaction of fill, underground utility installation, and foundation and pavement construction. These observations will allow us to check the contractor's work for conformance with the intent of our recommendations and to observe any unanticipated soil conditions that could require modification of our recommendations.

LIMITATIONS

The conclusions and recommendations presented in this report are based upon the project information provided to us, information obtained from published geologic reports, subsurface conditions encountered at the CPT and test pit locations and professional judgment. Site conditions described in this report are those existing at the times of our field explorations and are not necessarily representative of such conditions at other locations or times. The boring and test pit logs show subsurface conditions at the locations and on the dates indicated. It is not warranted that they are representative of such conditions elsewhere or at other times. The locations of the field explorations were estimated by pacing from existing surface features at the site; they should be considered approximate only.

The information provided herein was developed for use by Mowry Project Owner, LLC. for the project as described herein. In the event that changes in the nature, design or location of the proposed project are planned, if subsurface conditions differ from those described in this report, or revisions are made to the Building Code that are related to Geotechnical Engineering, the conclusions and recommendations in this report shall be considered invalid, unless the changes are reviewed and the conclusions and recommendations are confirmed or modified in writing by BSA. In light of this, there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that two years from the date of this report be considered a reasonable time for the usefulness of this report.

This geotechnical investigation has been conducted, and the opinions, conclusions and recommendations presented in this report were developed, in accordance with accepted geotechnical engineering practices that exist in the project area at the time this report was prepared. No warranty, expressed or implied, is offered, inferred or made, by or through our performance of professional services.

Please contact the undersigned if you have any questions regarding the contents of this report.

Respectfully submitted,
BERLOGAR STEVENS & ASSOCIATES

DRAFT

Frank Berlogar
Principal Engineer
RCE 20383

Attachments:

References
Plate 1 – Vicinity Map
Plate 2 – Site Plan
Plate 3 – Regional Geologic Map
Plate 4 – Earthquake M ≥6.7 Probability
Plate 5 – Earthquake Hazard Zones Map
Plate 6 – Pavement Edge Drain
Appendix A – CPT Data Plots and Interpretations
Appendix B – Test Pit Logs
Appendix C – OSHPD Seismic Design Map Report
Appendix D – Corrosion Test Results

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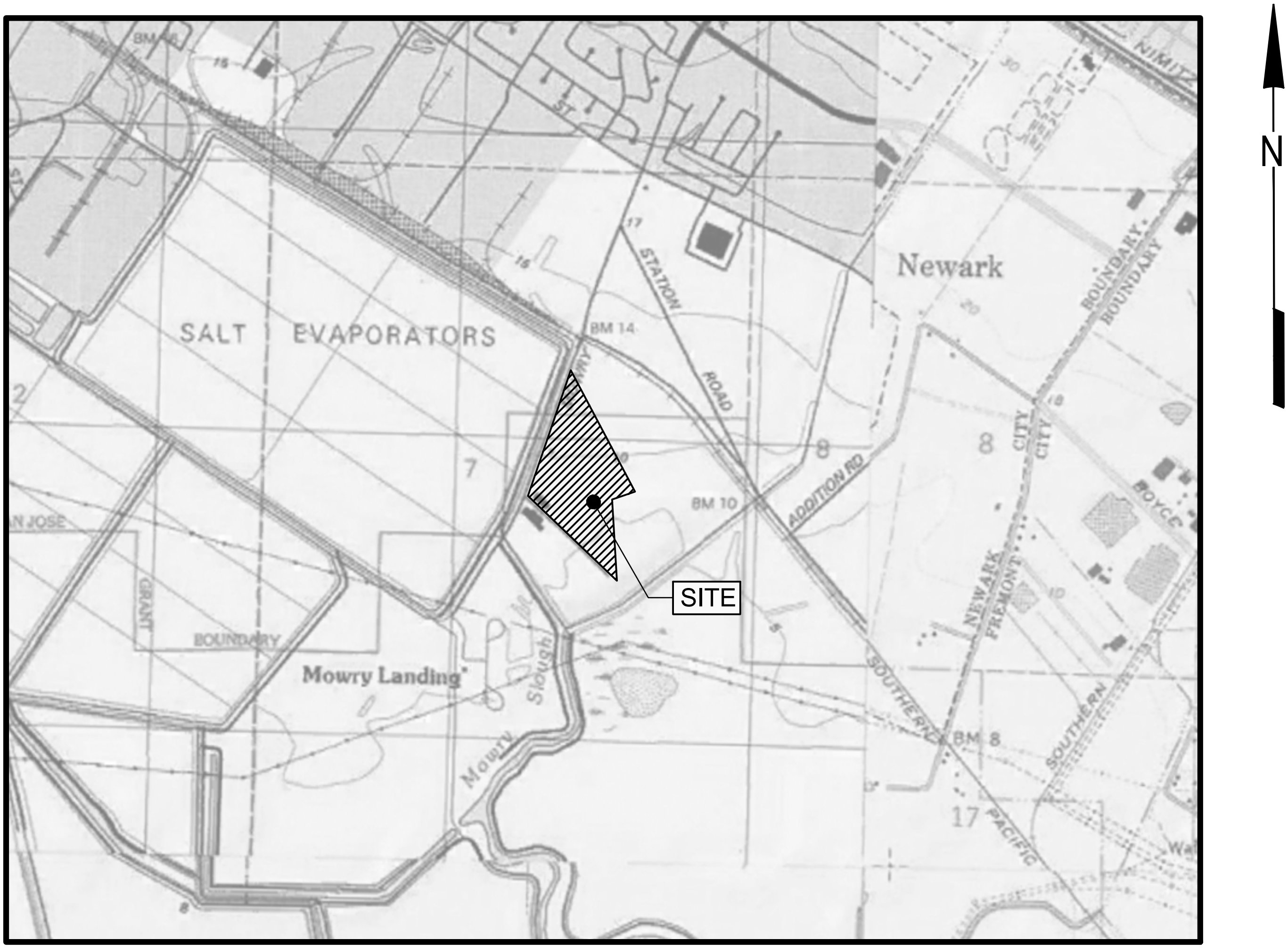
PLATES

JOB NUMBER: 4093.101 DATE: 4-13-21 BY: LG



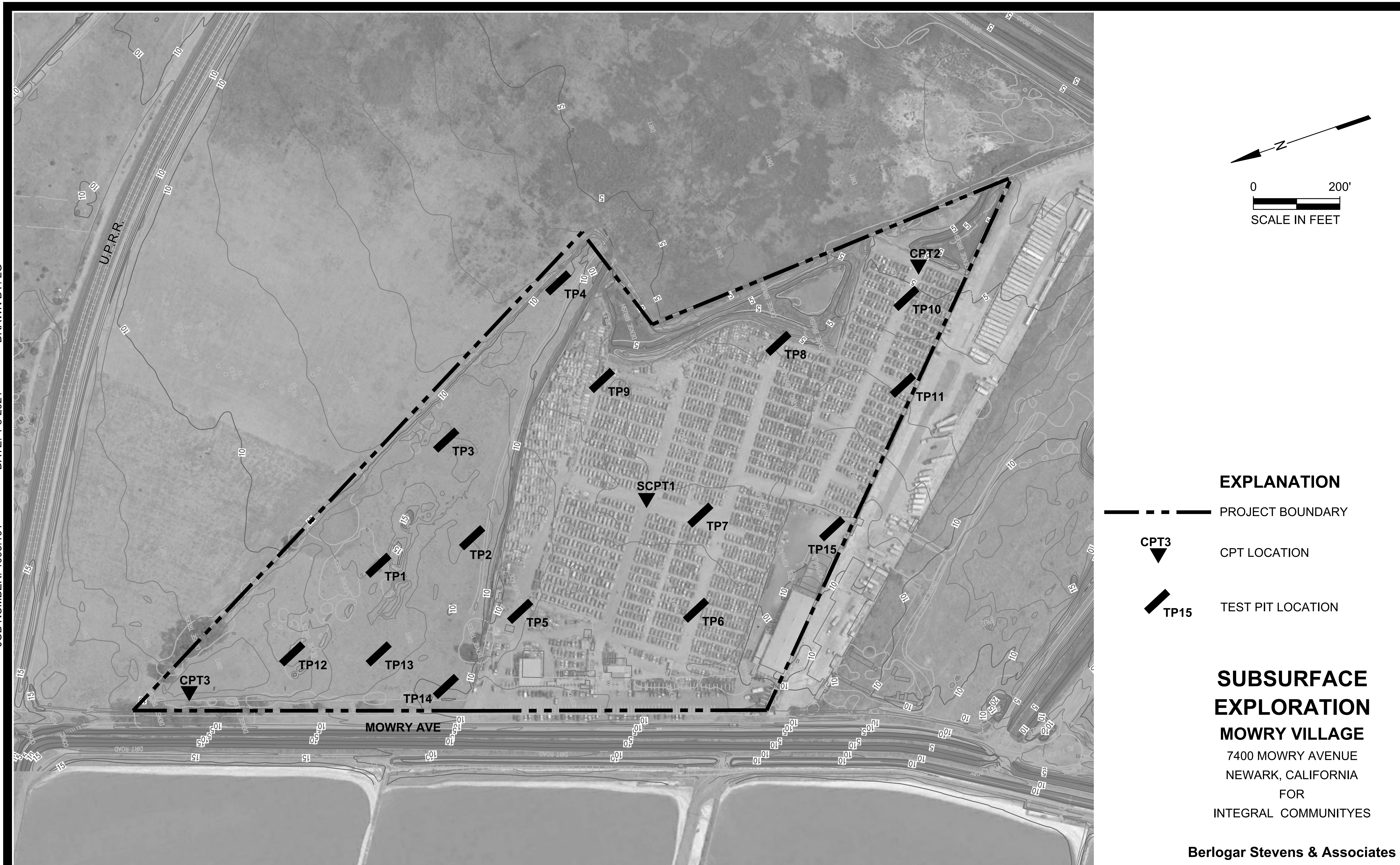
0 2000

1"=2000'

VICINITY MAP

PICK N PULL
7400 MOWRY AVENUE
NEWARK, CALIFORNIA
FOR
INTEGRAL COMMUNITIES

BASE: PORTION OF U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, NEWARK, CALIFORNIA, AT A SCALE OF 1:24,000.



DRAWN BY: LG

DATE: 4-5-2021

JOB NUMBER: 4093.101

EXPLANATION

PROJECT BOUNDARY

CPT3 CPT LOCATION

TP15 TEST PIT LOCATION

SUBSURFACE EXPLORATION

MOWRY VILLAGE

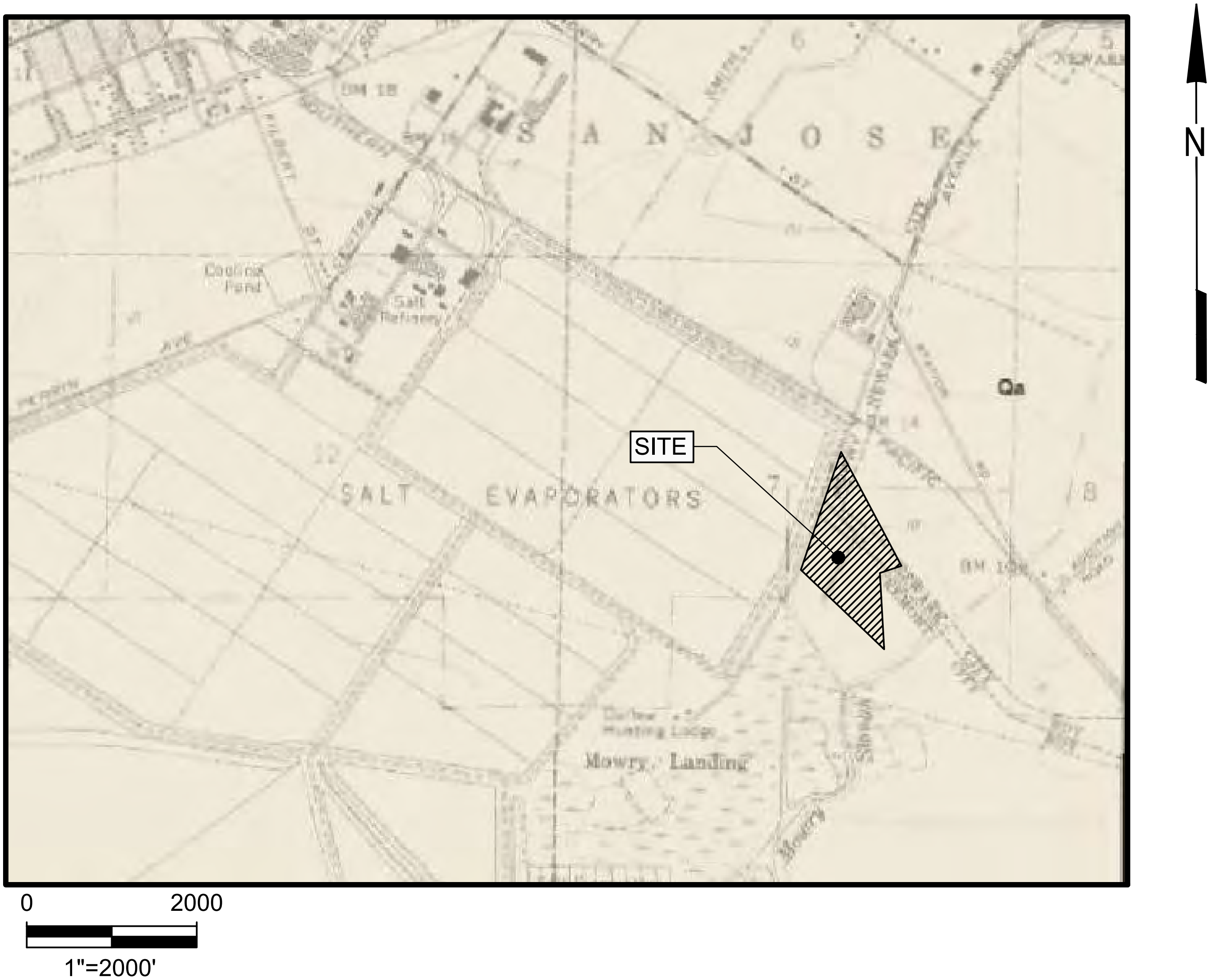
7400 MOWRY AVENUE
NEWARK, CALIFORNIA
FOR
INTEGRAL COMMUNITYES

Berlogar Stevens & Associates
SOIL ENGINEERS * ENGINEERING GEOLOGISTS

BASE: CONCEPTUAL SITE PLAN, PREPARED BY: CARLSON BARBEE & GIBSON, DATED: 2-15-18

PLATE 2

JOB NUMBER: 4093.101 DATE: 4-13-21 BY: LG



EXPLANATION

Qa ALLUVIAL GRAVEL, SAND AND CLAY OF VALLEY AREAS

REGIONAL GEOLOGIC MAP

PICK N PULL
7400 MOWRY AVENUE
NEWARK, CALIFORNIA
FOR
INTEGRAL COMMUNITIES

BASE: PORTION OF GEOLOGIC MAPS OF THE NEWARK QUADRANGLE, ALAMEDA COUNTY, CALIFORNIA,
BY: DIBBLEE, T.W., AND MINCH, J.A., DIBBLEE FOUNDATION MAPS DF-150 PUBLICATION DATE: 2005

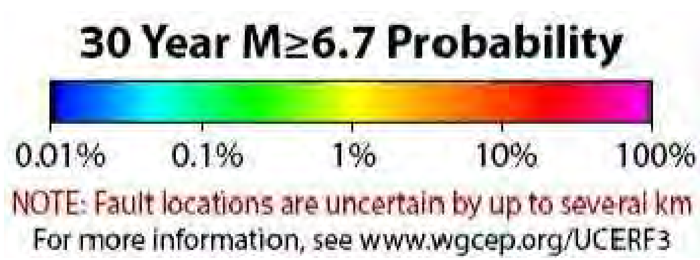
PLATE 3

JOB NUMBER: 4093.101 DATE: 4-13-21 BY: LG

N

0 5000

1"=5000'



EARTHQUAKE M ≥6.7 PROBABILITY

PICK N PULL

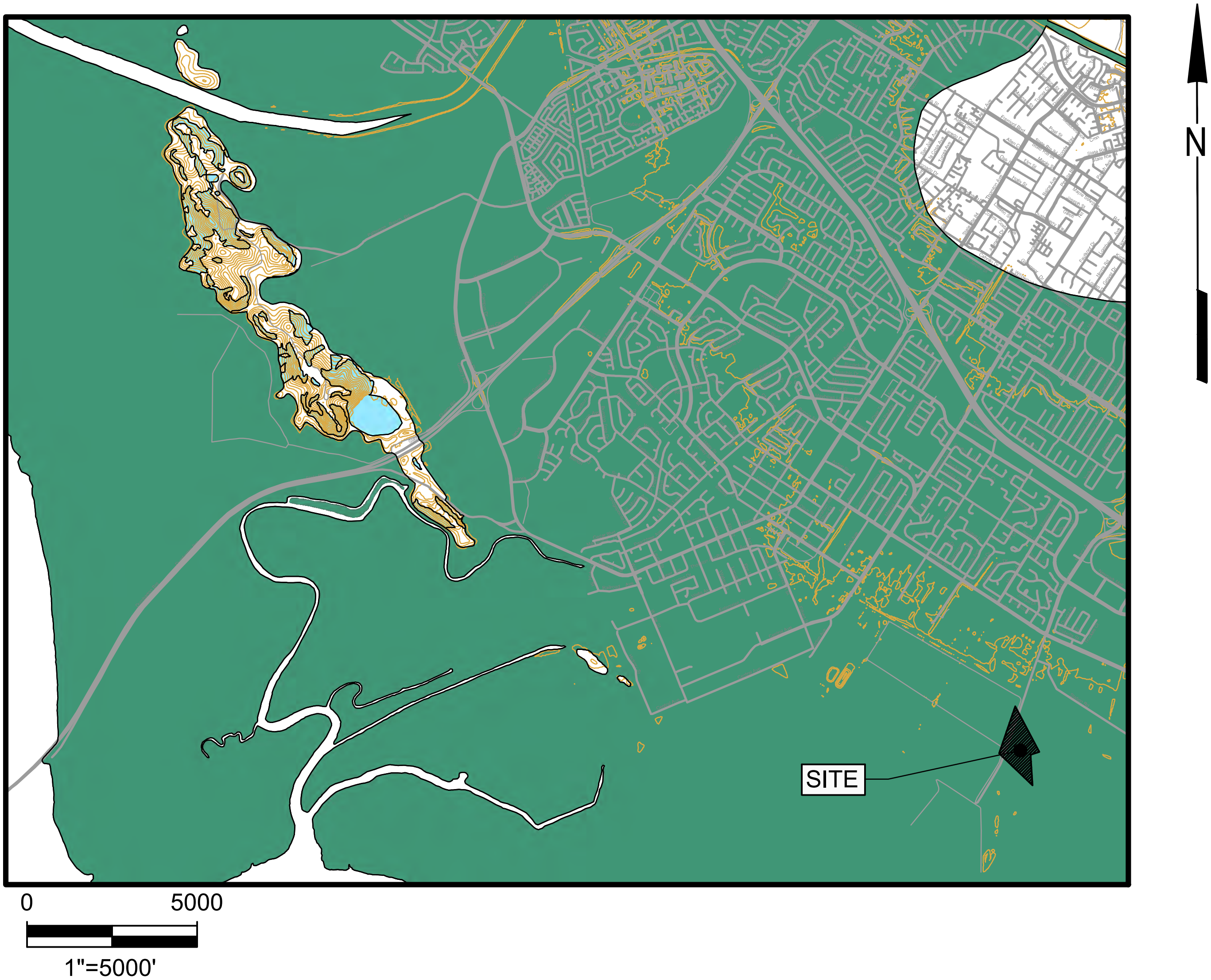
7400 MOWRY AVENUE

NEWARK, CALIFORNIA

FOR

INTEGRAL COMMUNITIES

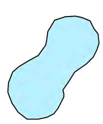
BASE: UCERF3: A NEW EARTHQUAKE FORECAST FOR CALIFORNIA'S COMPLEX FAULT SYSTEM, BY EDWARD H. FIELD AND MEMBERS OF THE 2014 WGCEP



JOB NUMBER: 4093.101 DATE: 4-13-21 BY: LG

SEISMIC HAZARD ZONES

Liquefaction Zones
Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.



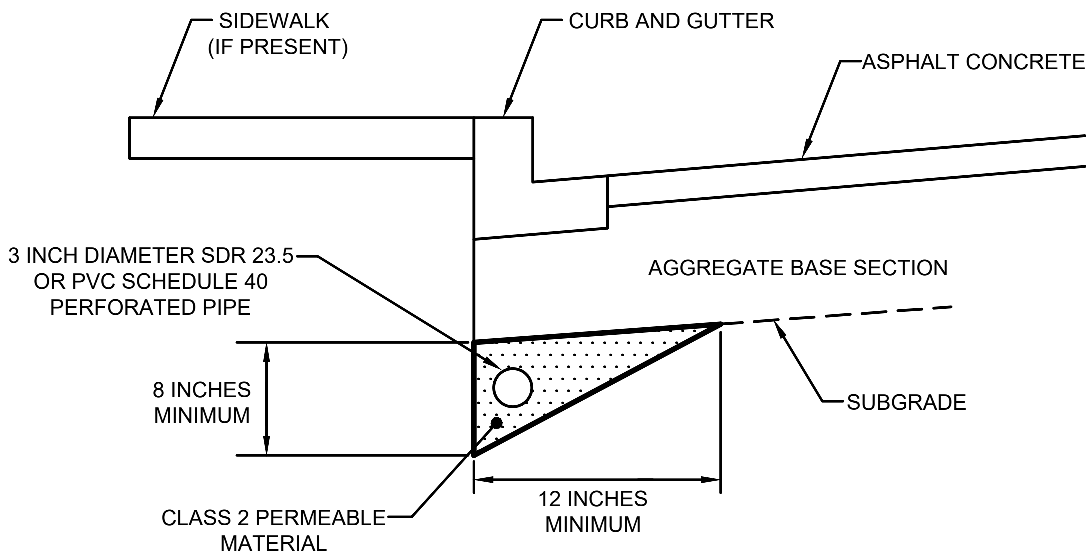
Earthquake-Induced Landslide Zones
Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

SEISMIC HAZARD ZONES

PICK N PULL
7400 MOWRY AVENUE
NEWARK, CALIFORNIA
FOR
INTEGRAL COMMUNITIES

BASE: PORTION OF STATE OF CALIFORNIA EARTHQUAKE ZONES OF REQUIRED INVESTIGATION, NEWARK QUADRANGLE, AT A SCALE OF 1:24,000.

JOB NUMBER: 4093.101 DATE: 6/2021 DRAWN BY: CC



NOTES:

1. PERFORATED PIPE TO BE SURROUNDED BY AT LEAST 2 INCHES OF CLASS 2 PERMEABLE MATERIAL.

2. PERFORATED PIPE TO DISCHARGE INTO CATCH BASIN/DRAIN INLET.

3. PERFORATED PIPE TO BE LOCATED BELOW EXISTING SHALLOW UNDERGROUND UTILITIES WHERE THEY CROSS.

4. FOR CROWNED STREETS, PAVEMENT EDGE DRAIN TO BE INSTALLED ON BOTH SIDES OF STREET. FOR FIXED CROSS SLOPE STREETS, PAVEMENT EDGE DRAIN TO BE INSTALLED ON LOW SIDE OF STREET.

SCALE N.T.S.

PAVEMENT EDGE DRAIN

APPENDIX A

CPT Data Plots and Interpretations

GREGG DRILLING, LLC.
GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

May 6, 2021

Pick-N-Pull
Attn: Andres Garibay

Subject: CPT Site Investigation
Pick-N-Pull
Newark, CA
GREGG Project Number: D2219065

Dear Andres Garibay:

The following report presents the results of GREGG Drilling Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	☒
2	Pore Pressure Dissipation Tests	(PPD)	☒
3	Seismic Cone Penetration Tests	(SCPTU)	☒
4	UVOST Laser Induced Fluorescence	(UVOST)	☐
5	Groundwater Sampling	(GWS)	☐
6	Soil Sampling	(SS)	☐
7	Vapor Sampling	(VS)	☐
8	Pressuremeter Testing	(PMT)	☐
9	Vane Shear Testing	(VST)	☐
10	Dilatometer Testing	(DMT)	☐

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact me at 949-903-6873.

Sincerely,
Gregg Drilling, LLC.

CPT Reports Team
Gregg Drilling, LLC.

Cone Penetration Test Sounding Summary

-Table 1-

CPT Sounding Identification	Date	Termination Depth (feet)	Depth of Groundwater Samples (feet)	Depth of Soil Samples (feet)	Depth of Pore Pressure Dissipation Tests (feet)
SCPT-1	4/30/2021	100.23'	-	-	35.60'
CPT-2	4/30/2021	50.20’	-	-	32.15'
CPT-3	4/30/2021	50.36’’	-	-	45.44'

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Zemo, D.A., T.A. Delfino, J.D. Gallinatti, V.A. Baker and L.R. Hilpert, "Field Comparison of Analytical Results from Discrete-Depth Groundwater Samplers" BAT EnviroProbe and QED HydroPunch, Sixth national Outdoor Action Conference, Las Vegas, Nevada Proceedings, 1992, pp 299-312.

Copies of ASTM Standards are available through www.astm.org

Cone Penetration Testing Procedure (CPT)

Gregg Drilling carries out all Cone Penetration Tests (CPT) using an integrated electronic cone system, *Figure CPT*.

The cone takes measurements of tip resistance (q_c), sleeve resistance (f_s), and penetration pore water pressure (u_2). Measurements are taken at either 2.5 or 5 cm intervals during penetration to provide a nearly continuous profile. CPT data reduction and basic interpretation is performed in real time facilitating on-site decision making. The above mentioned parameters are stored electronically for further analysis and reference. All CPT soundings are performed in accordance with revised ASTM standards (D 5778-12).

The 5mm thick porous plastic filter element is located directly behind the cone tip in the u_2 location. A new saturated filter element is used on each sounding to measure both penetration pore pressures as well as measurements during a dissipation test (*PPDT*). Prior to each test, the filter element is fully saturated with oil under vacuum pressure to improve accuracy.

When the sounding is completed, the test hole is backfilled according to client specifications. If grouting is used, the procedure generally consists of pushing a hollow tremie pipe with a "knock out" plug to the termination depth of the CPT hole. Grout is then pumped under pressure as the tremie pipe is pulled from the hole. Disruption or further contamination to the site is therefore minimized.

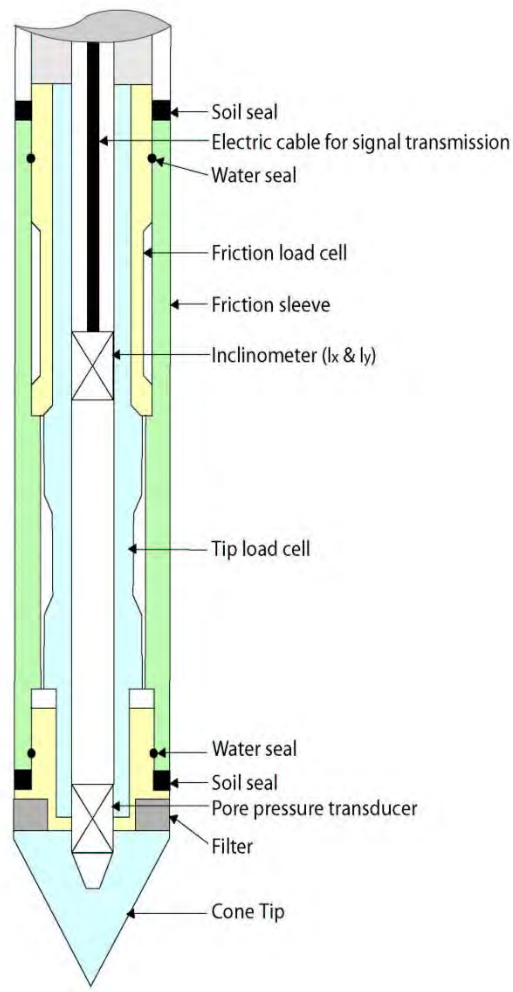


Figure CPT

Gregg 15cm^2 Standard Cone Specifications

Dimensions	
Cone base area	15 cm^2
Sleeve surface area	225 cm^2
Cone net area ratio	0.80
Specifications	
Cone load cell	
Full scale range	180 kN (20 tons)
Overload capacity	150%
Full scale tip stress	120 MPa (1,200 tsf)
Repeatability	120 kPa (1.2 tsf)
Sleeve load cell	
Full scale range	31 kN (3.5 tons)
Overload capacity	150%
Full scale sleeve stress	1,400 kPa (15 tsf)
Repeatability	1.4 kPa (0.015 tsf)
Pore pressure transducer	
Full scale range	7,000 kPa (1,000 psi)
Overload capacity	150%
Repeatability	7 kPa (1 psi)

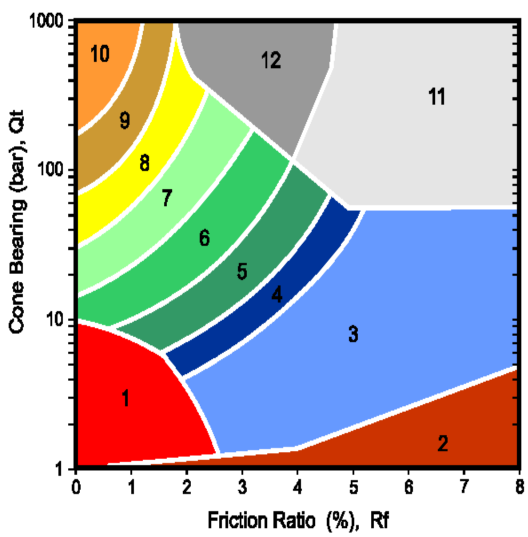
Note: The repeatability during field use will depend somewhat on ground conditions, abrasion, maintenance and zero load stability.

Cone Penetration Test Data & Interpretation

The Cone Penetration Test (CPT) data collected are presented in graphical and electronic form in the report. The plots include interpreted Soil Behavior Type (SBT) based on the charts described by Robertson (1990). Typical plots display SBT based on the non-normalized charts of Robertson et al (1986). For CPT soundings deeper than 30m, we recommend the use of the normalized charts of Robertson (1990) which can be displayed as SBTn, upon request. The report also includes spreadsheet output of computer calculations of basic interpretation in terms of SBT and SBTn and various geotechnical parameters using current published correlations based on the comprehensive review by Lunne, Robertson and Powell (1997), as well as recent updates by Professor Robertson (Guide to Cone Penetration Testing, 2015). The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg Drilling & Testing Inc. does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and does not assume any liability for use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software. Some interpretation methods require input of the groundwater level to calculate vertical effective stress. An estimate of the in-situ groundwater level has been made based on field observations and/or CPT results, but should be verified by the user.

A summary of locations and depths is available in Table 1. Note that all penetration depths referenced in the data are with respect to the existing ground surface.

Note that it is not always possible to clearly identify a soil type based solely on q_t, f_s, and u_2. In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the correct soil behavior type.



ZONE		SBT
1		Sensitive, fine grained
2		Organic materials
3		Clay
4		Silty clay to clay
5		Clayey silt to silty clay
6		Sandy silt to clayey silt
7		Silty sand to sandy silt
8		Sand to silty sand
9		Sand
10		Gravely sand to sand
11		Very stiff fine grained*
12		Sand to clayey sand*

*over consolidated or cemented

Figure SBT (After Robertson et al., 1986) – Note: Colors may vary slightly compared to plots

Cone Penetration Test (CPT) Interpretation

Gregg uses a proprietary CPT interpretation and plotting software. The software takes the CPT data and performs basic interpretation in terms of soil behavior type (SBT) and various geotechnical parameters using current published empirical correlations based on the comprehensive review by Lunne, Robertson and Powell (1997). The interpretation is presented in tabular format using MS Excel. The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software.

The following provides a summary of the methods used for the interpretation. Many of the empirical correlations to estimate geotechnical parameters have constants that have a range of values depending on soil type, geologic origin and other factors. The software uses 'default' values that have been selected to provide, in general, conservatively low estimates of the various geotechnical parameters.

Input:

1. Units for display (Imperial or metric) (atm. pressure, p_a = 0.96 tsf or 0.1 MPa)
2. Depth interval to average results (ft or m). Data are collected at either 0.02 or 0.05m and can be averaged every 1, 3 or 5 intervals.
3. Elevation of ground surface (ft or m)
4. Depth to water table, z_w (ft or m) – input required
5. Net area ratio for cone, a (default to 0.80)
6. Relative Density constant, C_{Dr} (default to 350)
7. Young's modulus number for sands, α (default to 5)
8. Small strain shear modulus number
   a. for sands, S_G (default to 180 for SBT_n 5, 6, 7)
   b. for clays, C_G (default to 50 for SBT_n 1, 2, 3 & 4)
9. Undrained shear strength cone factor for clays, N_{kt} (default to 15)
10. Over Consolidation ratio number, k_{ocr} (default to 0.3)
11. Unit weight of water, (default to γ_w = 62.4 lb/ft^3 or 9.81 kN/m^3)

Column

1. Depth, z, (m) – CPT data is collected in meters
2. Depth (ft)
3. Cone resistance, q_c (tsf or MPa)
4. Sleeve resistance, f_s (tsf or MPa)
5. Penetration pore pressure, u (psi or MPa), measured behind the cone (i.e. u_2)
6. Other – any additional data
7. Total cone resistance, q_t (tsf or MPa) $\quad q_t = q_c + u\,(1-a)$

8	Friction Ratio, R_f (%)	$R_f = (f_s/q_t) \times 100\%$
9	Soil Behavior Type (non-normalized), SBT	see note
10	Unit weight, γ (pcf or kN/m^3)	based on SBT, see note
11	Total overburden stress, σ_v (tsf)	$\sigma_{vo} = \sigma\ z$
12	In-situ pore pressure, u_o (tsf)	$u_o = \gamma_w (z - z_w)$
13	Effective overburden stress, σ'_{vo} (tsf)	$\sigma'_{vo} = \sigma_{vo} - u_o$
14	Normalized cone resistance, Q_{t1}	$Q_{t1} = (q_t - \sigma_{vo}) / \sigma'_{vo}$
15	Normalized friction ratio, F_r (%)	$F_r = f_s / (q_t - \sigma_{vo}) \times 100\%$
16	Normalized Pore Pressure ratio, B_q	$B_q = u - u_o / (q_t - \sigma_{vo})$
17	Soil Behavior Type (normalized), SBT_n	see note
18	SBT_n Index, I_c	see note
19	Normalized Cone resistance, Q_{tn} (n varies with I_c)	see note
20	Estimated permeability, k_{SBT} (cm/sec or ft/sec)	see note
21	Equivalent SPT N_{60}, blows/ft	see note
22	Equivalent SPT $(N_1)_{60}$ blows/ft	see note
23	Estimated Relative Density, D_r, (%)	see note
24	Estimated Friction Angle, ϕ', (degrees)	see note
25	Estimated Young's modulus, E_s (tsf)	see note
26	Estimated small strain Shear modulus, Go (tsf)	see note
27	Estimated Undrained shear strength, s_u (tsf)	see note
28	Estimated Undrained strength ratio	s_u/σ_v'
29	Estimated Over Consolidation ratio, OCR	see note

Notes:

1 Soil Behavior Type (non-normalized), SBT (Lunne et al., 1997 and table below)

2 Unit weight, γ either constant at 119 pcf or based on Non-normalized SBT (Lunne et al., 1997 and table below)

3 Soil Behavior Type (Normalized), SBT_n Lunne et al. (1997)

4 SBT_n Index, I_c $I_c = ((3.47 - \log Q_{t1})^2 + (\log F_r + 1.22)^2)^{0.5}$

5 Normalized Cone resistance, Q_{tn} (n varies with Ic)

$Q_{tn} = ((q_t - \sigma_{vo})/pa)\ (pa/(\sigma'_{vo})^n$ and recalculate I_c, then iterate:

When $I_c < 1.64$, n = 0.5 (clean sand)
When $I_c > 3.30$, n = 1.0 (clays)
When $1.64 < I_c < 3.30$, $n = (I_c - 1.64)0.3 + 0.5$
Iterate until the change in n, $\Delta n < 0.01$

6 Estimated permeability, k_{SBT} based on Normalized SBT_n (Lunne et al., 1997 and table below)

7 Equivalent SPT N_{60}, blows/ft Lunne et al. (1997)

$$\frac{(q_t/p_a)}{N_{60}} = 8.5\left(1 - \frac{I_c}{4.6}\right)$$

8 Equivalent SPT $(N_1)_{60}$ blows/ft $(N_1)_{60} = N_{60}\, C_N,$
where $C_N = (pa/\sigma'_{vo})^{0.5}$

9 Relative Density, D_r, (%) $D_r^2 = Q_{tn} / C_{Dr}$
Only SBT_n 5, 6, 7 & 8 *Show 'N/A' in zones 1, 2, 3, 4 & 9*

10 Friction Angle, ϕ', (degrees) $\tan \phi' = \frac{1}{2.68}\left[\log\left(\frac{q_c}{\sigma'_{vo}}\right) + 0.29\right]$

Only SBT_n 5, 6, 7 & 8 *Show'N/A' in zones 1, 2, 3, 4 & 9*

11 Young's modulus, E_s $E_s = \alpha\, q_t$
Only SBT_n 5, 6, 7 & 8 *Show 'N/A' in zones 1, 2, 3, 4 & 9*

12 Small strain shear modulus, Go

a. $G_o = S_G\,(q_t\ \sigma'_{vo}\ pa)^{1/3}$ *For SBT_n 5, 6, 7*

b. $G_o = C_G\, q_t$ *For SBT_n 1, 2, 3& 4*

Show 'N/A' in zones 8 & 9

13 Undrained shear strength, s_u $s_u = (q_t - \sigma_{vo}) / N_{kt}$
Only SBT_n 1, 2, 3, 4 & 9 *Show 'N/A' in zones 5, 6, 7 & 8*

14 Over Consolidation ratio, OCR $OCR = k_{ocr}\, Q_{t1}$
Only SBT_n 1, 2, 3, 4 & 9 *Show 'N/A' in zones 5, 6, 7 & 8*

The following updated and simplified SBT descriptions have been used in the software:

SBT Zones		**SBT_n Zones**	
1	sensitive fine grained	1	sensitive fine grained
2	organic soil	2	organic soil
3	clay	3	clay
4	clay & silty clay	4	clay & silty clay
5	clay & silty clay		
6	sandy silt & clayey silt		

7	silty sand & sandy silt	5	silty sand & sandy silt
8	sand & silty sand	6	sand & silty sand
9	sand		
10	sand	7	sand
11	very dense/stiff soil*	8	very dense/stiff soil*
12	very dense/stiff soil*	9	very dense/stiff soil*

*heavily overconsolidated and/or cemented

Track when soils fall with zones of same description and print that description (i.e. if soils fall only within SBT zones 4 & 5, print 'clays & silty clays')

Estimated Permeability (see Lunne et al., 1997)

SBT_n	Permeability (ft/sec)	(m/sec)
1	$3x\ 10^{-8}$	$1x\ 10^{-8}$
2	$3x\ 10^{-7}$	$1x\ 10^{-7}$
3	$1x\ 10^{-9}$	$3x\ 10^{-10}$
4	$3x\ 10^{-8}$	$1x\ 10^{-8}$
5	$3x\ 10^{-6}$	$1x\ 10^{-6}$
6	$3x\ 10^{-4}$	$1x\ 10^{-4}$
7	$3x\ 10^{-2}$	$1x\ 10^{-2}$
8	$3x\ 10^{-6}$	$1x\ 10^{-6}$
9	$1x\ 10^{-8}$	$3x\ 10^{-9}$

Estimated Unit Weight (see Lunne et al., 1997)

SBT	Approximate Unit Weight (lb/ft^3)	(kN/m^3)
1	111.4	17.5
2	79.6	12.5
3	111.4	17.5
4	114.6	18.0
5	114.6	18.0
6	114.6	18.0
7	117.8	18.5
8	120.9	19.0
9	124.1	19.5
10	127.3	20.0
11	130.5	20.5
12	120.9	19.0

Pore Pressure Dissipation Tests (PPDT)

Pore Pressure Dissipation Tests (PPDT's) conducted at various intervals can be used to measure equilibrium water pressure (at the time of the CPT). If conditions are hydrostatic, the equilibrium water pressure can be used to determine the approximate depth of the ground water table. A PPDT is conducted when penetration is halted at specific intervals determined by the field representative. The variation of the penetration pore pressure (*u*) with time is measured behind the tip of the cone and recorded.

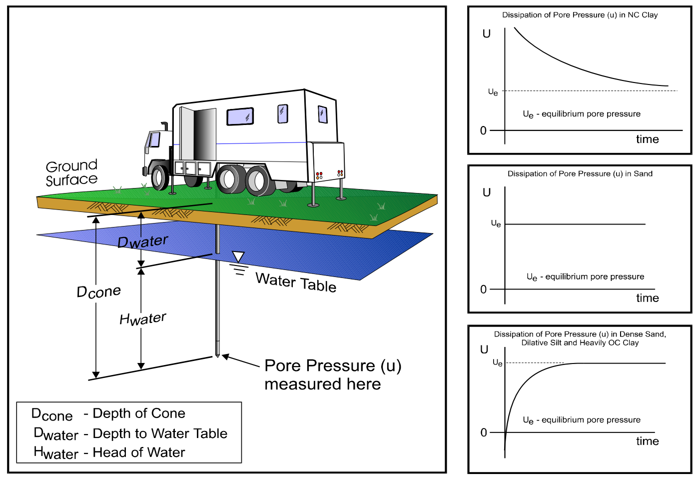
Pore pressure dissipation data can be interpreted to provide estimates of:

- Equilibrium piezometric pressure
- Phreatic Surface
- In situ horizontal coefficient of consolidation (c_h)
- In situ horizontal coefficient of permeability (k_h)

In order to correctly interpret the equilibrium piezometric pressure and/or the phreatic surface, the pore pressure must be monitored until it reaches equilibrium, *Figure PPDT*. This time is commonly referred to as t_{100}, the point at which 100% of the excess pore pressure has dissipated.

A complete reference on pore pressure dissipation tests is presented by Robertson et al. 1992 and Lunne et al. 1997.

A summary of the pore pressure dissipation tests are summarized in Table 1.



Water Table Calculation

$$D_{water} = D_{cone} - H_{water}$$

where $H_{water} = U_e$ (depth units)

Useful Conversion Factors: 1psi = 0.704m = 2.31 feet (water)
1tsf = 0.958 bar = 13.9 psi
1m = 3.28 feet

Figure PPDT

Seismic Cone Penetration Testing (SCPT)

Seismic Cone Penetration Testing (SCPT) can be conducted at various intervals during the Cone Penetration Test. Shear wave velocity (Vs) can then be calculated over a specified interval with depth. A small interval for seismic testing, such as 1-1.5m (3-5ft) allows for a detailed look at the shear wave profile with depth. Conversely, a larger interval such as 3-6m (10-20ft) allows for a more average shear wave velocity to be calculated. Gregg's cones have a horizontally active geophone located 0.2m (0.66ft) behind the tip.

To conduct the seismic shear wave test, the penetration of the cone is stopped and the rods are decoupled from the rig. An automatic hammer is triggered to send a shear wave into the soil. The distance from the source to the cone is calculated knowing the total depth of the cone and the horizontal offset distance between the source and the cone. To calculate an interval velocity, a minimum of two tests must be performed at two different depths. The arrival times between the two wave traces are compared to obtain the difference in time (Δt). The difference in depth is calculated (Δd) and velocity can be determined using the simple equation: $v = \Delta d/\Delta t$

Multiple wave traces can be recorded at the same depth to improve quality of the data.

A complete reference on seismic cone penetration tests is presented by Robertson et al. 1986 and Lunne et al. 1997.

A summary the shear wave velocities, arrival times and wave traces are provided with the report.

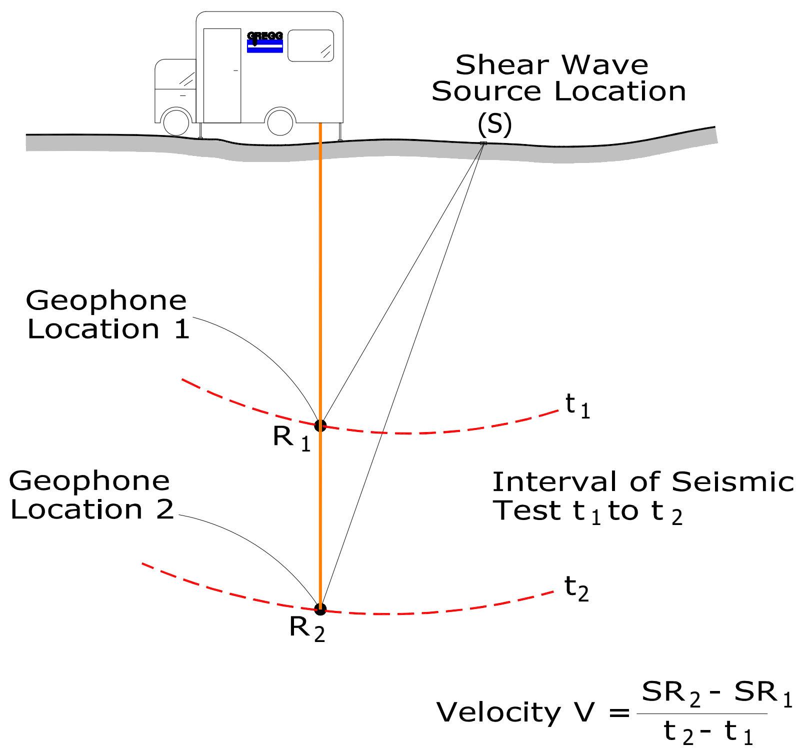


Figure SCPT

Groundwater Sampling

Gregg Drilling & Testing, Inc. conducts groundwater sampling using a sampler as shown in *Figure GWS*. The groundwater sampler has a retrievable stainless steel or disposable PVC screen with steel drop off tip. This allows for samples to be taken at multiple depth intervals within the same sounding location. In areas of slower water recharge, provisions may be made to set temporary PVC well screens during sampling to allow the pushing equipment to advance to the next sample location while the groundwater is allowed to infiltrate.

The groundwater sampler operates by advancing 44.5mm (1¾ inch) hollow push rods with the filter tip in a closed configuration to the base of the desired sampling interval. Once at the desired sample depth, the push rods are retracted; exposing the encased filter screen and allowing groundwater to infiltrate hydrostatically from the formation into the inlet screen. A small diameter bailer (approximately ½ or ¾ inch) is lowered through the push rods into the screen section for sample collection. The number of downhole trips with the bailer and time necessary to complete the sample collection at each depth interval is a function of sampling protocols, volume requirements, and the yield characteristics and storage capacity of the formation. Upon completion of sample collection, the push rods and sampler, with the exception of the PVC screen and steel drop off tip are retrieved to the ground surface, decontaminated and prepared for the next sampling event.

For a detailed reference on direct push groundwater sampling, refer to Zemo et. al., 1992.

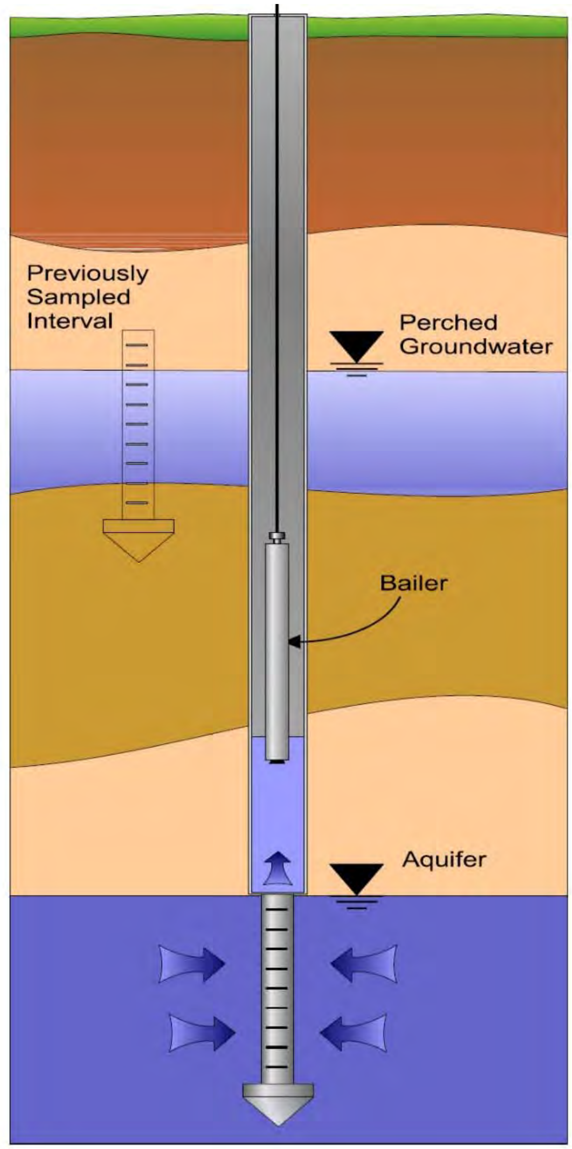


Figure GWS

Soil Sampling

Gregg Drilling & Testing, Inc. uses a piston-type push-in sampler to obtain small soil samples without generating any soil cuttings, *Figure SS*. Two different types of samplers (12 and 18 inch) are used depending on the soil type and density. The soil sampler is initially pushed in a "closed" position to the desired sampling interval using the CPT pushing equipment. Keeping the sampler closed minimizes the potential of cross contamination. The inner tip of the sampler is then retracted leaving a hollow soil sampler with inner 1¼" diameter sample tubes. The hollow sampler is then pushed in a locked "open" position to collect a soil sample. The filled sampler and push rods are then retrieved to the ground surface. Because the soil enters the sampler at a constant rate, the opportunity for 100% recovery is increased. For environmental analysis, the soil sample tube ends are sealed with Teflon and plastic caps. Often, a longer "split tube" can be used for geotechnical sampling.

For a detailed reference on direct push soil sampling, refer to Robertson et al, 1998.

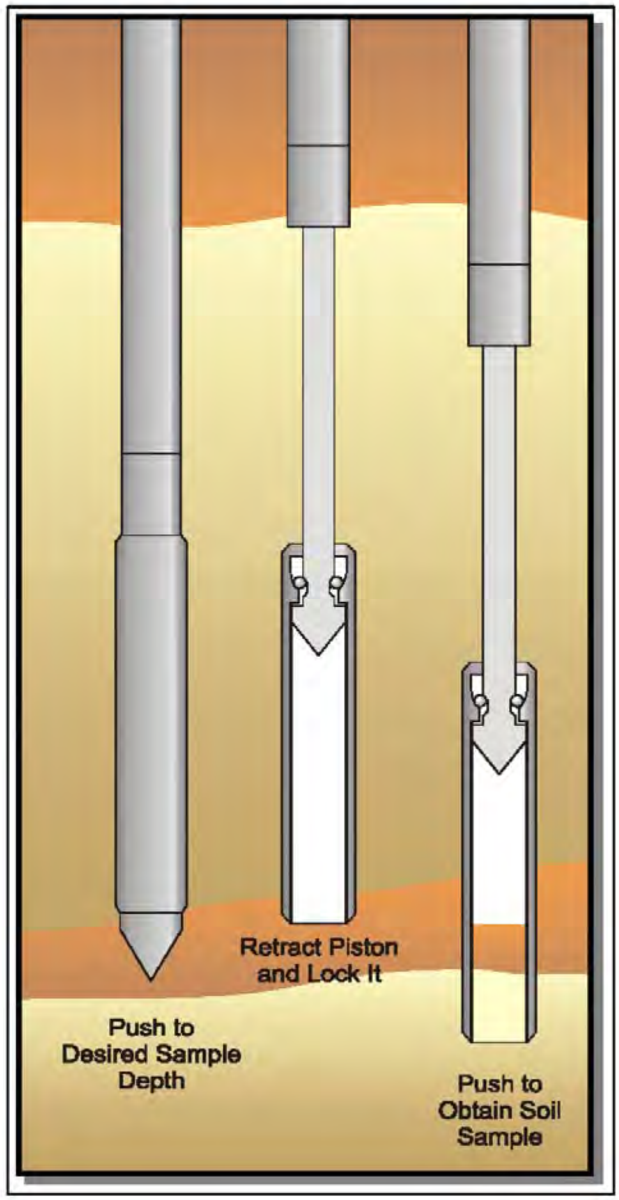


Figure SS

GREGG DRILLING, LLC
www.GREGGDRILLING.COM

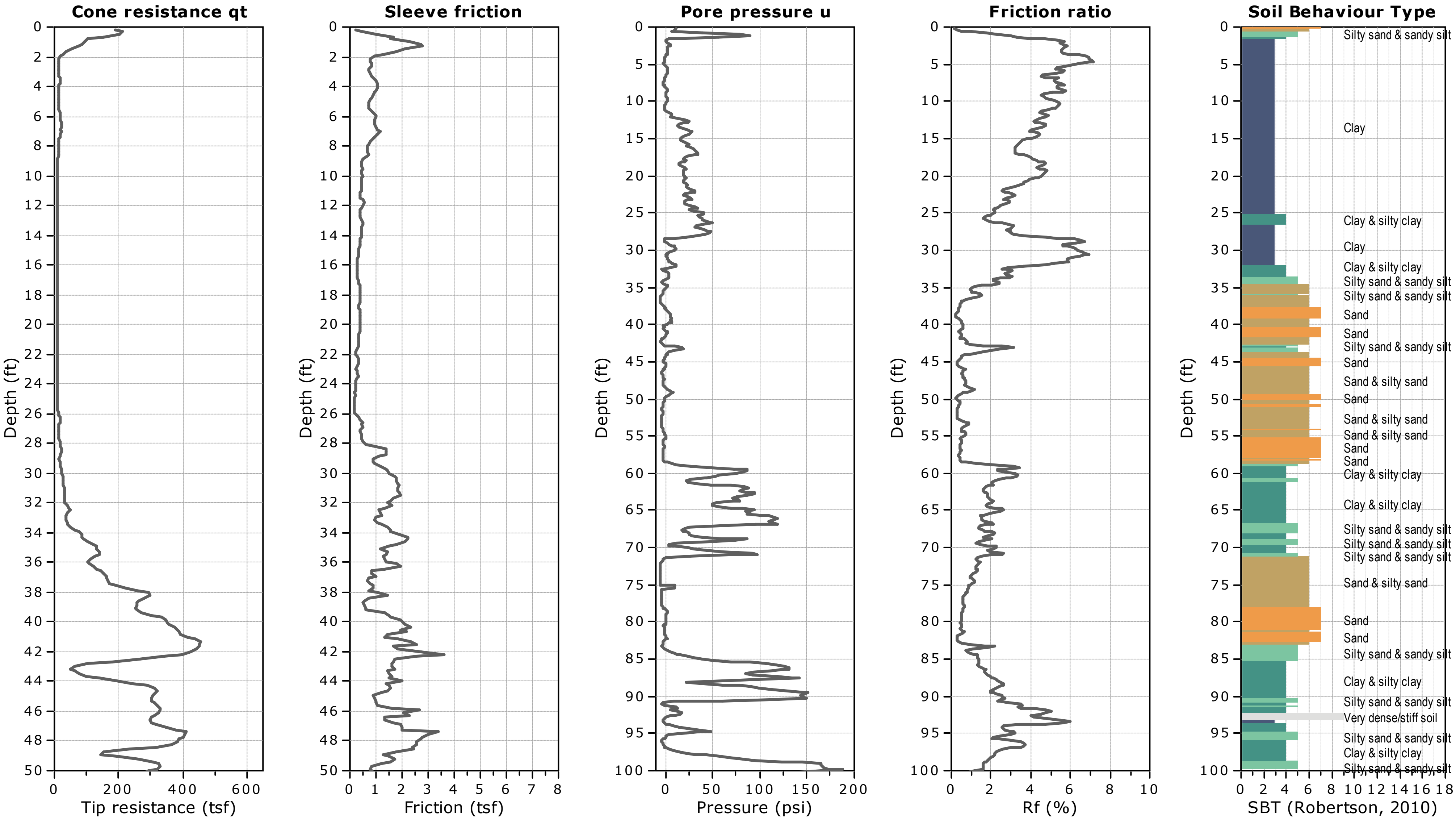
CPT: SCPT-1

CLIENT: Berlogar Stevens & Associates

SITE: Pick-N-Pull - Newark, CA

FIELD REP: Andres Garibay

Total depth: 100.23 ft, Date: 4/30/2021

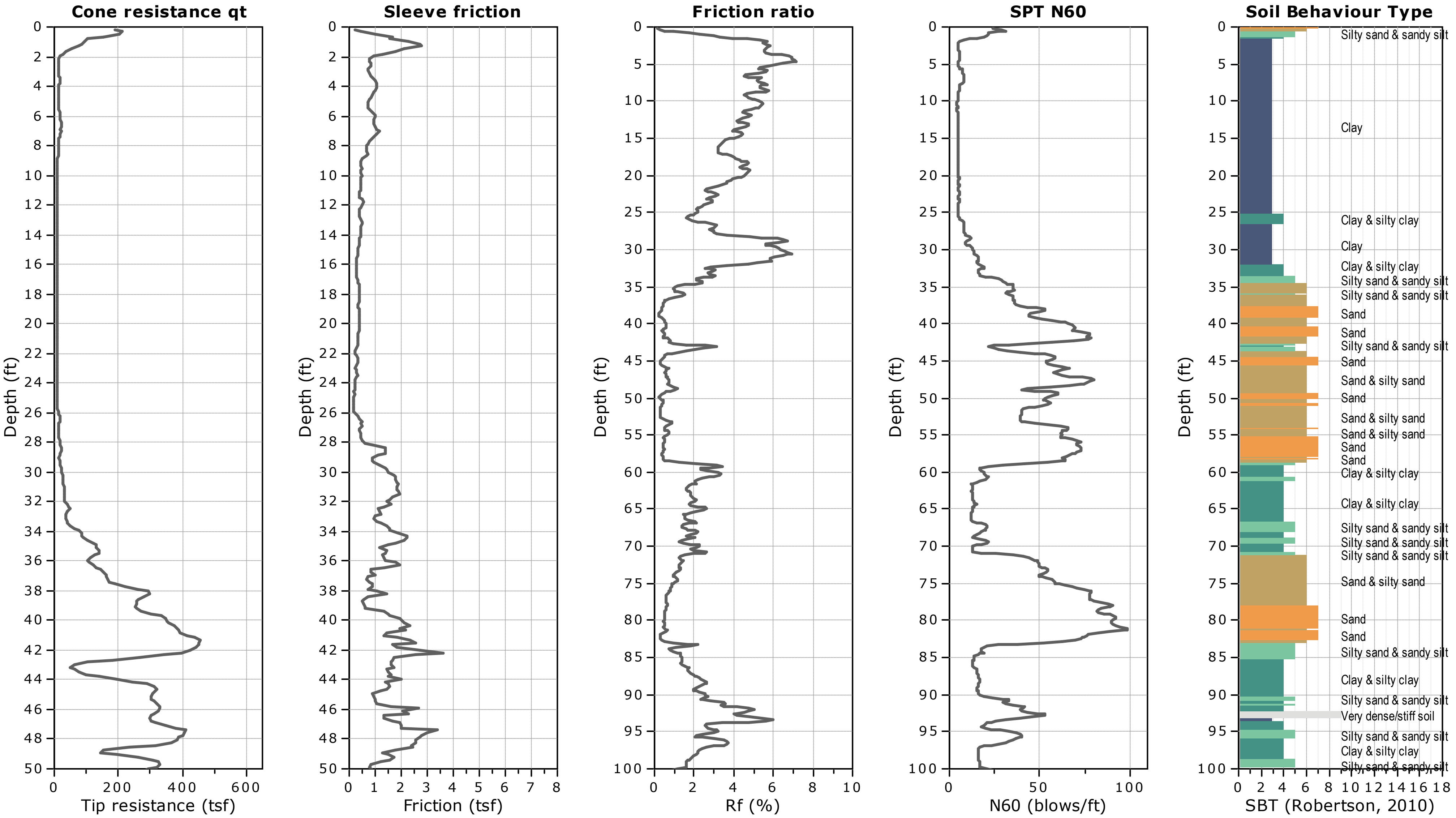


GREGG DRILLING, LLC
www.GREGGDRILLING.COM

CPT: SCPT-1

CLIENT: Berlogar Stevens & Associates
SITE: Pick-N-Pull - Newark, CA

FIELD REP: Andres Garibay
Total depth: 100.23 ft, Date: 4/30/2021



GREGG DRILLING, LLC
www.GREGGDRILLING.COM

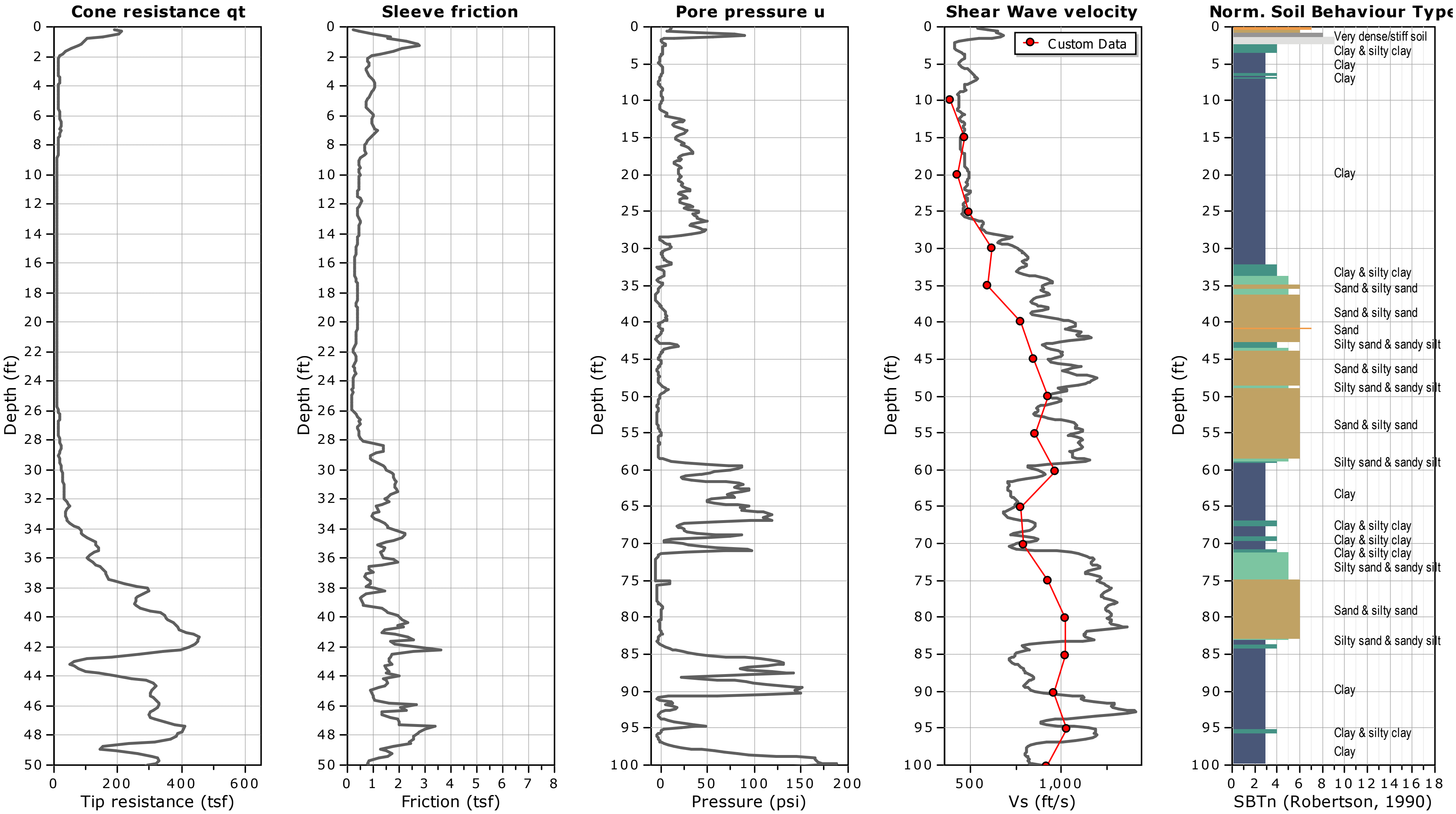
CPT: SCPT-1

CLIENT: Berlogar Stevens & Associates

SITE: Pick-N-Pull - Newark, CA

FIELD REP: Andres Garibay

Total depth: 100.23 ft, Date: 4/30/2021

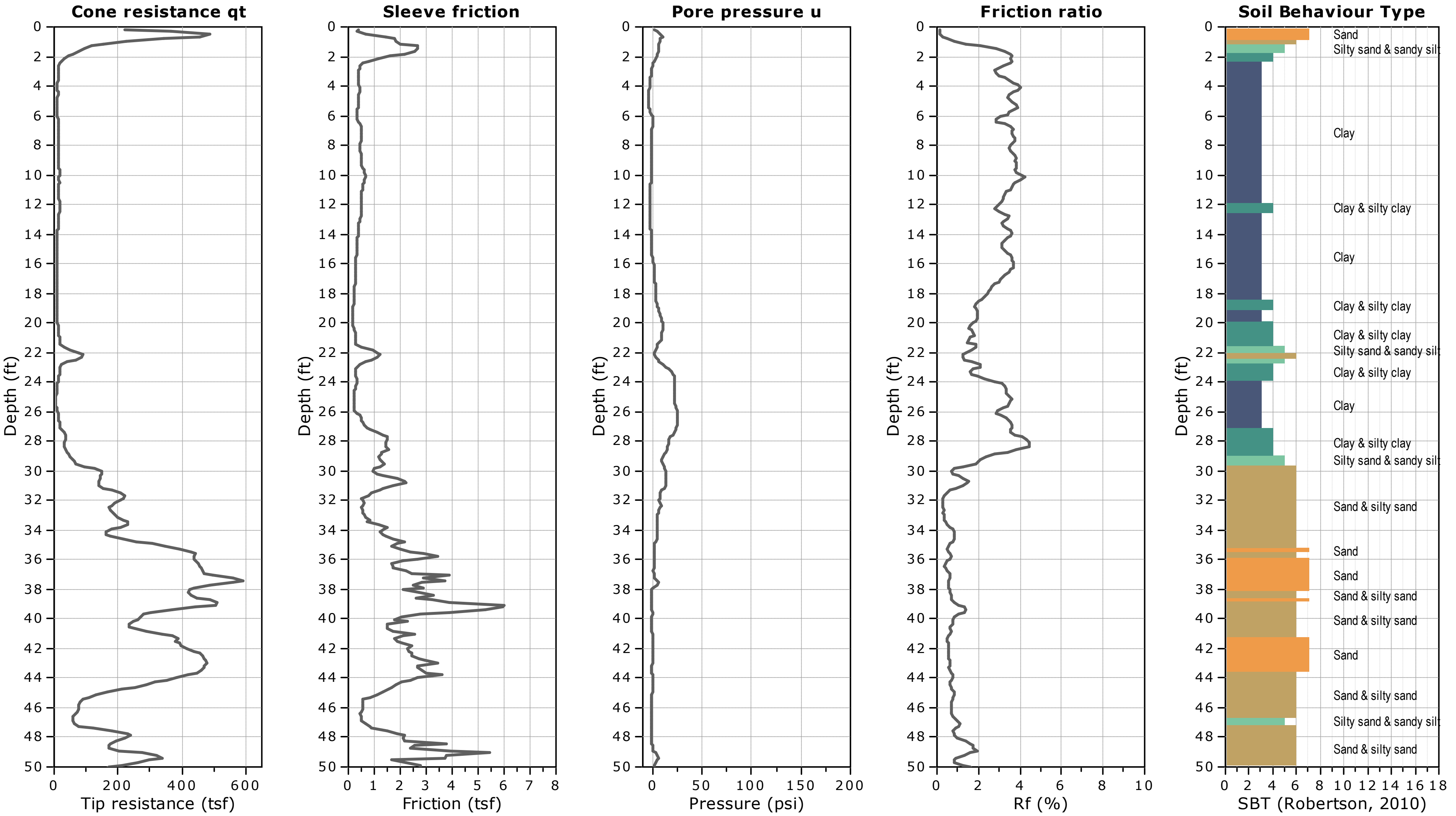


GREGG DRILLING, LLC
www.GREGGDRILLING.COM

CPT: CPT-2

CLIENT: Berlogar Stevens & Associates
SITE: Pick-N-Pull - Newark, CA

FIELD REP: Andres Garibay
Total depth: 50.20 ft, Date: 4/30/2021

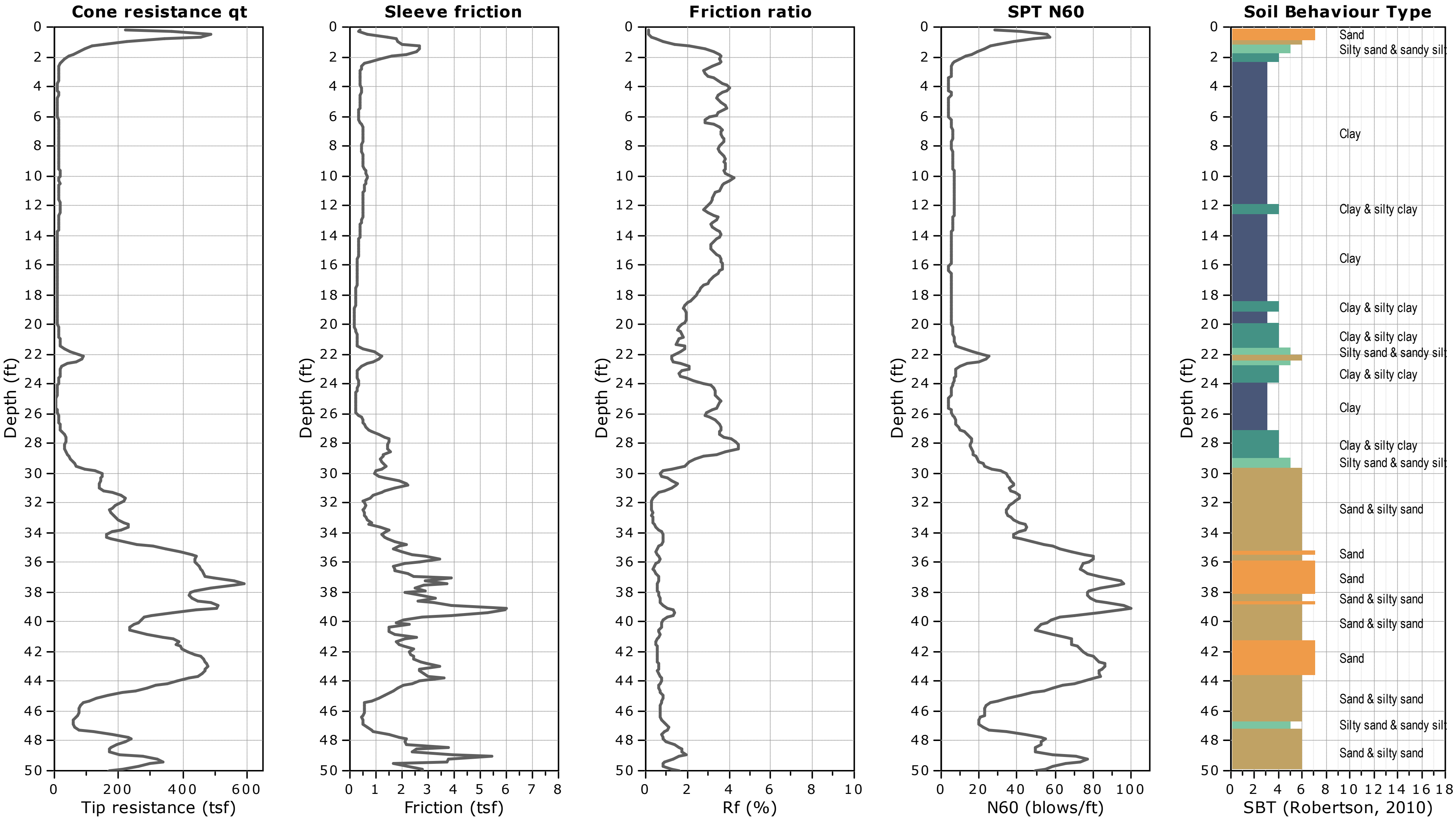


GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CPT: CPT-2

CLIENT: Berlogar Stevens & Associates
SITE: Pick-N-Pull - Newark, CA

FIELD REP: Andres Garibay
Total depth: 50.20 ft, Date: 4/30/2021

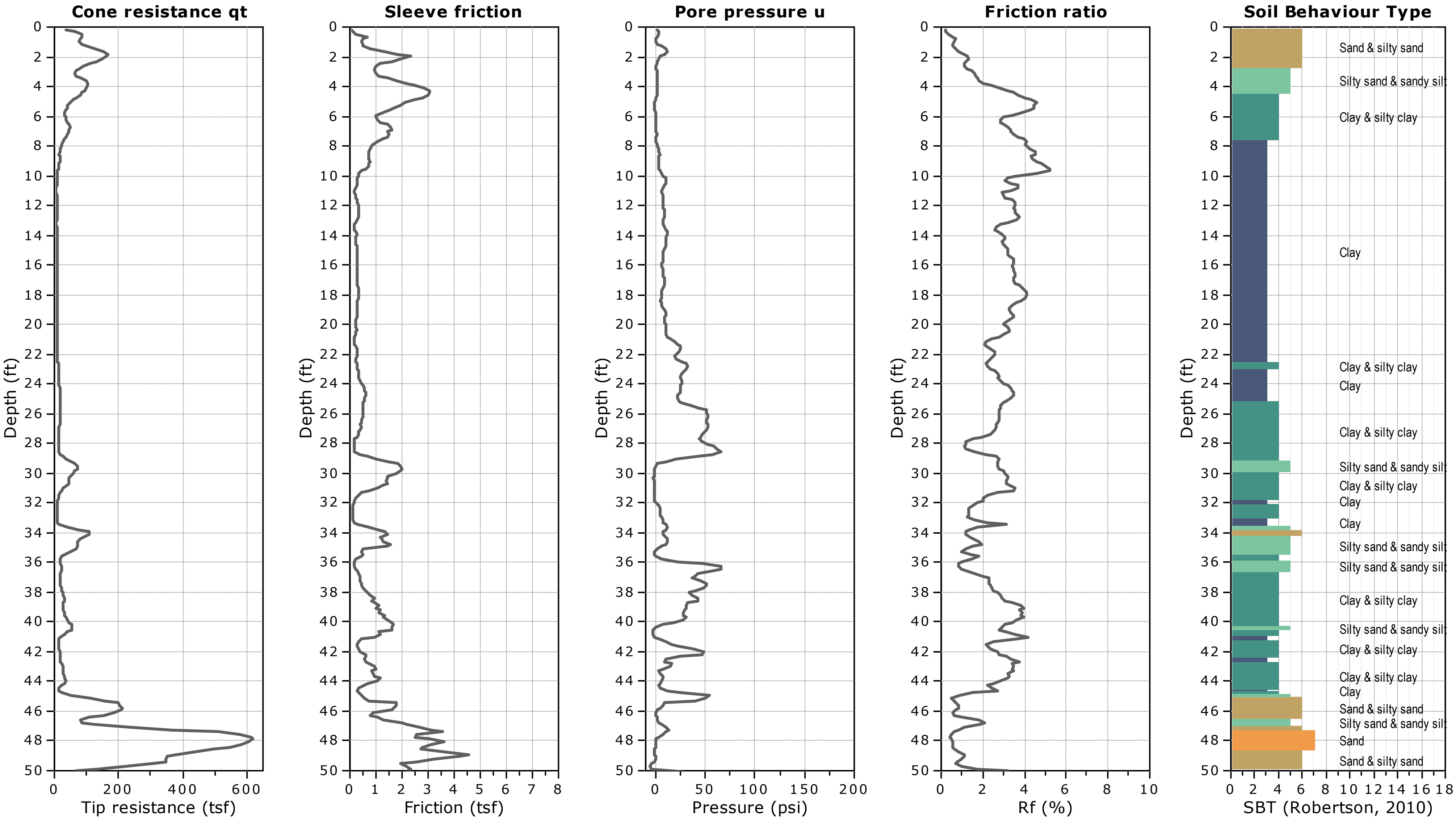


GREGG DRILLING, LLC
www.GREGGDRILLING.COM

CPT: CPT-3

CLIENT: Berlogar Stevens & Associates
SITE: Pick-N-Pull - Newark, CA

FIELD REP: Andres Garibay
Total depth: 50.36 ft, Date: 4/30/2021

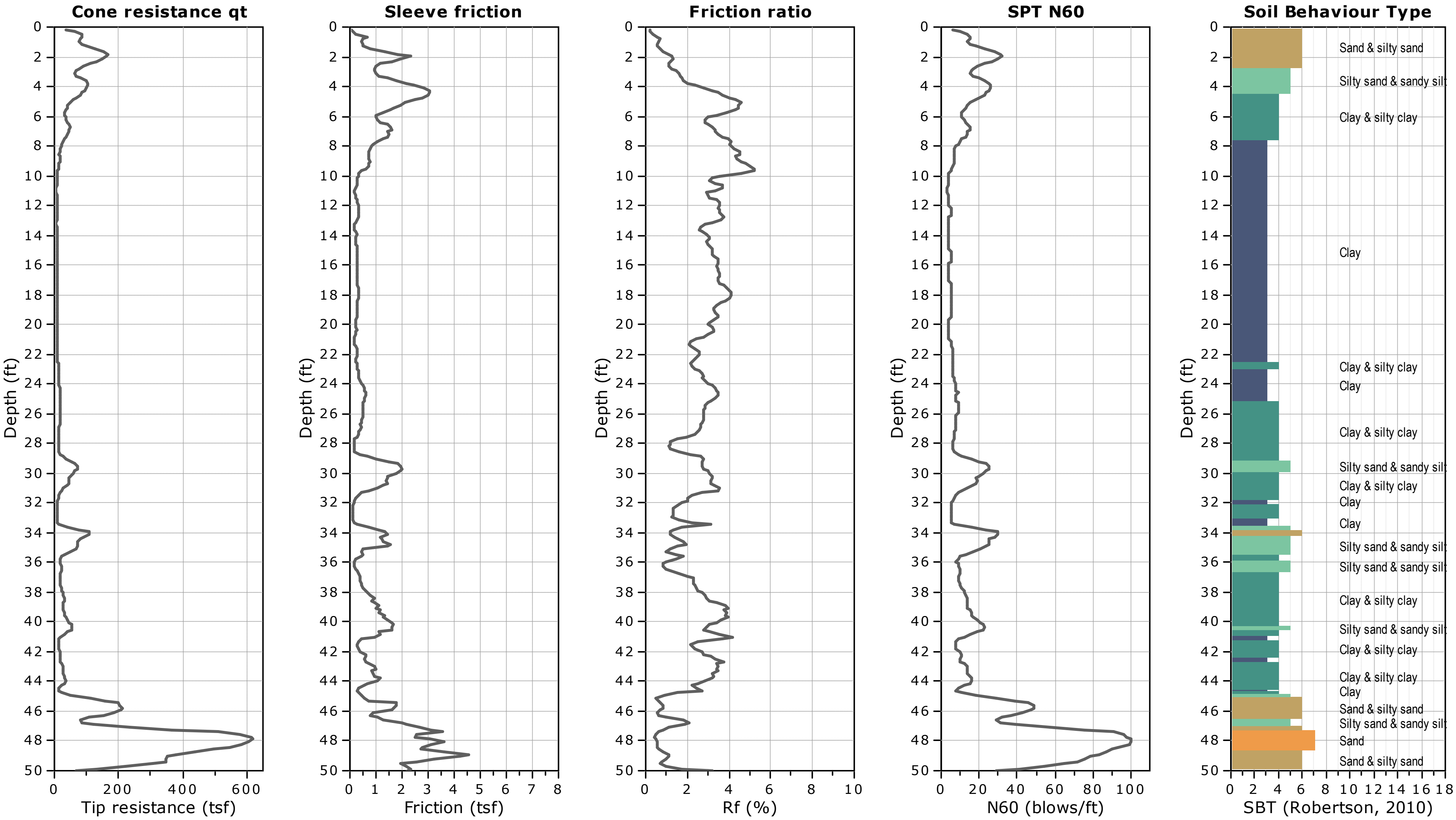


GREGG DRILLING, LLC
www.GREGGDRILLING.COM

CPT: CPT-3

CLIENT: Berlogar Stevens & Associates
SITE: Pick-N-Pull - Newark, CA

FIELD REP: Andres Garibay
Total depth: 50.36 ft, Date: 4/30/2021



Shear Wave Velocity Calculations

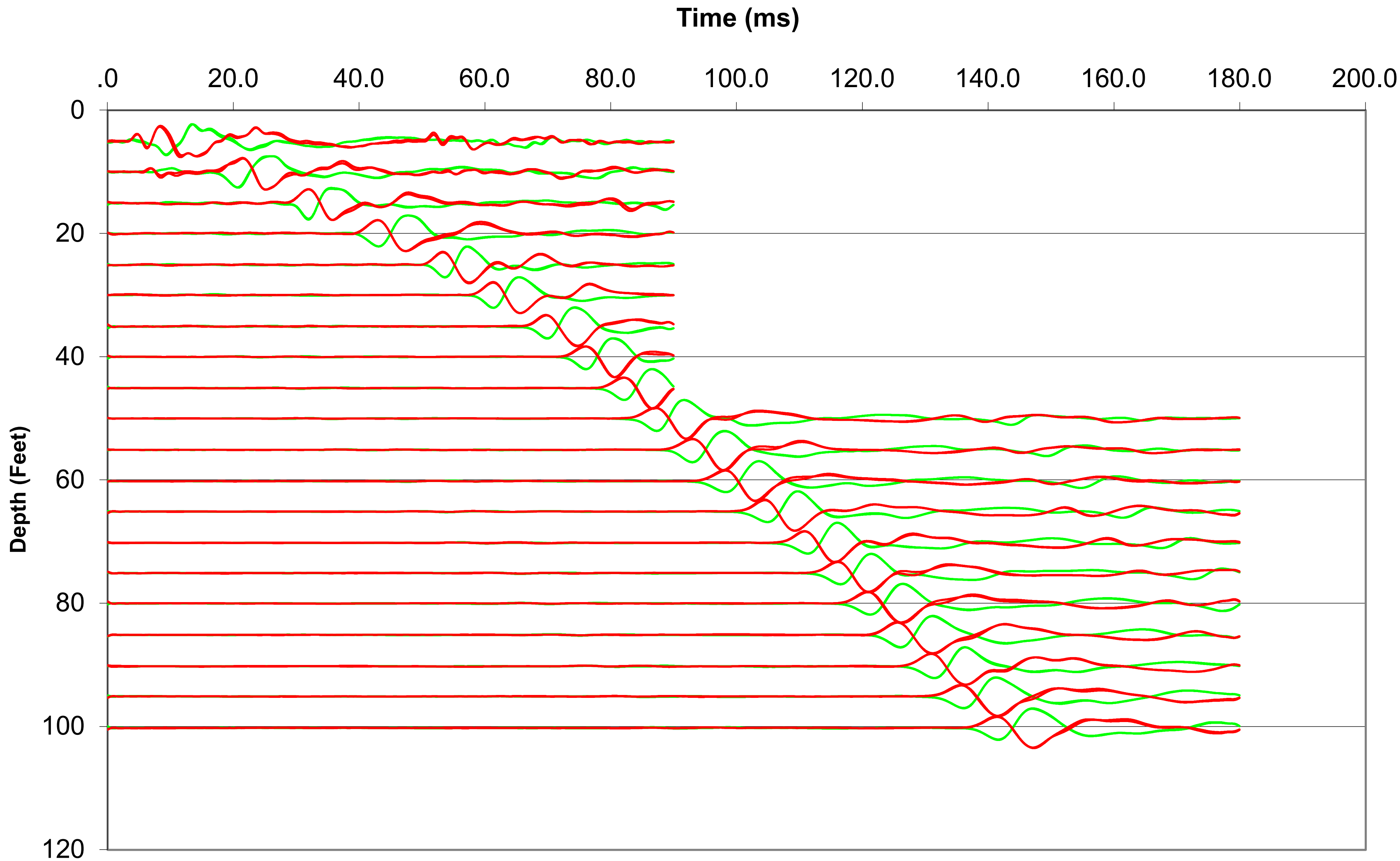
Pick-N-Pull
SCPT-1
SCPT-1

Geophone Offset: 0.66 Feet
Source Offset: 1.67 Feet

04/30/21

Test Depth (Feet)	Geophone Depth (Feet)	Waveform Ray Path (Feet)	Incremental Distance (Feet)	Characteristic Arrival Time (ms)	Incremental Time Interval (ms)	Interval Velocity (Ft/Sec)	Interval Depth (Feet)
5.09	4.43	4.73	4.73	10.7000			
10.01	9.35	9.49	4.76	22.9000	12.2000	390.5	6.89
15.09	14.43	14.53	5.03	33.5500	10.6500	472.6	11.89
20.01	19.35	19.42	4.90	44.9500	11.4000	429.5	16.89
25.10	24.44	24.50	5.07	55.2000	10.2500	494.7	21.90
30.02	29.36	29.41	4.91	63.1000	7.9000	621.7	26.90
35.10	34.44	34.49	5.08	71.6500	8.5500	594.0	31.90
40.03	39.37	39.40	4.92	77.9500	6.3000	780.3	36.91
45.11	44.45	44.48	5.08	83.9500	6.0000	846.9	41.91
50.03	49.37	49.40	4.92	89.2500	5.3000	927.9	46.91
55.12	54.46	54.48	5.08	95.1500	5.9000	861.5	51.92
60.20	59.54	59.57	5.08	100.4000	5.2500	968.2	57.00
65.12	64.46	64.49	4.92	106.7000	6.3000	780.9	62.00
70.21	69.55	69.57	5.08	113.1000	6.4000	794.3	67.01
75.13	74.47	74.49	4.92	118.4000	5.3000	928.3	72.01
80.05	79.39	79.41	4.92	123.2000	4.8000	1025.0	76.93
85.14	84.48	84.49	5.08	128.1500	4.9500	1027.1	81.93
90.22	89.56	89.58	5.08	133.4500	5.3000	959.3	87.02
95.14	94.48	94.50	4.92	138.2000	4.7500	1035.9	92.02
100.23	99.57	99.58	5.08	143.7000	5.5000	924.5	97.03

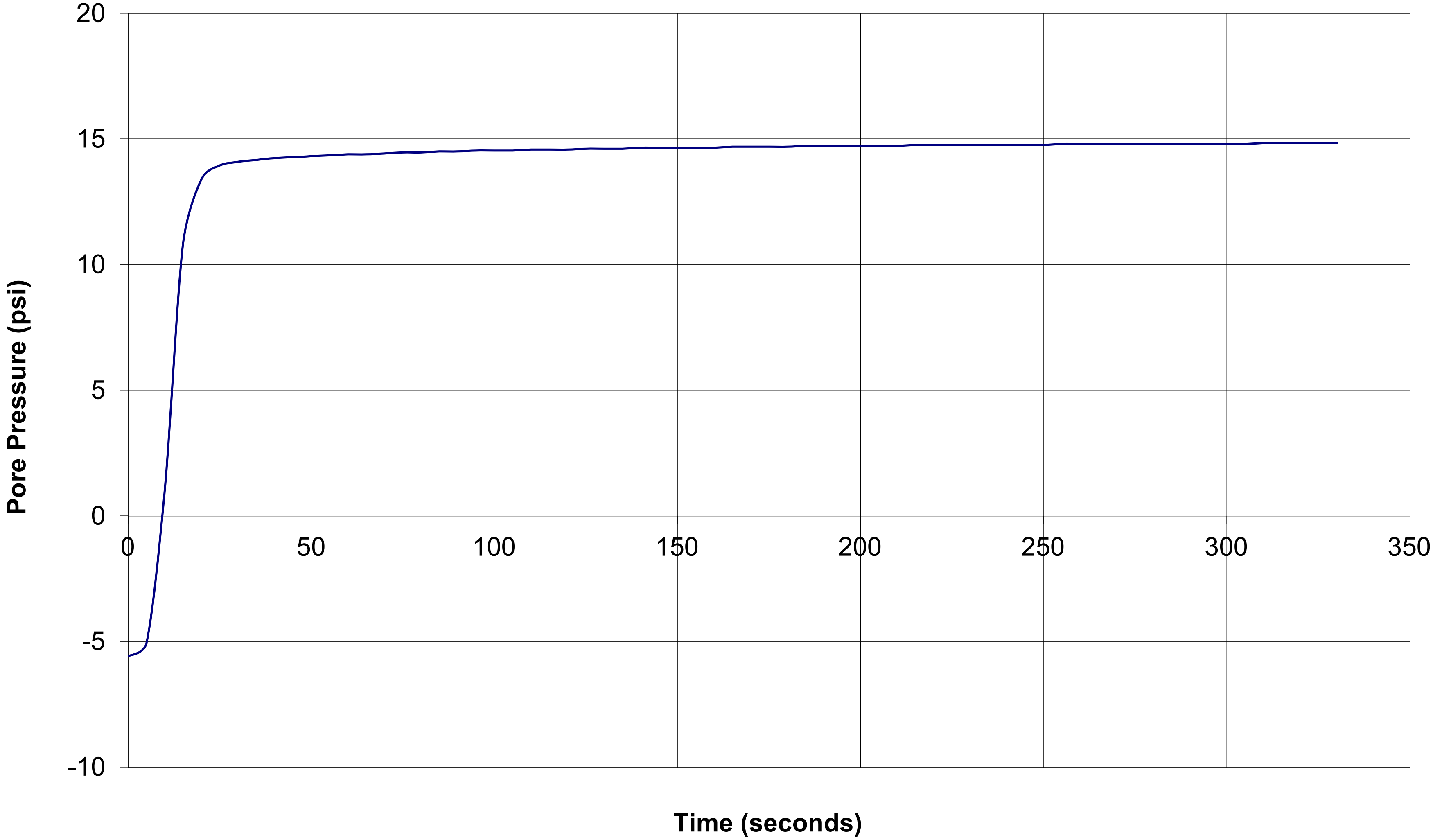
Waveforms for Sounding SCPT-1



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

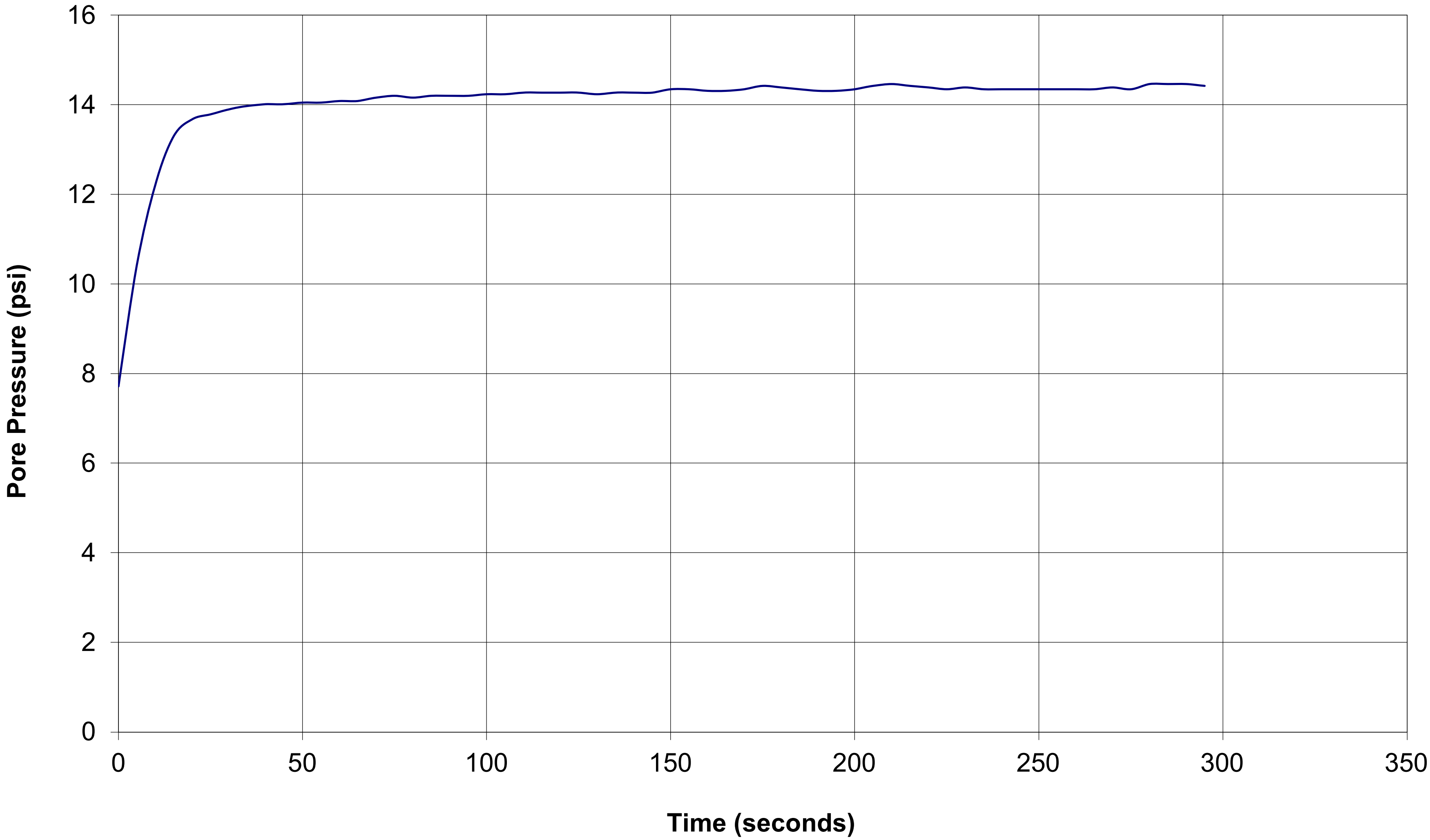
Sounding: SCPT-1
Depth (ft): 35.60
Site: Pick-N-Pull
Engineer: Andres Garibay



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

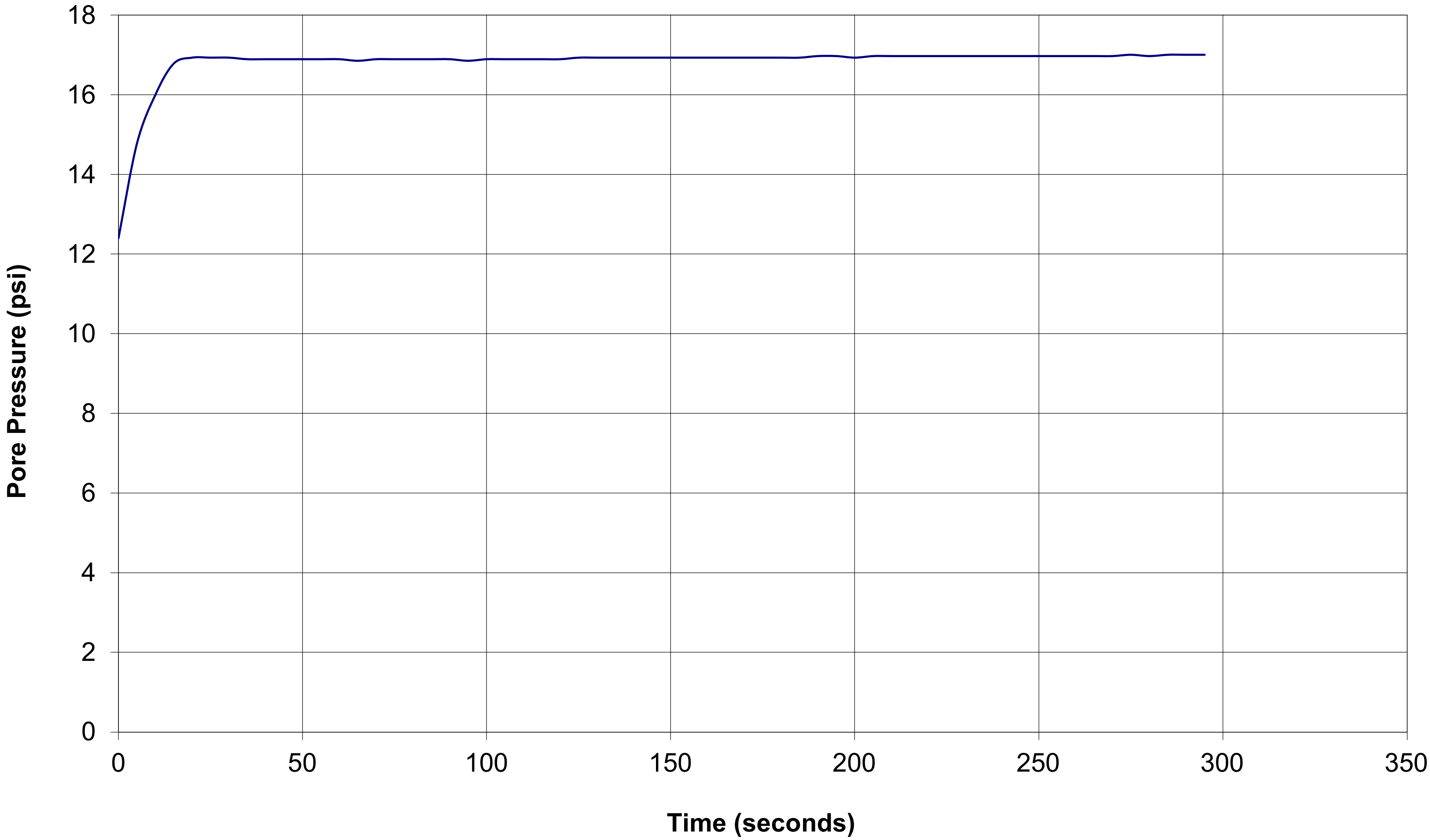
Sounding: CPT-2
Depth (ft): 32.15
Site: Pick-N-Pull
Engineer: Andres Garibay



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

Sounding: CPT-3
Depth (ft): 45.44
Site: Pick-N-Pull
Engineer: Andres Garibay



APPENDIX B

Test Pit Logs

TEST PIT LOGS

TP-1

0' – 1'	Sandy Clay, medium brown, dry, medium stiff (FILL)
1' – 3 ½'	Clayey Sand, medium brown, dry to moist, medium dense (FILL)
3 ½' – 4'	Concrete Aggregate (FILL)
4' – 5'	Fat Clay, black, moist, stiff
5' – 7'	Fat Clay, light gray brown, medium stiff, moist
7' – 8'	Silty Clay, olive-brown, moist, medium stiff

TP-2

0' – 1'	Sandy Clay, medium brown, dry, medium stiff (FILL)
1' – 2 ½'	Clayey Sand with gravel, red-brown, dry to moist, medium dense (FILL)
2 ½'– 3 ½'	Sandy Clay with gravel, dark brown, dry to moist, medium stiff
3 ½'– 5 ½'	Fat Clay, dark brown, moist, stiff
5 ½' – 6 ½'	Silty Clay, light gray brown, moist, medium stiff
6 ½'– 7'	Silty Clay, olive brown, moist, medium stiff

TP-3

0' – 1'	Sandy Clay, medium brown, dry, medium stiff (FILL)
1' – 4'	Clayey Sand with gravel, medium brown, medium dense, dry to moist (FILL)
4' – 6'	Fat Clay, dark brown, moist, medium stiff

TP-4

0’ – 1’	Silty Clay, medium brown, dry, stiff (FILL)
1’ – 3’	Clayey Sand with gravel, medium brown, medium dense, dry to moist (FILL)
3’ – 5’	Fat Clay, dark brown, moist, medium stiff

TP-5

0’ – 1’	Sandy Gravel, red brown, dry to moist, medium dense (FILL)
1’ – 3’	Fat Clay, dark brown, moist, stiff
3’ – 5’	Silty Clay, light gray brown, moist, medium stiff
5’ – 6’	Silty Clay, olive brown, moist, medium stiff

TP-6

0’ – 2’	Sandy Gravel with Clay, dark brown, dry to moist, stiff (FILL)
2’ – 3 ½’	Fat Clay, dark brown, moist, medium stiff

TP-7

0’ – 2’	Sandy Gravel, gray brown, dry to moist, very dense (FILL)
2’ – 5’	Fat Clay, dark brown, moist, medium stiff

TP-8

0’ – 2’	Sandy Gravel with Clay, gray brown, dry to moist, stiff (FILL)
2’ – 2 ½’	Recycled Aggregate Base, Sandy Gravel, dry to moist, dense (FILL)
2 ½’ – 4’	Fat Clay, dark brown, moist, medium stiff
4’ – 5’	Silty Clay, light gray brown, moist, medium stiff

TP-9

0’ – 1’	Sandy Gravel, gray brown, dry to moist, dense (FILL)
1’ – 4’	Fat Clay, dark brown, moist, medium stiff
4’ – 6’	Silty Clay, light gray brown, moist, medium stiff

TP-10

0’ – 1’	Sandy Gravel, gray brown, dry to moist, medium dense (FILL)
1’ – 3’	Fat Clay, dark brown, moist, medium stiff
3’ – 5’	Silty Clay, olive brown, moist, medium stiff

TP-11

0’ – 1’	Sandy Gravel, gray brown, dry to moist, medium dense (FILL)
1’ – 3’	Silty Clay, dark brown, moist, medium stiff (FILL)
3’ – 5’	Silty Clay, dark brown, moist, medium stiff
5’ – 6’	Silty Clay, gray, moist, medium stiff

TP-12

0’ – 1’	Silty Clay, medium to dark brown, dry, stiff (FILL)
1’ – 2 ½’	Aggregate Base, Sandy Gravel, red brown, dry to moist (FILL)
2 ½’– 4’	Fat Clay, dark brown, moist, medium stiff
4’ – 5’	Sandy Clay, olive, moist, medium stiff

TP-13

0' – 1'	Sandy Clay, medium to dark brown, dry, stiff (FILL)
1' – 2'	Sandy Clay with Gravel, dry to moist, medium stiff (FILL)
2' – 4'	Silty Clay, dark brown, moist, stiff
4' – 5'	Silty Clay, olive, moist, medium stiff

TP-14

0' – 1'	Sandy Clay, medium brown, dry to moist, stiff (FILL)
1' – 2'	Sandy Clay with Gravel, dry to moist, medium stiff (FILL)
2' – 4'	Silty Clay, dark brown, moist, stiff
4' – 6'	Silty Clay, olive, moist, stiff

TP-15

0' – 1'	Sandy Gravel, gray, dry, dense (FILL)
1' – 2'	Sandy Clay with Gravel, brown, dry to moist, medium stiff (FILL)
2' – 4'	Silty Clay, dark olive brown, moist, medium stiff
4' – 6'	Silty Clay, dark brown, moist, medium stiff
6' – 7'	Silty Clay, gray, moist, medium stiff

APPENDIX C

OSHPD Seismic Design Map Report

OSHPD

Latitude, Longitude: 37.5116, -122.01220

Date	5/11/2021, 6:39:57 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.67	MCE_R ground motion. (for 0.2 second period)
S_1	0.632	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.67	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.113	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.702	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.773	Site modified peak ground acceleration
T_L	12	Long-period transition period in seconds
SsRT	2.443	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.62	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.67	Factored deterministic acceleration value. (0.2 second)
S1RT	0.906	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.99	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.632	Factored deterministic acceleration value. (1.0 second)
PGAd	0.702	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.932	Mapped value of the risk coefficient at short periods
C_{R1}	0.916	Mapped value of the risk coefficient at a period of 1 s

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APPENDIX D

Corrosion Test Results

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 **462 2771** Fax. 925 **462 2775**
www.cercoanalytical.com

10 June 2021

Job No. 2105184
Cust. No. 10598

Mr. Nicholas Cardanini
Berlogar Stevens & Associates
1220 Quarry Lane, Suite C
Pleasanton, CA 94566

Subject: Project No.: 4093.101
Project Name: Mowry Village
Corrosivity Analysis – ASTM Test Methods with Brief Evaluation

Dear Mr. Cardanini:

Pursuant to your request, CERCO Analytical has analyzed the soil samples submitted on May 26, 2021. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the 100% resistivity measurements, samples 001 & 002 are classified as "corrosive" and sample 003 is classified as "moderately corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations ranged from 39 – 540 mg/kg. Chloride ion concentrations greater than 300 mg/kg are considered corrosive to embedded reinforcing steel; and, as such, the concrete mix design shall be adjusted accordingly by a qualified corrosion engineer.

The sulfate ion concentrations ranged from 63 to 210 mg/kg and are determined to be sufficient to potentially be detrimental to reinforced concrete structures and cement mortar-coated steel at these locations. Therefore, concrete that comes into contact with this soil should use sulfate resistant cement such as Type II, with a maximum water-to-cement ratio of 0.55.

The sulfide ion concentrations reflect none detected with a detection limit of 50 mg/kg.

The pH of the soils ranged from 8.00 to 9.96, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials ranged from 220 to 280-mV which is indicative of potentially "slightly corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

Very truly yours,
CERCO ANALYTICAL, INC.

Cheryl McMillen for

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 **462 2771** Fax. 925 **462 2775**
www.cercoanalytical.com

Client: Berlogar Stevens & Associates
Client's Project No.: 4093.101
Client's Project Name: Mowry Village
Date Sampled: 4-May-21
Date Received: 26-May-21
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 10-Jun-2021

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Resistivity (As Received) (ohms-cm)	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
2105184-001	TP5 @ 1'-3'	280	8.00	-	780	N.D.	39	140
2105184-002	TP7 @ 0-2'	220	9.96	-	690	N.D.	540	210
2105184-003	TP15 @ 1'-2'	250	8.70	-	2,400	N.D.	45	63
Method:		ASTM D1498	ASTM D4972	ASTM G57	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:		-	-	10	-	50	15	15
Date Analyzed:		8-Jun-2021	7-Jun-2021	-	9-Jun-2021	3-Jun-2021	7-Jun-2021	7-Jun-2021

* Results Reported on "As Received" Basis

N.D. - None Detected

(1) Detection limit is elevated to 75 mg/kg due to dilution

Cheryl McMillen
Laboratory Director

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

2105184 Mokseta

Chain of Custody

1100 Willow Pass Court
Concord, CA 94520-1006
925 462 2771
Fax: 925 462 2775

CERCO analytica

Page of

Job No.	CU#	Client Project I.D.
4093.101	10598	Mowry Village

Schedule
Analyte

Date Sampled | Date Due

Full Name: Nicholas Cardanini
Fax: 925-846-9645
Phone: 925-484-0220
Cell
Company: Berlogar Stevens & Associates ☒
Sample Source

ASTM w/Brief Evaluation — ANALYSIS

Lab No.	Sample I.D.	Date	Time	Matrix	Contain.	Size	Preserv.	Qty.	Redox Potential	pH	Sulfate	Chloride	Resistivity-100% Saturated	Sulfide	Brief Evaluation
001	TP5 1-3'	5/4	9:10	S	bag	1 Qt	n/a	1	X	X	X	X	X	X	X
002	TP7 0-2'	5/4	9:40	↓	↓	↓	↓	1	↓	↓	↓	↓	↓	↓	↓
003	TP15 1-2'	5/4	11:10	↓	↓	↓	↓	1	↓	↓	↓	↓	↓	↓	↓

MATRIX: DW - Drinking Water; GW - Ground Water; SW - Surface Water; WW - Waste Water; Water; SL - Sludge; S - Soil; Product

ABBREVIATIONS: HB - Hosebib; PV - Petcock Valve; PT - Pressure Tank; PH - Pump House; RR - Restroom; GL - Glass; PL - Plastic; ST - Sterile

SAMPLE RECEIPT: Total No. of Containers; Rec'd Good Cond/Cold; Conforms to Record; Temp. a t Lab -°C; Sampler

		Date	Time
Relinquished By: Nicholas Cardanini	N/a	5/26/21	10:35
Received By: [signature]		5/26/21	1350
Relinquished By:		Date	Time
Received By:		Date	Time
Relinquished By:		Date	Time
Received By:		Date	Time

Comments:
THERE IS AN ADDITIONAL CHARGE FOR METAL/POLY TUBES

8/6/2009

Appendix F
Phase I and II
Environmental Site
Assessment

www.haleyaldrich.com

REPORT ON

PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PHASE II ASSESSMENT PICK AND PULL PARCEL NEWARK, CALIFORNIA

by Haley & Aldrich, Inc.
Walnut Creek, California

for Integral Partners Funding, LLC
Danville, California

File No. 131942-002
January 2019

Haley & Aldrich, Inc.
2033 N. Main Street
Suite 309
Walnut Creek, CA 94596
925.949.1012

18 January 2019
File No. 131942-002

Vince Fletcher, PE
Integral Partners Funding, LLC
500 La Gonda Way, Suite 102
Danville, California 94526

Subject: ASTM Phase I Environmental Site Assessment
and Phase II Assessment
Pick and Pull Parcel
Newark, California

Dear Mr. Fletcher:

The enclosed report presents the results of a Phase I Environmental Site Assessment (Phase I) and Phase II Assessment (Phase II) conducted at the above-referenced property, located at 7400 Mowry Avenue, Newark, California, Alameda County Assessor's Parcel Numbers (APNs) 537-850-1-13, 537-850-1-11, and 357-850-2, in Newark, California, (herein referred to as the "subject site" or "site"). This work was performed by Haley & Aldrich, Inc. (Haley & Aldrich), in accordance with our agreement with Integral Partners Funding, LLC dated 30 July 2018 ("Agreement"). This Phase I was conducted in conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process as referenced in 40 Code of Federal Regulations (CFR) Part 312 (the All Appropriate Inquiries [AAI] Rule).

The objective of a Phase I is to assess whether known and suspect "*recognized environmental conditions*" (RECs), *historical RECs* (HRECs), or *controlled RECs* (CRECs) are associated with the subject site, as defined in the ASTM E 1527-13 Standard, by evaluating site history, existing observable conditions, current site use, and current and former uses of adjoining properties as well as potential releases at surrounding properties that may impact the subject site. The objective of a Phase II is to investigate any RECs identified in the Phase I.

Thank you for the opportunity to perform these services for you. Please do not hesitate to contact us if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.

Vincent Tilotta, P.E.
Senior Engineer

Jason Grant, P.E.
Senior Project Manager

G:\131942_Integral_Mowry Landfill Newark CA\Able Auto Wreckers_Pick-N-Pull\Deliverable\2019-0118-HAI-Integral-Pick and Pull ASTM Phase I-II-F.docx

Executive Summary

Haley & Aldrich, Inc. (Haley & Aldrich) performed a Phase I Environmental Site Assessment (Phase I) and Phase II Assessment (Phase II) for the property located at the following address: 7400 Mowry Avenue, Newark, California, Alameda County Assessor's Parcel Numbers (APNs) 537-850-1-13, 537-850-1-11, and 357-850-2, in Newark, California, (herein referred to as the "subject site" or "site"; Figure 1). The scope of work is described and conditioned by our proposal dated 30 July 2018. This Phase I and Phase II were performed for Integral Partners Funding, LLC who seek to assess the current environmental condition of the subject site. This Phase I was performed in conformance with the scope and limitations of the ASTM E 1527-13 Standard and All Appropriate Inquiry Rule.[1] The Phase II was performed following Haley & Aldrich's Work Plan dated 19 September 2018.

SUBJECT SITE DESCRIPTION

As shown in Figure 2, the subject site consists of three parcels of land totaling approximately 28 acres. The subject site was used as an automobile wrecking yard since the 1960s and is currently owned by Pick-N-Pull Auto Dismantlers, who have operated an automobile scrap yard since 1996. Approximately 16 acres of the subject site are developed with asphalt parking used to store old automobiles. The subject site contains a 13,000 square foot warehouse, a 1,500 square foot office and a 3,000 square foot covered shed for dismantling cars. The remaining 12 acres of the subject site consists of undeveloped, vacant land.

OBJECTIVE

The objective of a Phase I is to assess whether "*recognized environmental conditions*" (RECs), *historical RECs* (HRECs), and *controlled RECs* (CRECs) are associated with the subject site. Our conclusions are intended to help the User evaluate the "*business environmental risk*" associated with the subject site. Our opinion regarding a REC's potential impact on the subject site is based on the scope of our work, the information obtained during the course of our work, the conditions prevailing at the time our work was performed, the applicable regulatory requirements in effect at the time our work was performed, our experience evaluating similar sites, and on our understanding of the client's intention to assess the environmental condition of the subject site prior to possible purchase of the property; and the objective of the Phase II was to address the RECs identified in the Phase I.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Recognized Environmental Conditions (RECs)

The ASTM E 1527-13 Standard defines a REC in part as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a *material threat* of a future release to the environment."

---

[1] American Society for Testing and Materials (ASTM) E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process as referenced in 40 Code of Federal Regulations (CFR) Part 312 (the All Appropriate Inquiries [AAI] Rule) ("ASTM E 1527-13 Standard"). Specified terms as are used in ASTM E 1527-13 are highlighted in blue in this report and defined in the Glossary at the end of the report text.

The following RECs were identified in connection with the subject site following completion of the Phase I assessment:

REC #1: Automobile Wrecking Operations

Able Auto Wreckers operated an automobile wrecking yard on the subject site from the late 1960s until they were acquired by the current owner, Pick-N-Pull, in 1996. Pick-N-Pull has continued to operate the automobile wrecking yard since 1996. During approximately 50 years of automobile wrecking operations, significant quantities of hazardous materials have been handled and stored on the subject site, with documented spills and visibly stained soil.

REC #2: Historical Agricultural Operations

Prior to development as an automobile wrecking yard, the subject site was historically used for agricultural production. Sites associated with historical agricultural uses commonly contain residual agricultural chemicals.

Historical Recognized Environmental Conditions (HRECs)

The ASTM E 1527-13 Standard defines an HREC in part as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls."

HRECs were not identified in connection with the subject site.

Controlled Recognized Environmental Conditions (CRECs)

The ASTM E 1527-13 Standard defines a CREC in part as "a *recognized environmental condition* resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls."

CRECs were not identified in connection with the subject site.

De Minimis Conditions

The ASTM E 1527-13 Standard defines *de minimis* conditions as those conditions which "do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." The ASTM E 1527-13 Standard notes that "conditions determined to be *de minimis* are not recognized environmental conditions."

De minimis staining was observed on paved and gravel surfaces on the subject site.

PHASE II ASSESSMENT

Based on potential environmental issues identified during the Phase I assessment process, a voluntary sampling program was conducted to assess soil and groundwater conditions at locations across the subject site. The following potential RECs and potential environmental conditions of concern were investigated:

- Historical use of the subject site as an auto wrecking yard; and
- Historical use of the subject site as agricultural land;

Soil at the subject site was assessed at 23 locations within the auto wrecking yard and at seven locations in the undeveloped northern parcel. Soil samples were analyzed for California Title 22 metals (metals), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), and total petroleum hydrocarbons as gasoline (TPHg), diesel (TPHd), and motor oil (TPHmo). Grab groundwater samples were collected from 12 locations and analyzed for VOCs and TPHg/d/mo. Soil gas sampling was planned to be conducted, however, samples could not be collected on the subject site due to the presence of perched groundwater between 2 and 5 feet below ground surface (bgs). The shallow groundwater table was generally encountered between 6 and 8 feet bgs.

Metals, OCPs, PAHS, VOCs, and TPH were detected in shallow soil in low concentrations throughout the subject site. Metals and PAHs were detected in soil at the subject site in concentrations that were generally below Tier 1 Environmental Screening Levels (ESLs) and were typical of background levels for northern California (Duvergé, 2011; DTSC, 2009), with the exception of lead in two locations, and PAHS in one location. Lead was detected above the Tier 1 ESL at 1.5 feet bgs at SS-24, and at 1.5 and 2.5 feet bgs at SS-29. OCPs (dieldrin and endrin) were detected in concentrations exceeding their respective Tier 1 ESLs in 12 sampling locations, primarily at depth of 0.5 and 1.5 feet bgs, but did not exceed their residential direct exposure ESLs.

VOCs were present in concentrations generally below Tier 1 ESLs, with the exception of naphthalene exceeding its Tier 1 ESL in locations SS-3, SS-6, and SS-29, and benzene exceeding its Tier 1 ESL in location SS-6. No VOCs were detected in concentrations above their respective residential direct exposure ESL. TPHg and TPHmo did not exceed their respective Tier 1 ESLs in any of the soil samples collected on the subject site, however, TPHd exceeded its Tier 1 ESL in 16 locations. TPHd concentrations above the Tier 1 ESL were generally found in samples collected at 0.5 and 1.5 feet bgs within the automobile wrecking yard. The TPHd Tier 1 ESL is established to assess direct exposure concerns at residential properties.

Low levels of VOCs were detected in grab groundwater samples collected at seven of the 12 locations sampled at the subject site. VOCs, including benzene, ethylbenzene, naphthalene, and xylenes were detected above their respective Tier 1 ESLs in sample GW-6, and methyl tert butyl ether (MTBE) and naphthalene were detected above their respective Tier 1 ESLs in sample GW-1. TPHg was detected above its Tier 1 ESL in sample GW-6, and TPHd was detected above its Tier 1 ESL in samples GW-1, GW-3 through GW-7, and GW-9. The Tier 1 ESLs for these exceedances are established to assess potential drinking water concerns, with the benzene Tier 1 ESL corresponding to the California Maximum Contaminant Level (MCL). The detected benzene and ethylbenzene concentrations also exceeded their respective groundwater ESL to assess potential concerns associated with vapor intrusion to indoor air at residential properties.

CONCLUSIONS

Based on the potential RECs identified during the Phase I process, a Phase II investigation was performed to assess the possible presence of metals, VOCs, PAHS, OCPs, and TPH in soil as well as VOCs and TPH in groundwater. The Phase II results identified generally low levels of metals, VOCs, and PAHs, OCPs, TPHg, and TPHmo in shallow soil at the subject site. Metals and PAHs were detected in soil in concentrations constant with background levels, with the exception of lead in two locations and PAHs in one location. No OCPs, VOCs, TPHg, or TPHmo were detected in soil above their respective residential direct exposure levels.

Lead was detected at concentrations exceeding its Tier 1 ESL in three samples collected between 0.5 and 2.5 feet bgs inside of the automobile wrecking yard. TPHd was detected at concentrations exceeding its respective Tier 1 ESLs in shallow soil in 16 locations across the automobile wrecking yard, generally at 0.5 and 1.5 feet bgs. Soil on the subject site can be remediated to residential levels through removal of shallow soil in select portions of the auto wrecking yard.

TPHg was detected above its Tier 1 ESL in one groundwater sample, and TPHd was detected above its Tier 1 ESL in seven groundwater samples. Most VOCs were detected in groundwater samples at levels below their respective Tier 1 ESLs, with a few VOCs, notably benzene and ethylbenzene, exceeding their respective Tier 1 ESLs. Benzene and ethylbenzene were detected in groundwater at one location within the middle of the auto wrecking yard at concentrations exceeding their Tier 1 ESLs, which are based on potential drinking water concerns. In addition, the detected benzene and ethylbenzene concentrations at that location exceed the ESL to assess potential vapor intrusion concerns from groundwater.

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1. Introduction

This report presents the results of a Phase I Environmental Site Assessment (Phase I) and Phase II Assessment (Phase II) conducted for the property located at 7400 Mowry Avenue, Newark, California, (Figure 1), which is comprised of Alameda County Assessor's Parcel Numbers (APNs) 537-850-1-13, 537-850-1-11, and 357-850-2, herein referred to as the "subject site" or "site." Our work was performed on behalf of Integral Partners Funding, LLC, herein referred to as the "User" as defined by the ASTM 1527-13 Standard.

As shown in Figure 2, the subject site consists of three parcels of land totaling approximately 28 acres. The subject site is currently owned by Pick-N-Pull Auto Dismantlers.

The Subject site contains an active automobile scrapyard that includes a warehouse, sales office, workshop, and a large asphalt parking area for storing vehicles. The northern parcel of the subject site is currently undeveloped, open land.

1.1 OBJECTIVE

The objective of a Phase I is to assess whether "*recognized environmental conditions*" (RECs), *historical RECs* (HRECs), and *controlled RECs* (CRECs) are associated with the subject site by evaluating site history, interviews, existing observable conditions, current site use, and current and former uses of adjoining properties as well as potential releases at surrounding properties that may impact the subject site. Our conclusions are intended to help the User evaluate the "*business environmental risk*" associated with the subject site.

RECs are defined in the ASTM E 1527-13 Standard as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a *material threat* of a future release to the environment. The definitions of RECs, HRECs, and CRECs are included in the Glossary in Section 12 of this report.

1.2 SCOPE OF SERVICES

This work was performed by Haley & Aldrich, Inc. (Haley & Aldrich) and this Phase I was performed in conformance with the scope and limitations of the ASTM E 1527-13 Standard and *All Appropriate Inquiries (AAI)* Rule[2] and in accordance with our agreement with Integral Partners Funding, LLC dated 30 July 2018. The Phase I Limitations and Agreement are attached hereto as Appendix A.

As part of this Phase I, Haley & Aldrich conducted visual observations of site conditions and of abutting property use and interviewed a key site manager and applicable tenant representatives (site reconnaissance); reviewed federal, state, tribal, and local environmental database information, federal and state environmental files, previous reports (if identified and provided), and site historical use records; and formulated conclusions regarding the potential presence and impact of RECs.

---

[2] American Society for Testing and Materials (ASTM) E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process as referenced in 40 Code of Federal Regulations (CFR) Part 312 (the *AAI* Rule) ("ASTM E 1527-13 Standard").

1.3 NON-SCOPE CONSIDERATIONS

The ASTM E 1527-13 Standard includes the following list of "additional issues" that are non-scope considerations outside of the scope of the ASTM Phase I practice: asbestos-containing materials, biological agents, radon, lead-based paint, lead in drinking water, wetlands regulatory compliance, cultural and historic resources, industrial hygiene health and safety, ecological resources, endangered species, indoor air quality unrelated to releases of hazardous substances or petroleum products into the environment, and mold. These items were not included in this Phase I of the subject site.

1.4 LIMITING CONDITIONS/DEVIATIONS

Haley & Aldrich completed this Phase I in substantial conformance with the ASTM E 1527-13 Standard. In our opinion, no additions were made to or deviations and deletions made from the ASTM E 1527-13 Standard work scope in completing this Phase I.

1.5 USER RESPONSIBILITIES

The completion of this Phase I is only one component of the process required to satisfy the AAI Rule. In addition, the User must adhere to a set of user responsibilities as defined by the ASTM E 1527-13 Standard and the AAI Rule. User responsibilities are discussed in Section 6.6 of this report. A User seeking protection from Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) liability as an innocent landowner, bona fide prospective purchaser, or contiguous property owner must complete all components of the AAI process in addition to meeting ongoing obligations. AAI components, CERCLA liability relief, and ongoing obligations are discussed in the AAI Rule and in Appendix XI of the ASTM E 1527-13 Standard.

2. Site Description

A description of the subject site is detailed in the sections below. Refer to Figure 1 for a site location map and Figure 2 for a site plan that shows the current site layout and adjacent properties.

2.1 SITE OWNERSHIP, LOCATION, AND VICINITY DESCRIPTION

Site Description		
Owner	Pick-N-Pull Auto Dismantlers	
Occupants	Pick-N-Pull Auto Dismantlers	
Current Site Use	Vehicle scrap yard and storage	
Size	Approximately 28 acres	
Building Square Footage	Three buildings totaling approximately 19,000 square feet	
USGS 7.5 Minute Topographic Map	5641108 Newark, CA 2012, 7.5-minute	
Site County	Alameda	
Zoning	OS – Open Space	
Parcel Information	APNs: 537-850-1-13, 537-850-1-11, and 537-850-2	
Utilities	Water:	Alameda County Water District
	Sewerage:	Union Sanitary District
	Electricity:	Pacific Gas & Electric
	Gas:	Pacific Gas & Electric
Heating/Cooling System	None	

Site Vicinity Description		
General Area Description	The subject site vicinity is mixed use, with salt production flats, vacant land, and a scrap yard in the vicinity.	
Adjoining Property Description	North:	The subject site is bounded to the north by a vacant lot.
	East:	The subject site is bounded to east by a vacant lot.
	South:	The subject site is bounded to south by a vehicle storage yard.
	West:	The subject site is bounded to west Mowry Avenue, followed by salt production flats.

2.2 PHYSICAL SETTING

Subject site geology and hydrology were evaluated on the basis of readily available public information or references, and/or based upon our experience and understanding of subsurface conditions in the vicinity of the subject site. Localized variations in groundwater depth and flow may also occur on the subject site.

Physical Setting		Source
Topography Summary	The subject site is generally flat, with a gentle slope down to the south.	1
Site Elevation	The subject site elevation is approximately 14 feet above sea level.	1
Overburden Soils	Overburden soils on the subject site consist of silty or sandy clay.	4
Bedrock Formation	The subject site is located on a Quaternary alluvial fan. Alluvial deposits are underlain by bedrock of the Mesozoic Franciscan Formation, a complex assemblage of serpentinite, greenstone, greywacke, chert, shale, sandstone, and schist.	1
Depth to Bedrock	Depth to bedrock was not determined for this Phase I.	
Depth to Groundwater	Depth to groundwater was previously assessed approximately 7 to 15 feet below ground surface across the site.	4
Regional Groundwater Flow Direction	Groundwater flow direction is to the west.	1
Nearest Surface Water Body	The subject site is bounded to the west by active salt ponds.	3
Flood Plain	The subject site is located in a 500-year flood zone.	1

Sources:

1. Environmental Data Resources Inc., The EDR Radius Map Report, dated 15 January 2019.
2. Topographic Map, Newark, California, United States Geological Survey 7.5 Minute Series, 2012.
3. Google Earth.
4. Wahler Associates, Environmental Survey, dated 22 December 1988.

3. Previous Reports

Two previous environmental reports were provided to Haley & Aldrich for review:

- Environmental Survey, prepared for Valwest Development, Inc. by Wahler Associates, dated December 1988; and
- Phase I environmental site assessment, prepared David J. Powers & Associates by Cornerstone Earth Group, dated October 2007.

3.1 ENVIRONMENTAL SURVEY – DECEMBER 1988

In December 1988, Wahler Associates prepared an environmental survey for Valwest Development, Inc. to assess potential soil and groundwater impacts from the subject site's historical use as an automobile wrecking yard. The environmental assessment included ten borings to collect soil samples, and the installation and sampling of three groundwater monitoring wells.

Ten soil borings were advanced to total depths ranging from 1.5 to 5.5 feet below ground surface (bgs). Soil samples were collected for analysis from various depth intervals in each boring. A total of 21 soil samples were collected and analyzed for some combination of total recoverable petroleum hydrocarbons (TRPH), lead, polychlorinated biphenyls (PCBs), organochlorine pesticides, benzene, toluene, ethyl benzene and xylenes (BTEX), or semi-volatile organic compounds (SVOCs). PCBs, pesticides, BTEX and SVOCs were not detected in any of the soil samples. TRPH was detected in one soil sample at a concentration of approximately 520 milligrams per kilogram (mg/kg). TRPH as gasoline or diesel was not detected in any of the soil samples in concentrations above 100 mg/kg.

Three groundwater monitoring wells were installed along the western, northern and southeastern property boundaries of the subject site. The total depth of the wells was approximately 21 feet bgs. Groundwater was generally encountered at approximately 15 feet bgs during installation, however rose to approximately 1 to 6 feet bgs after well development. All three groundwater monitoring wells were sampled and analyzed for volatile organic compounds (VOCs), SVOCs, total petroleum hydrocarbons (TPH), BTEX, cyanide, and lead. No analytes were detected in any of the groundwater samples, with the exception of cyanide, which was detected in one sample with a concentration of 0.094 milligrams per liter (mg/L), which is above the Tier 1 ESL of 1 microgram per liter (µg/L).

3.2 PHASE I ENVIROMENTAL SITE ASSESSMENT – OCTOBER 2007

In October 2007, Cornerstone Earth Group prepared a Phase I environmental site assessment for David J. Powers & Associates to assist for future preparation of an environmental impact report for the Newark area 3 and 4.

Cornerstone Earth Group identified the following recognized environmental conditions:

- The Site historically was used for agricultural purposes. Thus, soil containing agricultural chemicals may be present.
- The Site has been used by automobile wrecking facilities for approximately 40 years. These operations have handled and stored significant quantities of automotive related hazardous materials at the Site. Spills and stained soil were documented at the Site.

- Fill appears to have been placed on Parcel 1. The source and quality of this fill is not known.

4. Site History

Haley & Aldrich assessed past usage of the subject site and adjoining properties through a review of the following information sources, which were provided by Environmental Data Resources, Inc. (EDR):

- Topographic maps dated 1899, 1915, 1947, 1948, 1959, 1961, 1968, 1973, 1980, 1981, 1997, and 2012;
- Aerial photographs dated 1939, 1946, 1948, 1958, 1963, 1968, 1974, 1979, 1982, 1993, 1998, 2006, 2010, and 2014; and
- City directories ranging from 1920 to 2014.

City building permits and Sanborn fire insurance maps were unavailable for review.

Copies of information obtained from historical references reviewed are included in Appendix B. Unless otherwise noted below, per the ASTM standard, sources were reviewed dating back to 1940 or first developed use, whichever is earlier, and at 5-year intervals if the use of the property has changed within that time period.

4.1 SUBJECT SITE

The table below provides a detailed summary of pertinent information from the historical sources reviewed:

Dates	Description of Subject Site	Sources
1897 - 1958	In the 1939 aerial photo the subject site appears to contain a farmhouse, with land developed for agriculture. A road cuts through the center of the subject site, leading from Mowry Avenue to the farmhouse. The subject site appears relatively unchanged in the 1946, 1948, and 1958 aerial photos.	EDR Aerial Photo Decade Package, EDR Topographic Maps
1963	In the 1963 aerial photo, the farmhouse appears to have been demolished and the land is unused.	EDR Aerial Photo Decade Package
1968 – 1979	An auto-wrecking yard is visible in the southern parcel of the subject site in the 1968 aerial photograph. By 1974, the auto-wrecking yard had expanded to the central parcel of the subject site. The northern parcel remains undeveloped	EDR Aerial Photo Decade Package, City Directory
1982 - Present	By 1982, the warehouse on the southern parcel was completed. The subject site appears relatively unchanged between 1982 and 2018.	EDR Aerial Photo Decade Package

4.2 ADJOINING PROPERTIES

The table below provides a summary of pertinent information from the historical sources reviewed regarding adjacent properties:

Dates	Description of Adjacent Properties	Sources
1939 – 1948	In the 1939, 1946, and 1948 aerial photos, all of the adjoin properties to the subject site are developed with farmland.	EDR Aerial Photo Decade Package
1958	By 1958, the property to the west of the subject site was developed into salt ponds.	EDR Aerial Photo Decade Package
1963	By 1963, the properties to the north, east, and south of the subject site are vacant, unused land.	EDR Aerial Photo Decade Package
1968 – 1982	By 1968, the property to the south of the subject site was developed as an auto-wrecking yard. By 1974, the adjacent properties to the east and north were redeveloped into farmland.	EDR Aerial Photo Decade Package
1993 – Present	Sometime between 1982 and 1993, the properties to the east and north of the subject site were abandoned into unused, vacant land.	EDR Aerial Photo Decade Package

5. Environmental Records Review

5.1 STANDARD ENVIRONMENTAL RECORDS REVIEW

Haley & Aldrich used the electronic database service EDR to conduct the environmental records review. The database search was used to identify properties that may be listed in the referenced agency records, located within the ASTM-specified approximate minimum search distances as shown in the table below. A description of each database searched is in Section 12.2 of this report. The complete environmental database report is provided in Appendix C. Pertinent information obtained from the database is summarized in Section 5.2 below.

Database Searched	Approximate Minimum Search Distance	Subject Site Listed?	Number of Sites within Search Distance[1]
1. NPL Sites	1 mile	No	0
2. Delisted NPL Sites	1 mile	No	0
3. CERCLIS Sites	0.5 mile	No	0
4. CERCLIS-NFRAP Sites	0.5 mile	No	1
5. Federal ERNS	Site Only	No	Not Applicable
6. RCRA non-CORRACTS TSD Facilities	0.5 mile	No	0
7. RCRA CORRACTS	1 mile	No	2
8. RCRA Generators	Site & Adjoining	No	0
9. Federal Institutional/Engineering Controls	Site Only	No	Not Applicable
10. State/Tribal Equivalent NPL Sites	1 mile	No	0
11. State/Tribal Equivalent CERCLIS Sites	1 mile	No	9
12. State/Tribal Registered Storage Tanks	Site & Adjoining	Yes	3
13. State/Tribal Landfills and Solid Waste Disposal Sites	0.5 mile	No	1
14. State/Tribal Leaking Storage Tanks	0.5 mile	Yes	6
15. State/Tribal Voluntary Cleanup Sites	0.5 mile	No	1
16. State/Tribal Brownfield Sites	0.5 mile	No	0
17. Orphan Site List[2]	Site & Adjoining	No	0
18. Haznet[3]	Site & Adjoining	Yes	3
19. NPDES[3]	Site & Adjoining	Yes	3
20. Finds[3]	Site Only	Yes	Not Applicable

Notes:

1. Some sites may be included on multiple databases.
2. Haley & Aldrich also searched the Orphan Site List provided in the database report for the subject site and sites adjoining the subject site. Orphan sites are those that, due to incorrect or incomplete addresses, could not be mapped by EDR, though location identification may still be possible. Haley & Aldrich's review indicates that identifiable orphan sites listed in the EDR reports do not pose an environmental concern to the subject site due to their distance from the site and/or the database in which they were identified.
3. If applicable, other relevant databases, not specifically required by ASTM, were included in the database review.

5.2 ADDITIONAL ENVIRONMENTAL RECORDS OR FILE REVIEW

To supplement the environmental record search, we contacted the following state and local government agencies and searched applicable online databases. Relevant information obtained is included in the appropriate sections of the report and/or discussed in Section 5.2 below (see Appendix C).

Agency	Request Sent or Files Searched		Files Exist and Are Available for Review	Files Reviewed
	Subject Site	Adjoining Properties		
Department of Toxic Substances Control (DTSC)	Yes	Yes	A request was sent to the DTSC on 16 April 2018, and DTSC responded on 23 April that they had no records for the subject site. Additionally, the DTSC's website, EnviroStor, generally contains all existing DTSC information on permits and corrective action at hazardous waste facilities, as well as site cleanup projects. No files pertaining to the subject site were available on EnviroStor.	N/A
San Francisco Bay California Regional Water Quality Control Board (RWQCB)	Yes	Yes	A request was sent to the RWQCB on 16 April 2018, The RWCB provided documents on the subject site. Additionally, the RWQCB's website, Geotracker, generally contains all existing RWQCB information on permits and corrective action at hazardous waste facilities, as well as site cleanup projects. Geotracker did not list the subject site.	N/A
Alameda County Water District (ACWD)	Yes	Yes	A request was sent to the ACWD on 16 April 2018. ACWD provided two reports on the subject site.	Yes
Alameda County Department of Environmental Health (ACDEH)	Yes	Yes	A request was sent to ACDEH on 16 April 2018. ACDEH responded on 17 April 2018 that they had no records related to the subject site or the neighboring properties.	N/A
Bay Area Air Quality Management District (BAAQMD)	Yes	Yes	A request was sent to the BAAQMD on 16 April 2018. BAAQMD responded on 17 April 2018 that they had no records for the subject site or the neighboring properties.	N/A
Alameda County Fire Department (ACFD) Newark Fire Prevention (NFP)	Yes	Yes	A request was sent to the NFP on 16 April 2018, and no response had been given at the time this report was written.	N/A

5.2.1 Environmental Records and Plans Summary

The subject site is not listed on either the RWQCB or DTSC databases. A Phase II environmental site assessment was performed by Wahler Associates to assess potential impacts from historical automobile scrapping activities between the late 1960s and the 1980s. Analysis of shallow soil samples indicated that TRPH was present in low levels. Three groundwater monitoring wells were installed and sampled. Cyanide was detected in one groundwater sample in a concentration of 0.094 mg/kg, above its Tier 1 ESL of 1 µg/L.

5.2.2 Subject Site

Property Name & Location	Database/ Record Identified	Description	Potential Impact to Subject Site
Newark Yard 7400 Mowry Avenue	State and Tribal Registered Storage Tanks (AST)	The subject site is listed as containing an above ground storage tank for 3,790 gallons for an unlisted substance.	There is no reported leak from this tank, so impacts to the subject site are unlikely.
Pick-N-Pull San Jose Auto Dismantler 7400 Mowry Avenue	Haznet	The Subject site is listed for disposal of "aqueous solution with total organic residues 10 percent or more."	None.
Able Auto Wreckers 7400 Mowry Avenue	State and Tribal Leaking Storage Tank lists (SLIC)	The subject site is listed as on the SLIC database with a facility status of "leak being confirmed." No leak report could be found.	Low potential for impact, as no agency reports a confirmed leak at the subject site.

5.2.3 Nearby Sites

Several sites were listed in the database report within the applicable search radii or identified in regulatory records reviews. Only those sites adjacent to the subject site and sites that were judged by Haley & Aldrich to have a potential to have impacted the subject site, generally within 500 feet in a hydrologically upgradient location relative to the subject site, are discussed below. The complete database report and relevant records review information is included in Appendix C.

Property Name & Location	Database/ Record Identified	Description	Potential Impact to Subject Site
Tolbertson Property Terminus of Mowry Ave adjacent N downgradient	SLIC	The site located approximately 150 feet to the southwest of the subject site is listed on the Spils, Leaks, Investigation, and Cleanup (SLIC) list due to the presence of buried refuse and low levels of TPH and VOCs in groundwater.	Because of the downgradient flow of groundwater away from the subject site, impacted groundwater from this property is unlikely to migrate to the subject site.

5.3 ENVIRONMENTAL LIENS

According to the EDR Report dated 15 January 2019, there are no environmental liens or Activity and Use Limitations (AULs) for the subject site.

A copy of the EDR Report is included in Appendix C.

6. Site Reconnaissance and Key Personnel Interviews

A site visit was conducted by Vincent Tilotta of Haley & Aldrich on 2 January 2019.

Haley & Aldrich personnel observed all reasonably accessible areas of the subject site, including the property boundaries, and observed adjoining property conditions from the subject site boundaries and/or public thoroughfares. No weather-related conditions or other conditions that would limit our ability to observe the subject site or adjoining properties occurred during our site visit.

Per the ASTM E 1527-13 Standard, past owners, operators, and occupants of the subject site who are likely to have material information regarding the potential for contamination at the subject property shall be contacted to the extent that they can be identified and that the information likely to be obtained is not duplicative of information already obtained from other sources. A site representative could not be contacted at the time this Phase I report was written.

The findings of the site visit and interviews are discussed below. Site photographs are included in Appendix D.

6.1 CURRENT USE OF THE PROPERTY

As shown in Figure 2, the subject site consists of three parcels of land totaling approximately 28 acres. The subject site is currently owned by Pick-N-Pull Auto Dismantlers, who operate an automobile scrap yard on two of the three parcels. The northern parcel is currently vacant, unused land.

6.2 GENERAL DESCRIPTION OF STRUCTURES

The subject site contains an approximately 14,000 square foot warehouse, an approximately 2,000 square foot, single story sales office, and an approximately 3,000 square foot covered work area.

6.3 USE, STORAGE, AND DISPOSAL OF PETROLEUM PRODUCTS AND HAZARDOUS MATERIALS

Petroleum products are removed from automobiles on the subject site and stored in drums and above ground storage tanks in the northwest portion of the auto wrecking yard.

6.4 OTHER SUBJECT SITE OBSERVATIONS

The table below summarizes items that were observed and/or reported at the subject site during the site visit other than those items related to use, storage, and disposal of petroleum or hazardous materials (described in Section 6.3 above). If items were observed or reported, they are further described either in the table or below.

Description	Observed or Reported at Time of Site Visit	Observations/Comments
Potable Water Supply	Yes	
Nearest Drinking Water Source	Yes	
Sewage Disposal System	No	
Septic System	No	
Unidentified Storage Containers	No	
Wastewater Discharge	No	
Odors	Yes	Petroleum Hydrocarbon odors in the wrecking yard
Polychlorinated biphenyls (PCBs) Associated with Electrical or Hydraulic Equipment	No	
Elevators (Traction or Hydraulic)	No	
Vehicle Maintenance Lifts	Yes	Vehicle Maintenance Lift located in the northwest corner of the subject site.
Emergency Generators	No	
Sprinkler System Pumps	No	
Heating System	No	
Cooling System	No	
Stains or Corrosion on Floors, Walls, or Ceilings	No	
Floor Drains	No	
Sumps	No	
Catch Basins	Yes	Catch Basins located in wrecking yard
Pits, Ponds, Lagoons, and Pools of Liquid	Yes	Ponds located in eastern portion of the subject site
Stained Soil or Pavement	Yes	TPH staining throughout the wrecking yard
Stressed Vegetation	No	
Solid Waste and Evidence of Waste Filling	No	
Dry Wells	No	
Monitoring Wells	No	
Water Supply Wells	No	
Irrigation Wells	No	
Injection Wells	No	
Abandoned Wells	No	

6.5 ADJOINING PROPERTY OBSERVATIONS

The subject site vicinity consists of salt ponds, an automobile scrap yard, and empty, vacant land. No conditions of environmental concern were observed on the adjoining properties during the site reconnaissance.

6.6 USER RESPONSIBILITIES

The AAI Rule requires that the User of the report consider the following:

- Whether the User has specialized knowledge about previous ownership or uses of the subject site that may be material to identifying RECs;
- Whether the User has determined that the subject site's Title contains environmental liens or other information related to the environmental condition of the property, including engineering and institutional controls and AULs, as defined by ASTM;
- Whether the User is aware of commonly known or reasonably ascertainable information about the subject site including whether or not the presence of contamination is likely on the subject site and to what degree it can be detected; and
- Whether the User has prior knowledge that the price of the subject site has been reduced for environmentally related reasons.

While such information is not required to be provided to the *environmental professional*, the *environmental professional* shall request that the User provide the results of these tasks as such information can assist the *environmental professional* in identifying recognized environmental conditions. The *AAI* Final Rule (40 CFR Part 312) requires that these tasks be performed by or on behalf of a party seeking to qualify for a landowner liability protection (LLP) from CERCLA liability.

Haley & Aldrich conducted an interview with Mr. Vince Fletcher, representative of Integral Communities Funding, on 2 January 2019, to comply with the AAI User Responsibilities. Mr. Fletcher's responses are summarized below.

- No environmental cleanup lien(s) are known to be filed or recorded against the subject site.
- No activity and land use limitation(s) are known to be in place on the subject site or known to be filed or recorded in a registry.
- The purchase price of the subject site reasonably reflects the fair market value of the property.
- Mr. Fletcher is aware of the subject site's past uses.
- Mr. Fletcher is not aware of any obvious indicators that point to the presence or likely presence of contamination on the subject site.

7. Findings and Opinions

7.1 DATA GAPS

Our ability to identify and evaluate RECs at the subject site is conditioned upon *data gaps* identified as part of this Phase I.

No significant *data gaps* were identified during the preparation of this Phase I.

7.2 RECOGNIZED ENVIRONMENTAL CONDITIONS (RECS)

The ASTM E 1527-13 Standard defines a REC in part as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a *material threat* of a future release to the environment."

The ASTM E 1527-13 Standard defines a REC in part as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a *material threat* of a future release to the environment."

The following RECs were identified in connection with the subject site following completion of the Phase I assessment:

REC #1: Automobile Wrecking Operations

Able Auto Wreckers operated an automobile wrecking yard on the subject site from the late 1960s until the they were acquired by the by the current owner, Pick-N-Pull, in 1996. Pick-N-Pull has continued to operate the automobile wrecking yard since 1996. During approximately 50 years of automobile wrecking operations, significant quantities of hazardous materials have been handled and stored on the subject site, with documented spills and visibly stained soil.

REC #2: Historical Agricultural Operations

Prior to development as an automobile wrecking yard, the subject site was historically used for agricultural production. Sites associated with historical agricultural uses commonly contain agricultural chemicals.

7.3 HISTORICAL RECOGNIZED ENVIRONMENTAL CONDITIONS (HRECS)

The ASTM E 1527-13 Standard defines an HREC in part as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls."

HRECs were not identified in connection with the subject site.

7.4 CONTROLLED RECOGNIZED ENVIRONMENTAL CONDITIONS (CRECS)

The ASTM E 1527-13 Standard defines a CREC in part as "a *recognized environmental condition* resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls."

CRECs were not identified in connection with the subject site.

7.5 DE MINIMIS CONDITIONS

The ASTM E 1527-13 Standard defines *de minimis* conditions as those conditions which "do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." The ASTM E 1527-13 Standard notes that "conditions determined to be *de minimis* are not recognized environmental conditions."

De minimis staining was observed on paved and gravel surfaces in the subject site.

7.6 NON-SCOPE CONSIDERATIONS

The ASTM E 1527-13 Standard includes the following list of "additional issues" that are non-scope considerations outside of the scope of the ASTM Phase I practice: asbestos-containing materials, biological agents, radon, lead-based paint, lead in drinking water, wetlands regulatory compliance, cultural and historic resources, industrial hygiene health and safety, ecological resources, endangered species, indoor air quality unrelated to releases of hazardous substances or petroleum products into the environment, and mold. These items were not included in this Phase I of the subject site.

8. Phase II Assessment

Based on potential environmental issues identified during the Phase I assessment process, a voluntary sampling program was conducted to assess soil and groundwater conditions at locations across the subject site.

8.1 PRELIMINARY FIELD ACTIVITIES

A site-specific Health and Safety Plan (HASP) was prepared to protect on-site personnel during field activities and Underground Service Alert (USA) was notified at least 72 hours before commencing with the drilling activities. In addition, Haley & Aldrich retained Subtronic, a private utility locating service, to check for subsurface utilities or obstructions prior to the start of all drilling activities. The utility clearance was conducted at the subject site on 2 January 2019. In the event that a proposed boring location was in the immediate vicinity of detected underground utilities, or other anomalies, the location was moved so as not to interfere with the utility or anomaly. A work plan for the investigation was developed and approved by the Alameda County Water District on 14 June 2018.

8.2 SOIL SAMPLING

Haley & Aldrich contracted PeneCore Drilling (PeneCore), a State of California licensed driller, to drill the borings (SS-1 through SS-33) to a total depth of approximately 2.5 to 15 feet bgs, where necessary, using either a hand auger or direct-push technology (e.g., GeoProbe). Soil sample locations can be viewed in Figure 3. Soil sampling activities occurred between 2 January 2019 and 4 January 2019. The direct-push rig advanced Macrocore barrels (2-inch outside diameter) lined with 1.75-inch diameter acetate sample sleeves to desired depths using a hydraulic ram or pneumatic hammer system for collecting soil samples. At each of the 30 boring locations throughout the subject site, soil samples were collected at depths of 0.5, 1.5, and 2.5 feet bgs.

Soil cores were visually inspected for staining and screened for VOCs with a photoionization detector (PID). All soil samples were labeled and transported in an ice-filled cooler under chain-of-custody protocols to Pace National Laboratories, a National Environmental Laboratory Accreditation Program (NELAP)-certified analytical laboratory located in Lebanon, Tennessee. The soil samples collected between 0.5 foot and 2.5 feet bgs from the subject site were analyzed for the following:

- CAM 17 metals using United States Environmental Protection Agency (US EPA) Method 6010B and Method 7471A
- OCPs using US EPA Method 8081;
- PAHs using US EPA Method 8270C with selective ion monitoring (SIM);
- VOCs using US EPA Method 8026B; and
- Total petroleum hydrocarbons (TPH) quantified as gasoline (TPHg), diesel (TPHd) and motor oil (TPHmo) using US EPA Method 8015M.

8.2.1 Analytical Results of Soil Samples

Results from soil analyses are shown in Table 1; laboratory analytical reports are included in Appendix E. No metals were detected exceeding their respective Tier 1 ESL with the exception of arsenic, cobalt, lead and nickel, however all detected arsenic concentrations were consistent with background concentrations in northern California. Metal analytes detected exceeding ESLs include:

- Arsenic was detected at a maximum concentration of 20.2 mg/kg in sample SS-04-2.5, however all other arsenic detections were below the Northern California background level of 11 mg/kg;
- Cobalt was detected at concentrations exceeding the Tier 1 ESL in six samples, with a maximum detected concentration of 34.9 mg/kg;
- Nickel was detected at concentrations exceeding the Tier 1 ESL in 23 samples, with a maximum detected concentration of 121 mg/kg; and
- Lead was detected at a concentration exceeding the Tier 1 ESL in three samples, with 142 mg/kg at SS-29-2.5, 95.6 mg/kg at SS-24-1.5, and 83.2 mg/kg at SS-29-1.5.

Trace levels of OCPs were detected in most of the soil samples collected between 0.5 and 2.5 feet bgs across the subject site. Detected OCPs include 4,4-DDD, 4,4-DDE, 4,4-DDT, dieldrin and endrin. Dieldrin was detected in concentrations exceeding the Tier 1 ESL in 15 samples, with a maximum detection of 0.00212 mg/kg in sample SS-24-1.5. Endrin was detected in concentrations exceeding the Tier 1 ESL in four samples, with a maximum detection of 0.00235 mg/kg in sample SS-09-1.5. Neither dieldrin nor endrin were detected in concentrations above their respective residential exposure limits for residential soil.

No other OCPs were detected in concentrations exceeding their respective Tier 1 ESL.

Low levels of PAHs were detected in most of the shallow soil samples collected throughout the subject site. PAHs detected in levels exceeding their respective Tier 1 ESLs include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Maximum detected concentrations of PAHs include:

- Benzo(a)anthracene was detected with a concentration exceeding the Tier 1 ESL in five samples, with a maximum concentration of 0.491 mg/kg;
- Benzo(a)pyrene was detected with concentrations exceeding the Tier 1 ESL in eight samples, with a maximum concentration of 0.674 mg/kg;
- Benzo(b)fluoranthene was detected with a concentration exceeding the Tier 1 ESL in five samples, with a concentration of 0.644 mg/kg;
- Dibenz(a,h)anthracene was detected with concentrations exceeding the Tier 1 ESL in six samples, with a maximum concentration of 0.688 mg/kg;
- Indeno(1,2,3-cd)pyrene was detected with a concentration exceeding the Tier 1 ESL in four samples, with a maximum concentration of 0.641 mg/kg; and
- Naphthalene was detected with a concentration exceeding the Tier 1 ESL in ten samples, with a maximum concentration of 0.286 mg/kg.

Because PAHs are commonly found in the environment, particularly in urban soil, the approach used by the Department of Toxic Substances Control (DTSC) to assess the significance of measured PAHs is to compare the detected concentrations in soil to ambient PAH concentrations. ‘Ambient’ PAH concentrations are associated with naturally occurring and other anthropogenic sources. To facilitate the investigation and remediation of former manufactured gas plant (MGP) sites throughout California, the DTSC issued a PAH Advisory that describes the use of a large and robust ambient PAH dataset that can be considered representative of the range of ambient PAHs present in northern California soil (DTSC, 2009). The ambient PAH values presented in the PAH Advisory are referenced using a calculated benzo(a)pyrene equivalent (BaP EQ) for PAHs. As recommended in the DTSC PAH Advisory, the BaP EQ concentrations measured at the subject site can be compared to the range of ambient values for northern California soil (i.e., from non-detect to 2.8 milligrams per kilogram [mg/kg]) and the 95th percentile of the northern California ambient dataset (i.e., 0.9 mg/kg). In this report, BaP EQ concentrations were calculated for each soil sample using the equivalency factors provided in the Preliminary Endangerment Assessment Guidance Manual (DTSC, 2015).

None of the PAH concentrations in soil collected from the subject site exceeded the calculated BaP EQ limit of 0.9 mg/kg, with the exception of sample SS-04-0.5, which had a calculated contained BaP EQ of 1.168 mg/kg.

Low levels of VOCs were detected in shallow soil samples throughout the subject site, most of which were in concentrations below their respective Tier 1 ESLs. VOCs detected in concentrations above their respective Tier 1 ESLs include:

- Acetone was detected with a concentration exceeding the Tier 1 ESL in one sample, with a maximum concentration of 0.657 mg/kg; and
- Benzene was detected with a concentration exceeding the Tier 1 ESL in two samples, with a maximum concentration of 0.178 mg/kg;

TPHg, TPHd and TPHmo were detected in low concentrations in shallow soil throughout the subject site. Concentrations of TPHg did not exceed the Tier 1 ESL in any of the soil samples. Concentrations of TPHd exceeded the Tier 1 ESL in 24 samples, with a maximum concentration of 2,770 mg/kg in sample SS-19-0.5. TPHmo was not detected exceeding its Tier 1 ESL in any of the soil samples collected on the subject site. Sample locations with concentrations of TPHd and lead exceeding their respective Tier 1 ESLs are shown on Figure 4.

8.3 GROUNDWATER SAMPLING

Haley & Aldrich contracted Penecore, a State of California licensed driller, to drill 13 borings throughout the subject site to groundwater using direct-push technology (e.g., GeoProbe). A temporary polyvinyl chloride (PVC) well casing was placed in each boring from which a grab groundwater sample was collected, and groundwater grab samples were collected at the first encountered groundwater. Samples were collected through the PVC casing with a peristaltic pump using new polyethylene and silicone tubing. Samples for VOC analysis were pumped into 40-milliliter volatile organics analysis (VOA) containers preserved with hydrochloric acid. Samples were labeled, sealed in a resealable plastic bag, and stored in an ice-cooled chest until transfer to the laboratory under chain-of-custody protocols. Grab groundwater analyses included:

- VOCs by US EPA Method 8260B;
- TPHg by US EPA Method 8015 and
- TPHd and TPHmo by US EPA Method 3511/8015

Shallow groundwater was generally encountered between 8 and 6 feet bgs, however perched groundwater was encountered between 5 and 2 feet bgs. Soil gas samples could not be collected at the subject site due to the presence of perched groundwater.

8.3.1 Analytical Results of Groundwater Samples

Results from groundwater analyses are shown in Table 2; laboratory analytical reports are included in Appendix E. Samples were successfully collected from 12 of the 13 borings, as adequate sample material could not be produced from GW-10.

Low levels of VOCs were detected in groundwater samples collected in seven of the 12 locations sampled at the subject site. VOCs detected in concentrations above their respective Tier 1 ESLs include:

- Benzene was detected with a concentration exceeding the Tier 1 ESL in sample GW-6, with a concentration of 67.8 µg/l;
- Ethylbenzene was detected with a concentration exceeding the Tier 1 ESL in sample GW-6, with a concentration of 180 µg/l;
- Methyl Tert Butyl Ether was detected in a concentration exceeding the Tier 1 ESL in sample GW-1, with a concentration of 7.16 µg/l;
- Naphthalene was detected in a concentration exceeding the Tier 1 ESL in samples GW-1 and GW-6, with concentrations of 1.08 µg/l and 8.08 µg/l, respectively; and
- Xylenes were detected in a concentration exceeding the Tier 1 ESL in sample GW-6, with concentration of 929 µg/l.

Sample locations with concentrations of TPHd, benzene, and ethylbenzene exceeding their respective Tier 1 ESLs are shown on Figure 5. Concentrations of TPHd in groundwater on the subject site are shown in Figure 6.

8.4 INVESTIGATION DERIVED WASTE

Investigation derived waste (IDW) soil generated during this investigation was put in a 55-gallon drum, properly labeled, and left onsite; proper disposal of this waste will be arranged at a future date.

8.5 PHASE II RESULTS SUMMARY

Soil at the subject site was assessed at 23 locations within the auto wrecking yard and at seven locations in the undeveloped northern parcel. Soil samples were analyzed for California Title 22 metals (metals), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), and total petroleum hydrocarbons as gasoline (TPHg), diesel (TPHd), and motor oil (TPHmo). Grab groundwater samples were collected from 12 locations and analyzed for VOCs and TPHg/d/mo. Soil gas sampling was planned to be conducted, however, samples could not be collected on the subject site due to the presence of perched groundwater between 2 and 5 feet bgs. The shallow groundwater table was generally encountered between 6 and 8 feet bgs.

Metals, OCPs, PAHS, VOCs, and TPH were detected in shallow soil in low concentrations throughout the subject site. Metals and PAHs were detected in soil at the subject site in concentrations that were generally below Tier 1 ESLs and were typical of background levels for northern California (Duvergé, 2011; DTSC, 2009), with the exception of lead in two locations, and PAHS in one location. Lead was detected above the Tier 1 ESL at 1.5 feet bgs at SS-24, and at 1.5 and 2.5 feet bgs at SS-29. OCPs (dieldrin and endrin) were detected in concentrations exceeding their respective Tier 1 ESLs in 12 sampling locations, primarily at depth of 0.5 and 1.5 feet bgs, but did not exceed their residential direct exposure ESLs.

VOCs were present in concentrations generally below Tier 1 ESLs, with the exception of naphthalene exceeding its Tier 1 ESL in locations SS-3, SS-6, and SS-29, and benzene exceeding its Tier 1 ESL in location SS-6. No VOCs were detected in concentrations above their respective residential direct exposure ESL. TPHg and TPHmo did not exceed their respective Tier 1 ESLs in any of the soil samples collected on the subject site, however, TPHd exceeded its Tier 1 ESL in 16 locations. TPHd concentrations above the Tier 1 ESL were generally found in samples collected at 0.5 and 1.5 feet bgs within the automobile wrecking yard. The TPHd Tier 1 ESL is established to assess direct exposure concerns at residential properties.

Low levels of VOCs were detected in grab groundwater samples collected at seven of the 12 locations sampled at the subject site. VOCs, including benzene, ethylbenzene, naphthalene, and xylenes were detected above their respective Tier 1 ESLs in sample GW-6, and methyl tert butyl ether (MTBE) and naphthalene were detected above their respective Tier 1 ESLs in sample GW-1. TPHg was detected above its Tier 1 ESL in sample GW-6, and TPHd was detected above its Tier 1 ESL in samples GW-1, GW-3 through GW-7, and GW-9. The Tier 1 ESLs for these exceedances are established to assess potential drinking water concerns, with the benzene Tier 1 ESL corresponding to the California Maximum Contaminant Level (MCL). The detected benzene and ethylbenzene concentrations also exceeded their respective groundwater ESL to assess potential concerns associated with vapor intrusion to indoor air at residential properties.

9. Conclusions

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of the ASTM Practice E 1527-13 of the subject site located at 7400 Mowry Avenue, Newark, California. Any exceptions to or deletions from this practice are described in Section 1.4 of this report. We have also performed a Phase II Assessment and utilized the results of the Phase II assessment to refine the findings of the Phase I report.

Based on the potential RECs identified during the Phase I process, a Phase II investigation was performed to assess the possible presence of metals, VOCs, PAHS, OCPs, and TPH in soil as well as VOCs and TPH in groundwater. The Phase II results identified generally low levels of metals, VOCs, and PAHs, OCPs, TPHg, and TPHmo in shallow soil at the subject site. Metals and PAHs were detected in soil in concentrations consistent with background levels, with the exception of lead in two locations and PAHs in one location. No OCPs, VOCs, TPHg, or TPHmo were detected in soil above their respective residential direct exposure levels.

Lead was detected at concentrations exceeding its Tier 1 ESL in three samples collected between 0.5 and 2.5 feet bgs inside of the automobile wrecking yard. TPHd was detected at concentrations exceeding its respective Tier 1 ESLs in shallow soil in 16 locations across the automobile wrecking yard, generally at 0.5 and 1.5 feet bgs. Soil on the subject site can be remediated to residential levels through removal of shallow soil in select portions of the auto wrecking yard.

TPHg was detected above its Tier 1 ESL in one groundwater sample, and TPHd was detected above its Tier 1 ESL in seven groundwater samples. Most VOCs were detected in groundwater samples at levels below their respective Tier 1 ESLs, with a few VOCs, notably benzene and ethylbenzene, exceeding their respective Tier 1 ESLs. Benzene and ethylbenzene were detected in groundwater at one location within the middle of the auto wrecking yard at concentrations exceeding their Tier 1 ESLs, which are based on potential drinking water concerns. In addition, the detected benzene and ethylbenzene concentrations at that location exceed the ESL to assess potential vapor intrusion concerns from groundwater.

10. Environmental Professional Certification

The undersigned declare the following:

We declare that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in 40 CFR Part 312, §312.10.

We have the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the subject site and "develop opinions and conclusions regarding conditions indicative of releases or threatened releases." We have developed and performed the "*all appropriate inquiries*" (AAI) in conformance with the standards and practices set forth in 40 CFR Part 312.

Vincent Tilotta P.E.
Senior Engineer

11. Credentials

This Phase I report was prepared by Vincent Tilotta, who served as the Environmental Professional for this project. Qualification information for the project personnel is provided below.

VINCENT P. TILOTTA
Senior Engineer

Mr. Tilotta has over 7 years of experience in the environmental industry preparing Phase I Environmental Site Assessments, soil, soil gas and groundwater investigation work plans, remedial action work plans, and site closure reports. He has prepared Phase I and Phase II assessments for agricultural, industrial, manufacturing, automotive, retail, commercial and undeveloped properties. He has been responsible for managing and implementing soil, soil gas and groundwater environmental investigations both to meet regulatory requirements and in support of litigation. His experience also includes management of underground storage tank removals, excavation oversight and disposal of chemically impacted soils.

12. Glossary

12.1 GLOSSARY

All Appropriate Inquiry (AAI*)* — that inquiry constituting *all appropriate inquiries* into the previous ownership and uses of the property consistent with good commercial and customary practice as defined in CERCLA, 42 U.S.C §9601(35)(B), that will qualify a party to a commercial real estate transaction for one of threshold criteria for satisfying the LLPs to CERCLA liability (42 U.S.C §9601(35)(A) & (B), §9607(b)(3), §9607(q); and §9607(r)), assuming compliance with other elements of the defense.

Business Environmental Risk — a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of *business environmental risk* issues may involve addressing one or more non-scope considerations.

Controlled Recognized Environmental Condition (CREC) — a *recognized environmental condition* resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition considered by the *environmental professional* to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I ESA report, and as a *recognized environmental condition* in the conclusions section of the Phase I ESA report.

Data Gap — a lack of or inability to obtain information required by this practice despite good faith efforts by the *environmental professional* to gather such information. *Data gaps* may result from incompleteness in any of the activities required by this practice, including, but not limited to site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.).

De Minimis Conditions — a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *recognized environmental conditions* nor *controlled recognized conditions*.

Environmental Professional — a person meeting the education, training, and experience requirements as set forth in 40 CFR §312.10(b).

Historical Recognized Environmental Condition (HREC) — a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a *historical recognized environmental condition*, the *environmental professional* must determine whether the past release is a *recognized environmental condition* at the time the Phase I ESA is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a *recognized environmental condition* at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a *recognized environmental condition*.

Key Site Manager — the person identified by the owner or operator of a property as having good knowledge of the uses and physical characteristics of the property.

Material Threat — a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the *environmental professional*, is threatening and might result in impact to public health or the environment. An example might include an aboveground storage tank system that contains a hazardous substance and which shows evidence of damage. The damage would represent a *material threat* if it is deemed serious enough that it may cause or contribute to tank integrity failure with a release of contents to the environment.

Recognized Environmental Condition (REC) — the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a *material threat* of a future release to the environment. *De minimis conditions* are not *recognized environmental conditions*.

12.2 DESCRIPTIONS OF DATABASES SEARCHED

Numerous regulatory databases were searched during this Phase I. Each database reviewed is described in the EDR report presented in Appendix C. Those databases required by the ASTM E 1527-13 Standard are identified below.

1. **NPL Sites:** The National Priorities List (NPL) is a list of contaminated sites that are considered the highest priority for cleanup by the U.S. Environmental Protection Agency (USEPA).

2. **Delisted NPL Sites:** The Delisted NPL is a list of formal NPL sites formerly considered the highest priority for cleanup by the USEPA that met the criteria of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) for deletion from the NPL because no further response was appropriate.

3. **CERCLIS Sites:** The Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) list identifies sites which are suspected to have contamination and require additional investigation to assess whether they should be considered for inclusion on the NPL.

4. **CERCLIS-NFRAP Sites:** CERCLIS-NFRAP status indicates that a site was once on the CERCLIS List but has No Further Response Actions Planned (NFRAP). Sites on the CERCLIS-NFRAP List were removed from the CERCLIS List in February 1995 because, after an initial investigation was performed, no contamination was found, contamination was removed quickly, or the contamination was not significant enough to warrant NPL status.

5. **Federal ERNS:** The Federal Emergency Response Notification System (ERNS) list tracks information on reported releases of oil and hazardous materials.

6. **RCRA non-CORRACTS TSD facilities:** The Resource Conservation and Recovery Act (RCRA) non-CORRACTS TSD Facilities List tracks facilities which treat, store, or dispose of hazardous waste and are not associated with corrective action activity.

7. **RCRA CORRACTS facilities:** The RCRA CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

8. **RCRA Generators:** The RCRA Generator list is maintained by the USEPA to track facilities that generate hazardous waste.

9. **Federal Institutional Controls/Engineering Controls:** The Federal Institutional Control list and Engineering Control list are maintained by the USEPA. Some Institutional Control and Engineering Control information may not be made publicly available and therefore will not be included on this registry.

10. **State and Tribal Equivalent NPL/CERCLIS Sites:** The ASTM E 1527-13 Standard requires searching "State and Tribal Equivalent CERCLIS Sites."

11. **State and Tribal Registered Storage Tanks:** For tribal property, the USEPA Region 9 maintains a list of underground storage tanks on Indian land.

12. **State and Tribal Landfills and Solid Waste Disposal Sites:** SWF/LF: Directory of Solid Waste Facilities Solid Waste Facilities/Landfill sites. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills in a particular state.

13. **State and Tribal Leaking Storage Tanks:** For tribal property, the USEPA Region 9 maintains a list of leaking USTs on Indian land.

14. **State and Tribal Institutional Controls/Engineering Controls:** The USEPA maintains lists of sites with Institutional controls or Engineering controls in place.

15. **State and Tribal Voluntary Cleanup Sites:** VCP: Voluntary Remediation Program Sites. Sites involved in the voluntary remediation program.

16. **State and Tribal Brownfield Sites:** Brownfields: Brownfields Tracking System. An inventory of Brownfield sites in California.

17. **Other site-specific relevant databases searched:**

    - **HAZNET** – Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC.

    - **EDR Hist Auto** – EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR’s opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

References

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2. California Regional Water Quality Control Board – San Francisco Bay Region, records request and online database review (https://geotracker.waterboards.ca.gov/), accessed 15 January 2019.

3. Department of Toxic Substances Control, Use of Northern and Southern California Polynuclear Aromatic Hydrocarbon (PAH) Studies in the Manufactured Gas Plan Site Cleanup Process, 1 July 2009.

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5. Cornerstone Earth Group, 2007. *Phase I Environmental Site Assessment, 7400 and 7550 Mowry Avenue Newark, California*. 8 October.

6. Duvergé, Dylan Jacques, Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region, December 2011.

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9. Regional Water Quality Control Board, San Francisco Bay Region (RWQCB). 2016. ESL Workbook, Tier 1 ESL Summary Table. 22 February (Rev. 3).

10. Wahler Associates, 1988. *Environmental Survey of the Able Auto Wrecking Yard at the Heath/Rogers Property East of Mowry Avenue in Newark, California*. 22 December.

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TABLES

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-01	SS-01	SS-01	SS-02	SS-02	SS-02	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-05	SS-05
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
Inorganic Compounds (mg/kg)															
Antimony, Total	31	< 0.936	< 0.940	< 0.932	**1.20 J**	**1.12 J**	< 0.937	**1.74 J**	**1.26 J**	**1.14 J**	**1.15 J**	**1.53 J**	< 0.966	< 0.870	< 0.902
Arsenic, Total	0.067	**1.62 J**	**3.89**	**7.82**	**10.9**	**5.17**	**9.59**	**6.94**	**5.59**	**5.22**	**3.86**	**6.4**	**20.2**	**3.96**	**8.94**
Barium, Total	3000	**102**	**350**	**436**	**181**	**354**	**298**	**331**	**432**	**371**	**209**	**278**	**525**	**178**	**404**
Beryllium, Total	42	**0.218 J**	**0.663**	**0.507**	**0.209 J**	**0.443**	**0.338**	**0.434**	**0.447**	**0.573**	**0.285**	**0.543**	**0.289**	**0.278**	**0.451**
Cadmium, Total	39	**0.203 J**	< 0.0878	< 0.0869	**0.439 J**	**0.736**	**0.178 J**	**1.17**	**0.883**	**0.213 J**	**0.282 J**	**0.116 J**	**0.285 J**	**0.852**	**0.734**
Chromium, Total	--	**52.5**	**81.2**	**67.6**	**62.6**	**57.9**	**62.4**	**68.7**	**129**	**72.3**	**58.7**	**82**	**58.5**	**76.7**	**66.5**
Cobalt, Total	23	**18.7**	**14.5**	**14.9**	**21.9**	**12.2**	**12.7**	**18.1**	**14.9**	**13.8**	**14.3**	**16.4**	**11.9**	**19.5**	**18.4**
Copper, Total	3100	**43**	**41**	**30**	**54.2**	**43.3**	**25.4**	**58.8**	**57**	**43.2**	**37.2**	**38.7**	**32.7**	**53.5**	**47.1**
Lead, Total	80	**32.2**	**13**	**9.2**	**16.9**	**43.2**	**7.25**	**62.5**	**73**	**17.2**	**19.9**	**11.1**	**12.3**	**24.7**	**30.5**
Mercury, Total	13	**0.0555**	**0.0393**	**0.0268**	**0.0231 J**	**0.0777**	**0.0384**	**0.034**	**0.0383**	**0.0449**	**0.0244**	**0.026**	**0.0349**	**0.0846**	**0.0856**
Molybdenum, Total	390	< 0.200	< 0.201	< 0.199	**0.500 J**	**0.556 J**	**4.81**	**0.218 J**	**0.691**	< 0.202	< 0.169	< 0.181	**0.279 J**	**0.568 J**	**0.551 J**
Nickel, Total	86	**52.1**	**95**	**86.8**	**66**	**68.6**	**86.2**	**79.1**	**78.2**	**86.1**	**63.1**	**98.9**	**66.1**	**61.2**	**77.1**
Selenium, Total	390	< 0.774	< 0.777	< 0.770	< 0.782	< 0.829	< 0.774	< 0.748	< 0.745	< 0.783	< 0.656	< 0.701	< 0.799	< 0.719	< 0.746
Silver, Total	390	< 0.150	< 0.150	< 0.149	< 0.151	< 0.160	< 0.150	< 0.145	< 0.144	< 0.152	< 0.127	< 0.136	< 0.155	< 0.139	< 0.144
Thallium, Total	0.78	< 0.811	< 0.815	< 0.807	< 0.819	< 0.869	< 0.812	< 0.784	< 0.781	< 0.821	< 0.688	< 0.735	< 0.837	< 0.754	< 0.782
Vanadium, Total	390	**82.1**	**52.8**	**48.5**	**104**	**43.6**	**47.5**	**76.7**	**62.2**	**44.6**	**57.5**	**66.6**	**33**	**71.4**	**79.7**
Zinc, Total	23000	**60.1**	**64.7**	**51.8**	**67.7**	**81.8**	**47.4**	**113**	**90.3**	**71**	**63.4**	**63.8**	**52.6**	**103**	**80.9**
Other (%)															
Total Solids	--	**80.1**	**79.8**	**80.5**	**79.3**	**74.8**	**80.1**	**82.9**	**83.3**	**79.2**	**94.4**	**88.4**	**77.6**	**86.2**	**83.1**
Pesticides (mg/kg)															
4,4'-DDD	2.7	**0.00414 J**	< 0.000206	< 0.000204	< 0.000207	< 0.000438	< 0.000205	< 0.000396	**0.00496 J**	**0.0115 J**	< 0.000174	**0.00322 J**	**0.000407 J**	< 0.000190	**0.000790 J**
4,4'-DDE	1.9	**0.0498**	**0.000857 J**	< 0.000205	**0.00212 J**	< 0.000441	< 0.000206	< 0.000398	**0.0433 J**	**0.0727**	**0.0648**	**0.0334**	**0.00666 J**	**0.026**	**0.0174 J**
4,4'-DDT	1.9	< 0.000332	< 0.000333	< 0.000330	< 0.000335	< 0.000711	< 0.000332	**0.00286 J**	< 0.000639	< 0.000336	**0.00530 J**	**0.00356 J**	< 0.000343	**0.00159 J**	< 0.000320
Aldrin	0.036	< 0.000291	< 0.000292	< 0.000289	< 0.000294	< 0.000623	< 0.000291	< 0.000562	< 0.000560	< 0.000294	< 0.000247	< 0.000264	< 0.000300	< 0.000270	< 0.000280
alpha-BHC	--	< 0.000241	< 0.000242	< 0.000240	< 0.000243	< 0.000516	< 0.000241	< 0.000466	< 0.000464	< 0.000244	< 0.000204	< 0.000218	< 0.000249	< 0.000224	< 0.000232
beta-BHC	--	< 0.000378	< 0.000380	< 0.000376	< 0.000382	< 0.000810	< 0.000378	< 0.000731	< 0.000728	< 0.000383	< 0.000321	< 0.000343	< 0.000390	< 0.000351	< 0.000364
Chlordane	0.48	< 0.0487	< 0.0489	< 0.0484	< 0.0492	< 0.104	< 0.0487	< 0.0941	< 0.0937	< 0.0493	< 0.0413	< 0.0441	< 0.0502	< 0.0452	< 0.0469
delta-BHC	--	< 0.000188	< 0.000189	< 0.000188	< 0.000190	< 0.000404	< 0.000189	< 0.000364	< 0.000363	< 0.000191	< 0.000160	< 0.000171	< 0.000195	< 0.000175	< 0.000182
Dieldrin	0.00017	< 0.000111	< 0.000112	< 0.000111	< 0.000112	< 0.000238	< 0.000111	**0.00152 J**	< 0.000214	< 0.000112	< 0.0000942	< 0.000101	< 0.000115	< 0.000103	**0.000564 J**
Endosulfan I	--	< 0.000267	< 0.000268	< 0.000266	< 0.000270	< 0.000572	< 0.000267	< 0.000516	< 0.000514	< 0.000270	< 0.000227	< 0.000242	< 0.000276	< 0.000248	< 0.000257
Endosulfan II	--	< 0.000287	< 0.000288	< 0.000286	< 0.000290	< 0.000615	< 0.000287	< 0.000555	< 0.000552	< 0.000290	< 0.000244	< 0.000260	< 0.000296	< 0.000267	< 0.000277
Endosulfan sulfate	--	< 0.000212	< 0.000213	< 0.000211	< 0.000214	< 0.000455	< 0.000212	< 0.000410	< 0.000408	< 0.000215	< 0.000180	< 0.000192	< 0.000219	< 0.000197	< 0.000205
Endrin	0.00065	< 0.000273	< 0.000275	< 0.000272	< 0.000276	< 0.000586	< 0.000273	< 0.000528	< 0.000526	< 0.000277	< 0.000232	< 0.000248	< 0.000282	< 0.000254	**0.000506 J**
Endrin aldehyde	--	< 0.000302	< 0.000303	< 0.000301	< 0.000305	< 0.000647	< 0.000302	< 0.000584	< 0.000581	< 0.000306	< 0.000256	< 0.000274	< 0.000312	< 0.000281	< 0.000291
Endrin ketone	--	< 0.000198	< 0.000199	< 0.000197	< 0.000200	< 0.000425	< 0.000199	< 0.000384	< 0.000382	< 0.000201	< 0.000168	< 0.000180	< 0.000205	< 0.000184	< 0.000191
gamma-BHC (Lindane)	0.0098	< 0.000306	< 0.000307	< 0.000304	< 0.000309	< 0.000655	< 0.000306	< 0.000591	< 0.000588	< 0.000309	< 0.000259	< 0.000277	< 0.000316	< 0.000284	< 0.000295
Heptachlor	0.00077	< 0.000126	< 0.000127	< 0.000125	< 0.000127	< 0.000270	< 0.000126	< 0.000244	< 0.000243	< 0.000128	< 0.000107	< 0.000114	< 0.000130	< 0.000117	**0.000372 J**
Heptachlor epoxide	0.00042	< 0.000472	< 0.000474	< 0.000469	< 0.000477	< 0.00101	< 0.000472	< 0.000912	< 0.000908	< 0.000477	< 0.000400	< 0.000428	< 0.000487	< 0.000438	< 0.000455

TABLE 1
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PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-01	SS-01	SS-01	SS-02	SS-02	SS-02	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-05	SS-05
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
Hexachlorobenzene	0.34	< 0.000280	< 0.000281	< 0.000278	< 0.000282	< 0.000599	< 0.000280	< 0.000540	< 0.000538	< 0.000283	< 0.000237	< 0.000253	< 0.000289	< 0.000260	< 0.000269
Methoxychlor	19	< 0.000331	< 0.000332	< 0.000329	< 0.000334	< 0.000708	< 0.000331	< 0.000639	< 0.000636	< 0.000335	< 0.000281	< 0.000300	< 0.000341	< 0.000307	< 0.000319
Toxaphene	0.00042	< 0.0449	< 0.0451	< 0.0447	< 0.0454	< 0.0962	< 0.0450	< 0.0869	< 0.0865	< 0.0455	< 0.0381	< 0.0407	< 0.0464	< 0.0417	< 0.0433
Semi-Volatile Organic Compounds (SIM) (mg/kg)															
1-Methylnaphthalene	--	< 0.00250	< 0.00251	< 0.00248	**0.00272 J**	< 0.00267	< 0.00250	**0.241**	**0.249**	**0.0179 J**	**0.283 J**	< 0.00226	< 0.00258	< 0.00232	< 0.00241
2-Chloronaphthalene	--	< 0.00250	< 0.00251	< 0.00248	< 0.00252	< 0.00267	< 0.00250	**0.201 J**	**0.189 J**	< 0.00253	**0.324 J**	< 0.00226	< 0.00258	< 0.00232	< 0.00241
2-Methylnaphthalene	0.25	< 0.00250	< 0.00251	< 0.00248	**0.00413 J**	< 0.00267	< 0.00250	**0.276**	**0.279**	**0.0316**	**0.246 J**	< 0.00226	< 0.00258	< 0.00232	< 0.00241
Acenaphthene	16	< 0.000749	< 0.000752	< 0.000745	< 0.000756	< 0.000802	< 0.000749	**0.241**	**0.219**	< 0.000758	**0.383**	< 0.000679	< 0.000773	< 0.000696	< 0.000722
Acenaphthylene	13	< 0.000749	< 0.000752	< 0.000745	< 0.000756	< 0.000802	< 0.000749	**0.216**	**0.207**	< 0.000758	**0.357**	< 0.000679	< 0.000773	< 0.000696	< 0.000722
Anthracene	2.8	< 0.000749	< 0.000752	< 0.000745	< 0.000756	< 0.000802	< 0.000749	**0.279**	**0.252**	< 0.000758	**0.428**	< 0.000679	< 0.000773	< 0.000696	< 0.000722
Benzo(a)anthracene	0.16	**0.00317 J**	< 0.000752	< 0.000745	**0.00226 J**	**0.00100 J**	< 0.000749	**0.364**	**0.329**	< 0.000758	**0.589**	**0.000752 J**	**0.00379 J**	**0.00116 J**	**0.00227 J**
Benzo(a)pyrene	0.016	**0.00307 J**	< 0.000752	< 0.000745	< 0.000756	**0.00171 J**	< 0.000749	**0.405**	**0.365**	**0.00179 J**	**0.674**	< 0.000679	**0.00455 J**	**0.00109 J**	**0.00273 J**
Benzo(b)fluoranthene	0.16	**0.00376 J**	< 0.000752	< 0.000745	< 0.000756	**0.00291 J**	< 0.000749	**0.404**	**0.343**	< 0.000758	**0.644**	< 0.000679	**0.00509 J**	**0.00160 J**	**0.00396 J**
Benzo(g,h,i)perylene	2.5	**0.00227 J**	< 0.000752	< 0.000745	**0.0234**	**0.00598 J**	< 0.000749	**0.368**	**0.327**	< 0.000758	**0.615**	**0.000854 J**	**0.00294 J**	**0.00181 J**	**0.00301 J**
Benzo(k)fluoranthene	1.6	**0.00153 J**	< 0.000752	< 0.000745	< 0.000756	**0.000917 J**	< 0.000749	**0.404**	**0.377**	< 0.000758	**0.667**	< 0.000679	**0.00165 J**	< 0.000696	**0.00108 J**
Chrysene	3.8	**0.00368 J**	< 0.000752	< 0.000745	**0.00184 J**	**0.00114 J**	< 0.000749	**0.43**	**0.358**	**0.00182 J**	**0.635**	< 0.000679	**0.00411 J**	**0.00113 J**	**0.00319 J**
Dibenz(a,h)anthracene	0.016	< 0.000749	< 0.000752	< 0.000745	< 0.000756	< 0.000802	< 0.000749	**0.397**	**0.36**	< 0.000758	**0.688**	< 0.000679	< 0.000773	< 0.000696	< 0.000722
Fluoranthene	60	**0.00455 J**	< 0.000752	< 0.000745	**0.00287 J**	< 0.000802	< 0.000749	**0.267**	**0.237**	**0.00143 J**	**0.389**	< 0.000679	**0.00615 J**	**0.00141 J**	**0.00440 J**
Fluorene	8.9	< 0.000749	< 0.000752	< 0.000745	< 0.000756	< 0.000802	< 0.000749	**0.245**	**0.229**	< 0.000758	**0.389**	< 0.000679	< 0.000773	< 0.000696	< 0.000722
Indeno(1,2,3-cd)pyrene	0.16	**0.00175 J**	< 0.000752	< 0.000745	< 0.000756	**0.00122 J**	< 0.000749	**0.369**	**0.337**	< 0.000758	**0.641**	< 0.000679	**0.00224 J**	**0.000879 J**	**0.00197 J**
Naphthalene	0.033	< 0.00250	< 0.00251	< 0.00248	< 0.00252	**0.00420 J**	< 0.00250	**0.215 J**	**0.286**	**0.153**	< 0.0424	< 0.00226	< 0.00258	< 0.00232	< 0.00241
Phenanthrene	11	**0.00213 J**	< 0.000752	< 0.000745	**0.00353 J**	**0.00135 J**	< 0.000749	**0.269**	**0.245**	**0.00122 J**	**0.41**	< 0.000679	**0.00238 J**	**0.000754 J**	**0.00158 J**
Pyrene	85	**0.00497 J**	< 0.000752	< 0.000745	**0.00265 J**	**0.00547 J**	< 0.000749	**0.345**	**0.275**	**0.00442 J**	**0.453**	**0.000884 J**	**0.00746 J**	**0.00181 J**	**0.00404 J**
Total Petroleum Hydrocarbons (mg/kg)															
Total Petroleum Hydrocarbons (C12-C22)	230	**3.17 J**	**13.2**	< 0.910	< 185	**37.6**	< 0.915	**936 J**	**54**	**6.64**	< 156	**1.49 J**	< 0.944	**14.8 J**	< 4.41
Total Petroleum Hydrocarbons (C22-C32)	230	**12.9**	**3.77 J**	< 1.65	**842 J**	**184**	< 1.66	**2,610**	**407**	**14.3**	**847**	**8.31**	< 1.71	**107**	**29.8**
Total Petroleum Hydrocarbons (C32-C40)	5100	**7.48**	**1.73 J**	< 1.65	**2,670**	**93.2**	< 1.66	**3,200**	**215**	**9.17**	**2,380**	**16.6**	< 1.71	**102**	**37.7**
Total Petroleum Hydrocarbons (C5-C12) GRO	100	**0.863**	**4.94**	**1.83**	< 0.0419	< 0.0444	< 0.0415	**0.482**	**0.81**	**0.0744 J**	< 0.0352	**0.0512 J**	< 0.0428	**0.103 J**	**0.108 J**
Volatile Organic Compounds (mg/kg)															
1,1,1,2-Tetrachloroethane	0.01	< 0.000624	< 0.000627	< 0.000621	< 0.000630	< 0.000668	< 0.000624	< 0.000603	< 0.000600	< 0.000631	< 0.000529	< 0.000566	< 0.000644	< 0.000580	< 0.000601
1,1,1-Trichloroethane	7.8	< 0.000343	< 0.000345	< 0.000342	< 0.000347	< 0.000368	< 0.000343	< 0.000332	< 0.000330	< 0.000347	< 0.000291	< 0.000311	< 0.000354	< 0.000319	< 0.000331
1,1,2,2-Tetrachloroethane	0.018	< 0.000487	< 0.000489	< 0.000484	< 0.000492	< 0.000521	< 0.000487	< 0.000471	< 0.000468	< 0.000493	< 0.000413	< 0.000441	< 0.000502	< 0.000452	< 0.000469
1,1,2-Trichloroethane	0.07	< 0.00110	< 0.00111	< 0.00110	< 0.00111	< 0.00118	< 0.00110	< 0.00107	< 0.00106	< 0.00112	< 0.000935	< 0.000999	< 0.00114	< 0.00102	< 0.00106
1,1-Dichloroethane	0.2	< 0.000718	< 0.000721	< 0.000714	< 0.000725	< 0.000769	< 0.000718	< 0.000694	< 0.000690	< 0.000726	< 0.000609	< 0.000650	< 0.000741	< 0.000667	< 0.000692
1,1-Dichloroethene	0.55	< 0.000624	< 0.000627	< 0.000621	< 0.000630	< 0.000668	< 0.000624	< 0.000603	< 0.000600	< 0.000631	< 0.000529	< 0.000566	< 0.000644	< 0.000580	< 0.000601
1,1-Dichloropropene	--	< 0.000874	< 0.000878	< 0.000869	< 0.000882	< 0.000936	< 0.000874	< 0.000845	< 0.000841	< 0.000884	< 0.000741	< 0.000792	< 0.000902	< 0.000812	< 0.000842
1,2,3-Trichlorobenzene	--	< 0.000780	< 0.000783	< 0.000776	< 0.000788	< 0.000835	< 0.000780	< 0.000754	< 0.000751	< 0.000789	< 0.000662	< 0.000707	< 0.000805	< 0.000725	< 0.000752
1,2,3-Trichloropropane	--	< 0.00636	< 0.00639	< 0.00633	< 0.00643	< 0.00682	< 0.00637	< 0.00615	< 0.00612	< 0.00644	< 0.00540	< 0.00577	< 0.00657	< 0.00591	< 0.00614
1,2,3-Trimethylbenzene	--	< 0.00144	< 0.00144	< 0.00143	**0.00265 J**	< 0.00154	< 0.00144	**0.0486**	**0.0424**	**0.0514**	< 0.00122	< 0.00130	< 0.00148	< 0.00133	< 0.00138

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-01	SS-01	SS-01	SS-02	SS-02	SS-02	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-05	SS-05
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
1,2,4-Trichlorobenzene	1.5	< 0.00601	< 0.00604	< 0.00599	< 0.00608	< 0.00644	< 0.00602	< 0.00582	< 0.00579	< 0.00609	< 0.00510	< 0.00545	< 0.00621	< 0.00559	< 0.00580
1,2,4-Trimethylbenzene	--	**0.0149**	**0.00174 J**	< 0.00144	**0.00458 J**	< 0.00155	< 0.00145	**0.169**	**0.15**	**0.0239**	< 0.00123	< 0.00131	**0.00156 J**	**0.00212 J**	< 0.00140
1,2-Dibromo-3-chloropropane (DBCP)	0.0045	< 0.00636	< 0.00639	< 0.00633	< 0.00643	< 0.00682	< 0.00637	< 0.00615	< 0.00612	< 0.00644	< 0.00540	< 0.00577	< 0.00657	< 0.00591	< 0.00614
1,2-Dibromoethane (Ethylene Dibromide)	0.00033	< 0.000655	< 0.000658	< 0.000652	< 0.000662	< 0.000702	< 0.000656	< 0.000633	< 0.000630	< 0.000663	< 0.000556	< 0.000594	< 0.000676	< 0.000609	< 0.000632
1,2-Dichlorobenzene	1.6	< 0.00181	< 0.00182	< 0.00180	< 0.00183	< 0.00194	< 0.00181	< 0.00175	< 0.00174	< 0.00183	< 0.00154	< 0.00164	< 0.00187	< 0.00168	< 0.00174
1,2-Dichloroethane	0.0045	< 0.000593	< 0.000595	< 0.000590	< 0.000599	< 0.000635	< 0.000593	< 0.000573	< 0.000570	< 0.000600	< 0.000503	< 0.000537	< 0.000612	< 0.000551	< 0.000571
1,2-Dichloropropane	0.12	< 0.00158	< 0.00159	< 0.00158	< 0.00160	< 0.00170	< 0.00159	< 0.00153	< 0.00153	< 0.00160	< 0.00134	< 0.00144	< 0.00164	< 0.00147	< 0.00153
1,3,5-Trimethylbenzene	--	**0.00502 J**	< 0.00135	< 0.00134	**0.00252 J**	< 0.00144	< 0.00135	**0.0482**	**0.0347**	**0.00383 J**	< 0.00114	< 0.00122	< 0.00139	< 0.00125	< 0.00130
1,3-Dichlorobenzene	7.4	< 0.00212	< 0.00213	< 0.00211	< 0.00214	< 0.00227	< 0.00212	< 0.00205	< 0.00204	< 0.00215	< 0.00180	< 0.00192	< 0.00219	< 0.00197	< 0.00205
1,3-Dichloropropane	--	< 0.00218	< 0.00219	< 0.00217	< 0.00221	< 0.00234	< 0.00219	< 0.00211	< 0.00210	< 0.00221	< 0.00185	< 0.00198	< 0.00225	< 0.00203	< 0.00211
1,4-Dichlorobenzene	0.59	< 0.00246	< 0.00247	< 0.00245	< 0.00248	< 0.00263	< 0.00246	< 0.00238	< 0.00237	< 0.00249	< 0.00209	< 0.00223	< 0.00254	< 0.00228	< 0.00237
2,2-Dichloropropane	--	< 0.000990	< 0.000994	< 0.000985	< 0.00100	< 0.00106	< 0.000990	< 0.000957	< 0.000952	< 0.00100	< 0.000840	< 0.000897	< 0.00102	< 0.000919	< 0.000954
2-Butanone (Methyl Ethyl Ketone)	5.1	< 0.0156	< 0.0157	< 0.0155	< 0.0158	< 0.0167	< 0.0156	< 0.0151	< 0.0150	< 0.0158	< 0.0132	< 0.0141	< 0.0161	< 0.0145	< 0.0150
2-Chlorotoluene	--	< 0.00115	< 0.00115	< 0.00114	< 0.00116	< 0.00123	< 0.00115	< 0.00111	< 0.00110	< 0.00116	< 0.000974	< 0.00104	< 0.00119	< 0.00107	< 0.00111
2-Phenylbutane (sec-Butylbenzene)	--	< 0.00316	< 0.00317	< 0.00314	< 0.00319	< 0.00338	< 0.00316	**0.00443 J**	**0.00486 J**	< 0.00320	< 0.00268	< 0.00286	< 0.00326	< 0.00293	< 0.00304
4-Chlorotoluene	--	< 0.00141	< 0.00142	< 0.00140	< 0.00142	< 0.00151	< 0.00141	< 0.00136	< 0.00136	< 0.00143	< 0.00120	< 0.00128	< 0.00146	< 0.00131	< 0.00136
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.8	< 0.0125	< 0.0125	< 0.0124	< 0.0126	< 0.0134	< 0.0125	< 0.0121	< 0.0120	< 0.0126	< 0.0106	< 0.0113	< 0.0129	< 0.0116	< 0.0120
Acetone	0.5	**0.657**	< 0.0172	< 0.0170	< 0.0173	< 0.0183	< 0.0171	< 0.0165	< 0.0165	< 0.0173	< 0.0145	< 0.0155	< 0.0177	< 0.0159	< 0.0165
Acrylonitrile	--	< 0.00237	< 0.00238	< 0.00236	< 0.00240	< 0.00254	< 0.00237	< 0.00229	< 0.00228	< 0.00240	< 0.00201	< 0.00215	< 0.00245	< 0.00220	< 0.00229
Benzene	0.044	**0.0193**	**0.00233**	< 0.000497	< 0.000504	< 0.000535	< 0.000499	**0.00454**	**0.00376**	< 0.000505	< 0.000424	< 0.000452	< 0.000515	< 0.000464	< 0.000481
Bromobenzene	--	< 0.00131	< 0.00132	< 0.00130	< 0.00132	< 0.00140	< 0.00131	< 0.00127	< 0.00126	< 0.00133	< 0.00111	< 0.00119	< 0.00135	< 0.00122	< 0.00126
Bromodichloromethane	0.52	< 0.000983	< 0.000988	< 0.000979	< 0.000993	< 0.00105	< 0.000984	< 0.000951	< 0.000946	< 0.000995	< 0.000834	< 0.000891	< 0.00102	< 0.000914	< 0.000948
Bromoform	1.7	< 0.00746	< 0.00750	< 0.00743	< 0.00754	< 0.00799	< 0.00747	< 0.00721	< 0.00718	< 0.00755	< 0.00633	< 0.00676	< 0.00770	< 0.00693	< 0.00719
Bromomethane (Methyl Bromide)	0.3	< 0.00462	< 0.00464	< 0.00460	< 0.00466	< 0.00495	< 0.00462	< 0.00446	< 0.00444	< 0.00467	< 0.00392	< 0.00418	< 0.00477	< 0.00429	< 0.00445
Carbon tetrachloride	0.048	< 0.00135	< 0.00135	< 0.00134	< 0.00136	< 0.00144	< 0.00135	< 0.00130	< 0.00130	< 0.00136	< 0.00114	< 0.00122	< 0.00139	< 0.00125	< 0.00130
Chlorobenzene	1.5	< 0.000715	< 0.000718	< 0.000712	< 0.000722	< 0.000766	< 0.000716	**0.000854 J**	< 0.000688	< 0.000724	< 0.000607	< 0.000648	< 0.000738	< 0.000664	< 0.000689
Chloroethane	1.1	< 0.00135	< 0.00135	< 0.00134	< 0.00136	< 0.00144	< 0.00135	< 0.00130	< 0.00130	< 0.00136	< 0.00114	< 0.00122	< 0.00139	< 0.00125	< 0.00130
Chloroform (Trichloromethane)	0.068	< 0.000518	< 0.000520	< 0.000515	< 0.000523	< 0.000555	< 0.000518	< 0.000501	< 0.000498	< 0.000524	< 0.000439	< 0.000469	< 0.000535	< 0.000481	< 0.000499
Chloromethane (Methyl Chloride)	29	< 0.00173	< 0.00174	< 0.00173	< 0.00175	< 0.00186	< 0.00174	< 0.00168	< 0.00167	< 0.00176	< 0.00147	< 0.00157	< 0.00179	< 0.00161	< 0.00167
cis-1,2-Dichloroethene	0.19	< 0.000861	< 0.000865	< 0.000857	< 0.000870	< 0.000922	< 0.000862	< 0.000832	< 0.000829	< 0.000871	< 0.000731	< 0.000780	< 0.000889	< 0.000800	< 0.000830
cis-1,3-Dichloropropene	--	< 0.000846	< 0.000850	< 0.000842	< 0.000855	< 0.000906	< 0.000847	< 0.000818	< 0.000814	< 0.000856	< 0.000718	< 0.000767	< 0.000874	< 0.000786	< 0.000816
Cymene (p-Isopropyltoluene)	--	< 0.00291	< 0.00292	< 0.00289	< 0.00294	< 0.00311	< 0.00291	**0.00360 J**	**0.00302 J**	< 0.00294	< 0.00247	< 0.00264	< 0.00300	< 0.00270	< 0.00280
Dibromochloromethane	3.8	< 0.000562	< 0.000564	< 0.000559	< 0.000567	< 0.000602	< 0.000562	< 0.000543	< 0.000540	< 0.000568	< 0.000476	< 0.000509	< 0.000580	< 0.000522	< 0.000541
Dibromomethane	--	< 0.00125	< 0.00125	< 0.00124	< 0.00126	< 0.00134	< 0.00125	< 0.00121	< 0.00120	< 0.00126	< 0.00106	< 0.00113	< 0.00129	< 0.00116	< 0.00120
Dichlorodifluoromethane (CFC-12)	--	< 0.00102	< 0.00103	< 0.00102	< 0.00103	< 0.00109	< 0.00102	< 0.000987	< 0.000982	< 0.00103	< 0.000866	< 0.000925	< 0.00105	< 0.000948	< 0.000984
Diisopropyl ether (DIPE)	--	< 0.000437	< 0.000439	< 0.000435	< 0.000441	< 0.000468	< 0.000437	< 0.000422	< 0.000420	< 0.000442	< 0.000371	< 0.000396	< 0.000451	< 0.000406	< 0.000421
Ethylbenzene	1.4	**0.00198 J**	< 0.000664	< 0.000658	< 0.000668	< 0.000708	< 0.000662	**0.0104**	**0.00568**	**0.00106 J**	< 0.000561	< 0.000599	< 0.000683	< 0.000615	< 0.000638
Hexachlorobutadiene	0.68	< 0.0158	< 0.0159	< 0.0158	< 0.0160	< 0.0170	< 0.0159	< 0.0153	< 0.0153	< 0.0160	< 0.0134	< 0.0144	< 0.0164	< 0.0147	< 0.0153
Isopropylbenzene (Cumene)	--	< 0.00108	< 0.00108	< 0.00107	< 0.00109	< 0.00115	< 0.00108	**0.00377**	**0.00521**	**0.00299 J**	< 0.000914	< 0.000976	< 0.00111	< 0.00100	< 0.00104
Methyl Tert Butyl Ether	0.023	**0.0151**	< 0.000370	< 0.000366	< 0.000372	< 0.000394	< 0.000368	< 0.000356	< 0.000354	< 0.000373	< 0.000312	< 0.000334	< 0.000380	< 0.000342	< 0.000355
Methylene chloride	0.077	< 0.00829	< 0.00832	< 0.00825	< 0.00837	< 0.00888	< 0.00829	< 0.00801	< 0.00797	< 0.00839	< 0.00703	< 0.00751	< 0.00855	< 0.00770	< 0.00799
Naphthalene	0.033	**0.00571 J**	< 0.00391	< 0.00388	**0.00735 J**	< 0.00417	< 0.00390	**0.0489**	**0.056**	**0.317**	< 0.00330	< 0.00353	< 0.00402	**0.00919 J**	< 0.00375

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-01	SS-01	SS-01	SS-02	SS-02	SS-02	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-05	SS-05
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
n-Butylbenzene	--	< 0.00479	< 0.00481	< 0.00477	< 0.00484	< 0.00513	< 0.00480	**0.00863 J**	**0.00976 J**	**0.00524 J**	< 0.00407	< 0.00434	< 0.00495	< 0.00445	< 0.00462
n-Propylbenzene	--	**0.00150 J**	< 0.00148	< 0.00147	< 0.00149	< 0.00158	< 0.00147	**0.0174**	**0.0214**	**0.0232**	< 0.00125	< 0.00133	< 0.00152	< 0.00137	< 0.00142
Styrene	1.5	< 0.00341	< 0.00342	< 0.00339	< 0.00344	< 0.00365	< 0.00341	< 0.00329	< 0.00328	< 0.00345	< 0.00289	< 0.00309	< 0.00352	< 0.00317	< 0.00328
tert-Butylbenzene	--	< 0.00193	< 0.00194	< 0.00193	< 0.00195	< 0.00207	< 0.00194	< 0.00187	< 0.00186	< 0.00196	< 0.00164	< 0.00175	< 0.00200	< 0.00180	< 0.00186
Tetrachloroethene	0.42	< 0.000874	< 0.000878	< 0.000869	< 0.000882	< 0.000936	< 0.000874	< 0.000845	< 0.000841	< 0.000884	< 0.000741	< 0.000792	< 0.000902	< 0.000812	< 0.000842
Toluene	2.9	**0.00246 J**	< 0.00157	< 0.00155	< 0.00158	< 0.00167	< 0.00156	**0.00512 J**	**0.00226 J**	< 0.00158	< 0.00132	< 0.00141	< 0.00161	< 0.00145	< 0.00150
trans-1,2-Dichloroethene	0.67	< 0.00178	< 0.00179	< 0.00178	< 0.00180	< 0.00191	< 0.00179	< 0.00173	< 0.00172	< 0.00181	< 0.00151	< 0.00162	< 0.00184	< 0.00166	< 0.00172
trans-1,3-Dichloropropene	--	< 0.00191	< 0.00192	< 0.00190	< 0.00193	< 0.00205	< 0.00191	< 0.00185	< 0.00184	< 0.00193	< 0.00162	< 0.00173	< 0.00197	< 0.00177	< 0.00184
Trichloroethene	0.46	< 0.000499	< 0.000501	< 0.000497	< 0.000504	< 0.000535	< 0.000499	< 0.000483	< 0.000480	< 0.000505	< 0.000424	< 0.000452	< 0.000515	< 0.000464	< 0.000481
Trichlorofluoromethane (CFC-11)	--	< 0.000624	< 0.000627	< 0.000621	< 0.000630	< 0.000668	< 0.000624	< 0.000603	< 0.000600	< 0.000631	< 0.000529	< 0.000566	< 0.000644	< 0.000580	< 0.000601
Trifluorotrichloroethane (Freon 113)	--	< 0.000842	< 0.000846	< 0.000838	< 0.000851	< 0.000902	< 0.000843	< 0.000814	< 0.000811	< 0.000852	< 0.000715	< 0.000763	< 0.000870	< 0.000783	< 0.000812
Vinyl chloride	0.0082	< 0.000852	< 0.000856	< 0.000848	< 0.000861	< 0.000913	< 0.000853	< 0.000824	< 0.000820	< 0.000863	< 0.000723	< 0.000772	< 0.000880	< 0.000792	< 0.000822
Xylene (total)	2.3	**0.00884**	< 0.00599	< 0.00594	< 0.00603	< 0.00639	< 0.00597	**0.0401**	**0.0313**	< 0.00604	< 0.00506	< 0.00541	< 0.00616	< 0.00554	< 0.00575

Notes:
Data is reported to the method detection limit (< MDL).
Detected results are **bolded.**
Orange highlighted results exceed the Tier 1 Soil ESL.
Green highlightd results indicate the method detection limit is below the Tier 1 Soil ESL.

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-05	SS-06	SS-06	SS-06	SS-07	SS-07	SS-07	SS-08	SS-09	SS-09	SS-09	SS-10	SS-10	SS-10
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
Inorganic Compounds (mg/kg)															
Antimony, Total	31	< 0.915	< 0.828	< 0.862	< 0.870	**0.937 J**	**1.05 J**	< 0.990	< 0.802	< 0.878	< 0.843	< 0.853	< 0.856	< 0.864	< 0.949
Arsenic, Total	0.067	**5.03**	**3.81**	**4.29**	**5.21**	**6.58**	**5.07**	**8.42**	**3.12**	**5.27**	**2.31**	**4.38**	**6.31**	**2.67**	**11.1**
Barium, Total	3000	**297**	**230**	**224**	**251**	**250**	**284**	**470**	**767**	**179**	**117**	**155**	**262**	**169**	**360**
Beryllium, Total	42	**0.623**	**0.236**	**0.337**	**0.323**	**0.498**	**0.50**	**0.103 J**	**0.22**	**0.232 J**	**0.305**	**0.303**	**0.294**	**0.176 J**	**0.597**
Cadmium, Total	39	< 0.0854	**0.658**	**0.884**	**0.86**	**0.929**	**1.1**	**0.285 J**	**0.664**	**0.483 J**	**1.55**	**0.748**	**0.382 J**	**0.420 J**	**0.686**
Chromium, Total	--	**79.8**	**69.7**	**52.3**	**64.3**	**57.2**	**60.2**	**41.1**	**54.6**	**49.1**	**42.2**	**62.8**	**70.3**	**35**	**102**
Cobalt, Total	23	**15.3**	**19.4**	**11.8**	**13.5**	**15.8**	**13.3**	**10.1**	**11**	**10.4**	**26.8**	**21.1**	**17**	**7.94**	**17.9**
Copper, Total	3100	**32.2**	**60.6**	**35.7**	**38.2**	**150**	**39.4**	**28.8**	**25.8**	**23.3**	**34.7**	**45.1**	**41.4**	**27.6**	**46.1**
Lead, Total	80	**10.3**	**14.8**	**27.2**	**27.9**	**14.7**	**15.6**	**13.9**	**40.6**	**13.4**	**29.9**	**14.5**	**11.8**	**28.6**	**30**
Mercury, Total	13	**0.0135 J**	**0.0337**	**0.0568**	**0.0674**	**0.11**	**0.0508**	**0.0347**	**0.151**	**0.0161 J**	**0.0542**	**0.0527**	**0.0655**	**0.0143 J**	**0.0986**
Molybdenum, Total	390	< 0.195	**0.412 J**	**0.714**	**0.86**	**0.476 J**	**0.207 J**	**0.313 J**	**1.28**	**0.665**	**1.24**	**2.57**	**0.500 J**	**0.587**	**1.22**
Nickel, Total	86	**93.7**	**62.7**	**56**	**59**	**61**	**64.6**	**50.6**	**60.6**	**65.1**	**54**	**58.5**	**89.9**	**47.7**	**104**
Selenium, Total	390	< 0.756	< 0.685	< 0.713	< 0.719	**0.782 J**	< 0.740	**1.53 J**	**1.19 J**	< 0.726	< 0.697	< 0.705	< 0.708	< 0.714	< 0.785
Silver, Total	390	< 0.146	< 0.133	< 0.138	< 0.139	< 0.144	< 0.143	< 0.158	< 0.128	< 0.140	< 0.135	< 0.137	< 0.137	< 0.138	< 0.152
Thallium, Total	0.78	< 0.793	< 0.718	< 0.747	< 0.754	< 0.782	< 0.776	< 0.858	< 0.695	< 0.761	< 0.731	< 0.739	< 0.742	< 0.749	< 0.823
Vanadium, Total	390	**55.5**	**91.7**	**58.1**	**66**	**76.7**	**60.8**	**24.5**	**44.9**	**43.7**	**118**	**85.1**	**44.8**	**42.2**	**71.3**
Zinc, Total	23000	**62.6**	**66.8**	**67.4**	**69.9**	**61**	**57.6**	**66.6**	**57**	**49.4**	**163**	**73.1**	**70.5**	**65.1**	**96.6**
Other (%)															
Total Solids	--	**82**	**90.5**	**87**	**86.2**	**83.2**	**83.8**	**75.8**	**93.5**	**85.4**	**89**	**87.9**	**87.6**	**86.8**	**79**
Pesticides (mg/kg)															
4,4'-DDD	2.7	< 0.000200	< 0.000181	< 0.000188	< 0.000190	< 0.000197	< 0.000196	**0.00143 J**	< 0.000175	< 0.000192	**0.00552 J**	**0.000304 J**	**0.00573 J**	< 0.000189	**0.00736 J**
4,4'-DDE	1.9	< 0.000201	**0.0100 J**	**0.0106 J**	**0.0213 J**	**0.0203 J**	**0.0158 J**	**0.0110 J**	**0.00108 J**	< 0.000193	**0.0176 J**	**0.00196 J**	**0.0914**	< 0.000190	**0.0151 J**
4,4'-DDT	1.9	< 0.000324	< 0.000294	< 0.000306	**0.00133 J**	< 0.000320	< 0.000317	< 0.000702	**0.00209 J**	< 0.000311	**0.0263**	**0.00298 J**	**0.00417 J**	< 0.000306	**0.00149 J**
Aldrin	0.036	< 0.000284	< 0.000257	< 0.000268	< 0.000270	< 0.000280	< 0.000278	< 0.000615	< 0.000249	< 0.000273	< 0.000262	< 0.000265	< 0.000266	< 0.000268	< 0.000295
alpha-BHC	--	< 0.000235	< 0.000213	< 0.000222	< 0.000224	< 0.000232	< 0.000230	< 0.000510	< 0.000206	< 0.000226	< 0.000217	< 0.000220	< 0.000220	< 0.000222	< 0.000244
beta-BHC	--	< 0.000369	< 0.000335	< 0.000348	< 0.000351	< 0.000364	< 0.000362	< 0.000800	< 0.000324	< 0.000355	< 0.000341	< 0.000345	< 0.000346	< 0.000349	< 0.000383
Chlordane	0.48	< 0.0476	< 0.0431	< 0.0448	< 0.0452	< 0.0469	< 0.0465	< 0.103	< 0.0417	< 0.0456	< 0.0438	< 0.0444	< 0.0445	< 0.0449	< 0.0494
delta-BHC	--	< 0.000184	< 0.000167	< 0.000174	< 0.000175	< 0.000182	< 0.000180	< 0.000399	< 0.000161	< 0.000177	< 0.000170	< 0.000172	< 0.000172	< 0.000174	< 0.000191
Dieldrin	0.00017	< 0.000109	**0.000626 J**	**0.000293 J**	< 0.000103	< 0.000107	< 0.000106	< 0.000235	**0.000206 J**	< 0.000104	**0.00134 J**	**0.000605 J**	< 0.000102	**0.000271 J**	< 0.000113
Endosulfan I	--	< 0.000261	< 0.000236	< 0.000246	< 0.000248	< 0.000257	< 0.000255	< 0.000565	< 0.000229	< 0.000250	< 0.000241	< 0.000243	< 0.000244	< 0.000246	< 0.000271
Endosulfan II	--	< 0.000280	< 0.000254	< 0.000264	< 0.000267	< 0.000277	< 0.000275	< 0.000607	< 0.000246	< 0.000269	< 0.000259	< 0.000262	< 0.000263	< 0.000265	< 0.000291
Endosulfan sulfate	--	< 0.000207	< 0.000188	< 0.000195	< 0.000197	< 0.000204	< 0.000203	< 0.000449	< 0.000182	< 0.000199	< 0.000191	< 0.000193	< 0.000194	< 0.000196	< 0.000215
Endrin	0.00065	< 0.000267	< 0.000242	< 0.000252	< 0.000254	< 0.000263	< 0.000261	< 0.000578	< 0.000234	< 0.000256	**0.00235 J**	< 0.000249	< 0.000250	< 0.000252	< 0.000277
Endrin aldehyde	--	< 0.000295	< 0.000267	< 0.000278	< 0.000281	< 0.000291	< 0.000289	< 0.000639	< 0.000259	< 0.000283	< 0.000272	< 0.000275	< 0.000276	< 0.000279	< 0.000306
Endrin ketone	--	< 0.000194	< 0.000176	< 0.000183	< 0.000184	< 0.000191	< 0.000190	< 0.000420	< 0.000170	< 0.000186	< 0.000179	< 0.000181	< 0.000182	< 0.000183	< 0.000201
gamma-BHC (Lindane)	0.0098	< 0.000299	< 0.000271	< 0.000282	< 0.000284	< 0.000295	< 0.000292	< 0.000647	< 0.000262	< 0.000287	< 0.000275	< 0.000279	< 0.000280	< 0.000282	< 0.000310
Heptachlor	0.00077	< 0.000123	< 0.000112	< 0.000116	< 0.000117	< 0.000121	< 0.000121	< 0.000267	< 0.000108	< 0.000118	< 0.000114	< 0.000115	< 0.000115	< 0.000116	< 0.000128
Heptachlor epoxide	0.00042	< 0.000461	< 0.000418	< 0.000434	< 0.000438	< 0.000455	< 0.000451	< 0.000998	< 0.000404	< 0.000442	< 0.000425	< 0.000430	< 0.000432	< 0.000435	< 0.000478

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-05	SS-06	SS-06	SS-06	SS-07	SS-07	SS-07	SS-08	SS-09	SS-09	SS-09	SS-10	SS-10	SS-10
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
Hexachlorobenzene	0.34	< 0.000273	< 0.000247	< 0.000257	< 0.000260	< 0.000269	< 0.000267	< 0.000591	< 0.000240	< 0.000262	< 0.000252	< 0.000255	< 0.000256	< 0.000258	< 0.000283
Methoxychlor	19	< 0.000323	< 0.000293	< 0.000305	< 0.000307	< 0.000319	< 0.000316	< 0.000700	< 0.000283	< 0.000310	< 0.000298	< 0.000301	< 0.000303	< 0.000305	< 0.000335
Toxaphene	0.00042	< 0.0439	< 0.0398	< 0.0414	< 0.0417	< 0.0433	< 0.0430	< 0.0950	< 0.0385	< 0.0421	< 0.0405	< 0.0410	< 0.0411	< 0.0415	< 0.0456
Semi-Volatile Organic Compounds (SIM) (mg/kg)															
1-Methylnaphthalene	--	< 0.00244	**0.0286 J**	**0.0625**	**0.0603**	**0.227 J**	**0.0121 J**	< 0.00264	**0.00233 J**	< 0.00234	< 0.0112	< 0.00228	**0.00234 J**	< 0.00230	< 0.00253
2-Chloronaphthalene	--	< 0.00244	< 0.0221	< 0.00230	< 0.00232	**0.196 J**	< 0.00239	< 0.00264	< 0.00214	< 0.00234	< 0.0112	< 0.00228	< 0.00228	< 0.00230	< 0.00253
2-Methylnaphthalene	0.25	< 0.00244	**0.0369 J**	**0.0964**	**0.0946**	**0.214 J**	**0.0191 J**	< 0.00264	**0.00611 J**	< 0.00234	< 0.0112	< 0.00228	**0.00651 J**	< 0.00230	< 0.00253
Acenaphthene	16	< 0.000732	< 0.00663	< 0.000690	< 0.000696	**0.231**	**0.00152 J**	< 0.000792	< 0.000642	< 0.000702	< 0.00337	< 0.000683	< 0.000685	**0.012**	< 0.000759
Acenaphthylene	13	< 0.000732	< 0.00663	< 0.000690	< 0.000696	**0.213**	< 0.000716	< 0.000792	< 0.000642	< 0.000702	< 0.00337	< 0.000683	< 0.000685	< 0.000691	< 0.000759
Anthracene	2.8	< 0.000732	< 0.00663	< 0.000690	< 0.000696	**0.25**	< 0.000716	< 0.000792	< 0.000642	< 0.000702	< 0.00337	< 0.000683	< 0.000685	**0.105**	< 0.000759
Benzo(a)anthracene	0.16	< 0.000732	< 0.00663	**0.00456 J**	**0.00313 J**	**0.247**	**0.00114 J**	**0.00327 J**	**0.00664**	**0.00201 J**	**0.00591 J**	< 0.000683	**0.000718 J**	**0.491**	**0.00401 J**
Benzo(a)pyrene	0.016	< 0.000732	< 0.00663	**0.00524 J**	**0.00321 J**	**0.278**	**0.00159 J**	**0.00409 J**	**0.00795**	**0.00236 J**	**0.00699 J**	**0.00286 J**	< 0.000685	**0.293**	**0.00483 J**
Benzo(b)fluoranthene	0.16	< 0.000732	< 0.00663	**0.00809**	**0.00525 J**	**0.256**	**0.00261 J**	**0.00430 J**	**0.0121**	**0.00243 J**	**0.0137 J**	< 0.000683	< 0.000685	**0.371**	**0.00662 J**
Benzo(g,h,i)perylene	2.5	< 0.000732	< 0.00663	**0.00692**	**0.00477 J**	**0.263**	**0.00340 J**	**0.00302 J**	**0.0144**	**0.00240 J**	**0.0197 J**	**0.00301 J**	< 0.000685	**0.146**	**0.00450 J**
Benzo(k)fluoranthene	1.6	< 0.000732	< 0.00663	**0.00299 J**	**0.00192 J**	**0.278**	**0.00107 J**	**0.00223 J**	< 0.000642	**0.000964 J**	< 0.00337	< 0.000683	< 0.000685	**0.126**	**0.00190 J**
Chrysene	3.8	< 0.000732	< 0.00663	**0.00588 J**	**0.00415 J**	**0.255**	**0.00167 J**	**0.00381 J**	**0.00853**	**0.00205 J**	**0.00560 J**	< 0.000683	**0.000840 J**	**0.47**	**0.00674 J**
Dibenz(a,h)anthracene	0.016	< 0.000732	< 0.00663	< 0.000690	< 0.000696	**0.281**	**0.00116 J**	< 0.000792	**0.00308 J**	< 0.000702	< 0.00337	< 0.000683	< 0.000685	**0.0407**	< 0.000759
Fluoranthene	60	< 0.000732	**0.0198 J**	**0.0154**	**0.0108**	**0.266**	**0.00223 J**	**0.00491 J**	**0.0123**	**0.00602 J**	**0.0102 J**	**0.000900 J**	**0.00195 J**	**1.39**	**0.00773**
Fluorene	8.9	< 0.000732	< 0.00663	< 0.000690	< 0.000696	**0.231**	< 0.000716	< 0.000792	**0.00318 J**	< 0.000702	< 0.00337	< 0.000683	**0.00303 J**	**0.00837**	< 0.000759
Indeno(1,2,3-cd)pyrene	0.16	< 0.000732	< 0.00663	**0.00334 J**	**0.00210 J**	**0.272**	**0.00134 J**	**0.00234 J**	**0.00496 J**	**0.00159 J**	**0.00598 J**	< 0.000683	< 0.000685	**0.126**	**0.00254 J**
Naphthalene	0.033	< 0.00244	**0.0462 J**	**0.0807**	**0.0934**	< 0.0241	**0.00750 J**	< 0.00264	**0.00236 J**	< 0.00234	**0.0156 J**	< 0.00228	**0.00250 J**	< 0.00230	< 0.00253
Phenanthrene	11	< 0.000732	**0.0398 J**	**0.077**	**0.0632**	**0.311**	**0.00923**	**0.00273 J**	**0.0179**	**0.00266 J**	**0.00391 J**	< 0.000683	**0.0126**	**0.426**	**0.00357 J**
Pyrene	85	< 0.000732	**0.0477 J**	**0.0209**	**0.0162**	**0.241**	**0.00465 J**	**0.0109**	**0.0137**	**0.00468 J**	**0.00940 J**	**0.00123 J**	**0.00161 J**	**1.17**	**0.00740 J**
Total Petroleum Hydrocarbons (mg/kg)															
Total Petroleum Hydrocarbons (C12-C22)	230	< 0.894	**305 J**	**146**	**218**	**386 J**	**29**	**9.38**	< 7.84	**1.10 J**	< 82.4	< 83.4	< 4.19	**9.79 J**	< 9.28
Total Petroleum Hydrocarbons (C22-C32)	230	**2.12 J**	**1,260**	**109**	**113**	**967**	**102**	**11.8**	**73.4**	**7.26**	**351 J**	**245 J**	**12.3 J**	**45.8 J**	**35.6 J**
Total Petroleum Hydrocarbons (C32-C40)	5100	**1.99 J**	**1,930**	**66.1**	**63.5**	**1,710**	**135**	**7.91**	**87.3**	**7.12**	**556**	**444 J**	**30.4**	**52.3**	**49.9 J**
Total Petroleum Hydrocarbons (C5-C12) GRO	100	< 0.0405	**2.88**	**0.232**	**0.504**	< 0.0399	< 0.0396	< 0.0438	< 0.0355	< 0.0389	**0.0726 J**	**0.0629 J**	**0.124 J**	**0.16**	**0.141**
Volatile Organic Compounds (mg/kg)															
1,1,1,2-Tetrachloroethane	0.01	< 0.000610	< 0.000552	< 0.000575	< 0.000580	< 0.000770	< 0.000883	< 0.000660	< 0.000535	< 0.000585	< 0.000562	< 0.000569	< 0.000571	< 0.000576	< 0.000633
1,1,1-Trichloroethane	7.8	< 0.000335	< 0.000304	< 0.000316	< 0.000319	< 0.000423	< 0.000486	< 0.000363	< 0.000294	< 0.000322	< 0.000309	< 0.000313	< 0.000314	< 0.000317	< 0.000348
1,1,2,2-Tetrachloroethane	0.018	< 0.000476	< 0.000431	< 0.000448	< 0.000452	< 0.000600	< 0.000689	< 0.000515	< 0.000417	< 0.000456	< 0.000438	< 0.000444	< 0.000445	< 0.000449	< 0.000494
1,1,2-Trichloroethane	0.07	< 0.00108	< 0.000975	< 0.00101	< 0.00102	< 0.00136	< 0.00156	< 0.00117	< 0.000944	< 0.00103	< 0.000992	< 0.00100	< 0.00101	< 0.00102	< 0.00112
1,1-Dichloroethane	0.2	< 0.000701	< 0.000635	< 0.000661	< 0.000667	< 0.000885	< 0.00102	< 0.000759	< 0.000615	< 0.000673	< 0.000646	< 0.000654	< 0.000656	< 0.000662	< 0.000728
1,1-Dichloroethene	0.55	< 0.000610	< 0.000552	< 0.000575	< 0.000580	< 0.000770	< 0.000883	< 0.000660	< 0.000535	< 0.000585	< 0.000562	< 0.000569	< 0.000571	< 0.000576	< 0.000633
1,1-Dichloropropene	--	< 0.000854	< 0.000773	< 0.000804	< 0.000812	< 0.00108	< 0.00124	< 0.000924	< 0.000749	< 0.000819	< 0.000787	< 0.000796	< 0.000799	< 0.000806	< 0.000886
1,2,3-Trichlorobenzene	--	< 0.000762	< 0.000690	< 0.000718	< 0.000725	< 0.000962	< 0.00110	< 0.000825	< 0.000668	< 0.000731	< 0.000702	< 0.000711	< 0.000713	< 0.000720	< 0.000791
1,2,3-Trichloropropane	--	< 0.00622	< 0.00563	< 0.00586	< 0.00591	< 0.00785	< 0.00901	< 0.00673	< 0.00545	< 0.00597	< 0.00573	< 0.00580	< 0.00582	< 0.00587	< 0.00645
1,2,3-Trimethylbenzene	--	< 0.00140	**0.073**	**0.0133**	**0.0508**	< 0.00177	< 0.00203	< 0.00152	**0.00180 J**	< 0.00135	< 0.00129	< 0.00131	< 0.00131	< 0.00132	< 0.00146

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-05	SS-06	SS-06	SS-06	SS-07	SS-07	SS-07	SS-08	SS-09	SS-09	SS-09	SS-10	SS-10	SS-10
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
1,2,4-Trichlorobenzene	1.5	< 0.00588	< 0.00532	< 0.00554	< 0.00559	< 0.00742	< 0.00851	< 0.00636	< 0.00515	< 0.00564	< 0.00542	< 0.00548	< 0.00550	< 0.00555	< 0.00610
1,2,4-Trimethylbenzene	--	< 0.00141	**0.334**	**0.0368**	**0.15**	**0.00296 J**	**0.00323 J**	< 0.00153	**0.0085**	< 0.00136	< 0.00130	< 0.00132	**0.00179 J**	< 0.00134	< 0.00147
1,2-Dibromo-3-chloropropane (DBCP)	0.0045	< 0.00622	< 0.00563	< 0.00586	< 0.00591	< 0.00785	< 0.00901	< 0.00673	< 0.00545	< 0.00597	< 0.00573	< 0.00580	< 0.00582	< 0.00587	< 0.00645
1,2-Dibromoethane (Ethylene Dibromide)	0.00033	< 0.000640	< 0.000580	< 0.000603	< 0.000609	< 0.000808	< 0.000927	< 0.000693	< 0.000561	< 0.000614	< 0.000590	< 0.000597	< 0.000599	< 0.000605	< 0.000664
1,2-Dichlorobenzene	1.6	< 0.00177	< 0.00160	< 0.00167	< 0.00168	< 0.00224	< 0.00257	< 0.00191	< 0.00155	< 0.00170	< 0.00163	< 0.00165	< 0.00166	< 0.00167	< 0.00183
1,2-Dichloroethane	0.0045	< 0.000579	< 0.000525	< 0.000546	< 0.000551	< 0.000731	< 0.000839	< 0.000627	< 0.000508	< 0.000556	< 0.000534	< 0.000540	< 0.000542	< 0.000547	< 0.000601
1,2-Dichloropropane	0.12	< 0.00155	< 0.00140	< 0.00146	< 0.00147	< 0.00195	< 0.00224	< 0.00168	< 0.00136	< 0.00149	< 0.00143	< 0.00144	< 0.00145	< 0.00146	< 0.00161
1,3,5-Trimethylbenzene	--	< 0.00132	**0.0949**	**0.0143**	**0.0544**	< 0.00166	< 0.00191	< 0.00143	**0.00541**	< 0.00126	< 0.00121	< 0.00123	< 0.00123	< 0.00124	< 0.00137
1,3-Dichlorobenzene	7.4	< 0.00207	< 0.00188	< 0.00195	< 0.00197	< 0.00262	< 0.00301	< 0.00224	< 0.00182	< 0.00199	< 0.00191	< 0.00193	< 0.00194	< 0.00196	< 0.00215
1,3-Dichloropropane	--	< 0.00213	< 0.00193	< 0.00201	< 0.00203	< 0.00269	< 0.00309	< 0.00231	< 0.00187	< 0.00205	< 0.00197	< 0.00199	< 0.00200	< 0.00202	< 0.00221
1,4-Dichlorobenzene	0.59	< 0.00240	< 0.00218	< 0.00226	< 0.00228	< 0.00303	< 0.00348	< 0.00260	< 0.00211	< 0.00231	< 0.00221	< 0.00224	< 0.00225	< 0.00227	< 0.00249
2,2-Dichloropropane	--	< 0.000967	< 0.000876	< 0.000911	< 0.000919	< 0.00123	< 0.00140	< 0.00105	< 0.000848	< 0.000928	< 0.000891	< 0.000902	< 0.000905	< 0.000913	< 0.00100
2-Butanone (Methyl Ethyl Ketone)	5.1	< 0.0152	< 0.0138	< 0.0144	< 0.0145	< 0.0192	< 0.0221	< 0.0165	< 0.0134	< 0.0146	< 0.0140	< 0.0142	< 0.0143	< 0.0144	< 0.0158
2-Chlorotoluene	--	< 0.00112	< 0.00102	< 0.00106	< 0.00107	< 0.00142	< 0.00162	< 0.00121	< 0.000984	< 0.00108	< 0.00103	< 0.00105	< 0.00105	< 0.00106	< 0.00116
2-Phenylbutane (sec-Butylbenzene)	--	< 0.00309	**0.00572 J**	< 0.00291	**0.00437 J**	< 0.00390	< 0.00446	< 0.00334	< 0.00271	< 0.00296	< 0.00284	< 0.00288	< 0.00289	< 0.00291	< 0.00320
4-Chlorotoluene	--	< 0.00138	< 0.00125	< 0.00130	< 0.00131	< 0.00174	< 0.00199	< 0.00149	< 0.00121	< 0.00132	< 0.00127	< 0.00129	< 0.00129	< 0.00130	< 0.00143
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.8	< 0.0122	< 0.0110	< 0.0115	< 0.0116	< 0.0154	< 0.0177	< 0.0132	< 0.0107	< 0.0117	< 0.0112	< 0.0114	< 0.0114	< 0.0115	< 0.0127
Acetone	0.5	< 0.0167	< 0.0151	< 0.0157	< 0.0159	< 0.0210	< 0.0242	**0.0228 J**	< 0.0147	< 0.0160	< 0.0154	< 0.0156	< 0.0156	< 0.0158	**0.0176 J**
Acrylonitrile	--	< 0.00232	< 0.00210	< 0.00218	< 0.00220	< 0.00292	< 0.00335	< 0.00251	< 0.00203	< 0.00222	< 0.00214	< 0.00216	< 0.00217	< 0.00219	< 0.00240
Benzene	0.044	< 0.000488	**0.178**	**0.00473**	**0.00788**	< 0.000616	< 0.000707	< 0.000528	< 0.000428	< 0.000468	< 0.000450	< 0.000455	< 0.000457	< 0.000461	< 0.000506
Bromobenzene	--	< 0.00128	< 0.00116	< 0.00121	< 0.00122	< 0.00161	< 0.00185	< 0.00139	< 0.00112	< 0.00123	< 0.00118	< 0.00119	< 0.00120	< 0.00121	< 0.00133
Bromodichloromethane	0.52	< 0.000961	< 0.000870	< 0.000906	< 0.000914	< 0.00121	< 0.00140	< 0.00104	< 0.000843	< 0.000922	< 0.000886	< 0.000896	< 0.000900	< 0.000908	< 0.000997
Bromoform	1.7	< 0.00729	< 0.00661	< 0.00687	< 0.00693	< 0.00920	< 0.0106	< 0.00789	< 0.00640	< 0.00700	< 0.00672	< 0.00680	< 0.00683	< 0.00689	< 0.00757
Bromomethane (Methyl Bromide)	0.3	< 0.00451	< 0.00409	< 0.00425	< 0.00429	< 0.00570	< 0.00654	< 0.00488	< 0.00396	< 0.00433	< 0.00416	< 0.00421	< 0.00422	< 0.00426	< 0.00468
Carbon tetrachloride	0.048	< 0.00132	< 0.00119	< 0.00124	< 0.00125	< 0.00166	< 0.00191	< 0.00143	< 0.00115	< 0.00126	< 0.00121	< 0.00123	< 0.00123	< 0.00124	< 0.00137
Chlorobenzene	1.5	< 0.000699	< 0.000633	< 0.000659	**0.00942**	< 0.000881	< 0.00101	< 0.000756	< 0.000613	< 0.000671	< 0.000644	< 0.000652	< 0.000654	< 0.000660	< 0.000725
Chloroethane	1.1	< 0.00132	< 0.00119	< 0.00124	< 0.00125	< 0.00166	< 0.00191	< 0.00143	< 0.00115	< 0.00126	< 0.00121	< 0.00123	< 0.00123	< 0.00124	< 0.00137
Chloroform (Trichloromethane)	0.068	< 0.000506	< 0.000458	< 0.000477	< 0.000481	< 0.000639	< 0.000733	< 0.000548	< 0.000444	< 0.000486	< 0.000466	< 0.000472	< 0.000474	< 0.000478	< 0.000525
Chloromethane (Methyl Chloride)	29	< 0.00169	< 0.00154	< 0.00160	< 0.00161	< 0.00214	< 0.00246	< 0.00183	< 0.00149	< 0.00163	< 0.00156	< 0.00158	< 0.00159	< 0.00160	< 0.00176
cis-1,2-Dichloroethene	0.19	< 0.000841	< 0.000762	< 0.000793	< 0.000800	< 0.00106	< 0.00122	< 0.000911	< 0.000738	< 0.000808	< 0.000776	< 0.000785	< 0.000788	< 0.000795	< 0.000873
cis-1,3-Dichloropropene	--	< 0.000827	< 0.000749	< 0.000779	< 0.000786	< 0.00104	< 0.00119	< 0.000895	< 0.000725	< 0.000794	< 0.000762	< 0.000771	< 0.000774	< 0.000781	< 0.000858
Cymene (p-Isopropyltoluene)	--	< 0.00284	< 0.00257	< 0.00268	**0.00452 J**	< 0.00358	< 0.00412	< 0.00308	**0.00257 J**	< 0.00273	< 0.00262	< 0.00265	< 0.00266	< 0.00268	< 0.00295
Dibromochloromethane	3.8	< 0.000549	< 0.000497	< 0.000517	< 0.000522	< 0.000693	< 0.000795	< 0.000594	< 0.000481	< 0.000527	< 0.000506	< 0.000512	< 0.000514	< 0.000518	< 0.000569
Dibromomethane	--	< 0.00122	< 0.00110	< 0.00115	< 0.00116	< 0.00154	< 0.00177	< 0.00132	< 0.00107	< 0.00117	< 0.00112	< 0.00114	< 0.00114	< 0.00115	< 0.00127
Dichlorodifluoromethane (CFC-12)	--	< 0.000997	< 0.000904	< 0.000940	< 0.000948	< 0.00126	< 0.00144	< 0.00108	< 0.000875	< 0.000957	< 0.000919	< 0.000931	< 0.000934	< 0.000942	< 0.00104
Diisopropyl ether (DIPE)	--	< 0.000427	< 0.000387	< 0.000402	< 0.000406	< 0.000539	< 0.000618	< 0.000462	< 0.000374	< 0.000410	< 0.000393	< 0.000398	< 0.000400	< 0.000403	< 0.000443
Ethylbenzene	1.4	< 0.000646	**0.106**	**0.00962**	**0.0498**	< 0.000815	< 0.000936	< 0.000700	**0.00246 J**	**0.000663 J**	**0.000843 J**	< 0.000603	< 0.000605	< 0.000610	< 0.000671
Hexachlorobutadiene	0.68	< 0.0155	< 0.0140	< 0.0146	< 0.0147	< 0.0195	< 0.0224	< 0.0168	< 0.0136	< 0.0149	< 0.0143	< 0.0144	< 0.0145	< 0.0146	< 0.0161
Isopropylbenzene (Cumene)	--	< 0.00105	**0.00677**	**0.00248 J**	**0.00652**	< 0.00132	< 0.00153	< 0.00114	< 0.000923	< 0.00101	< 0.000970	< 0.000982	< 0.000985	< 0.000994	< 0.00109
Methyl Tert Butyl Ether	0.023	< 0.000360	< 0.000326	< 0.000339	**0.000553 J**	< 0.000455	< 0.000522	< 0.000389	< 0.000315	< 0.000345	< 0.000332	< 0.000336	< 0.000337	< 0.000340	< 0.000373
Methylene chloride	0.077	< 0.00810	< 0.00733	**0.0155 J**	< 0.00770	< 0.0102	< 0.0117	< 0.00876	< 0.00710	< 0.00777	< 0.00746	< 0.00755	< 0.00758	< 0.00765	< 0.00840
Naphthalene	0.033	< 0.00380	**0.0522**	**0.0785**	**0.515**	< 0.00480	< 0.00551	< 0.00412	< 0.00334	< 0.00365	< 0.00351	< 0.00355	< 0.00356	< 0.00359	< 0.00395

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-05	SS-06	SS-06	SS-06	SS-07	SS-07	SS-07	SS-08	SS-09	SS-09	SS-09	SS-10	SS-10	SS-10
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
n-Butylbenzene	--	< 0.00468	**0.0394**	**0.0128 J**	**0.0487**	< 0.00592	< 0.00678	< 0.00507	< 0.00411	< 0.00449	< 0.00432	< 0.00437	< 0.00438	< 0.00442	< 0.00486
n-Propylbenzene	--	< 0.00144	**0.0348**	**0.00513 J**	**0.0196**	< 0.00182	< 0.00209	< 0.00156	**0.00141 J**	< 0.00138	< 0.00133	< 0.00134	< 0.00135	< 0.00136	< 0.00149
Styrene	1.5	< 0.00333	< 0.00302	< 0.00314	< 0.00317	< 0.00420	< 0.00482	< 0.00360	< 0.00292	< 0.00320	< 0.00307	< 0.00311	< 0.00312	< 0.00314	< 0.00345
tert-Butylbenzene	--	< 0.00189	< 0.00171	< 0.00178	< 0.00180	< 0.00238	< 0.00273	< 0.00205	< 0.00166	< 0.00181	< 0.00174	< 0.00176	< 0.00177	< 0.00179	< 0.00196
Tetrachloroethene	0.42	< 0.000854	< 0.000773	< 0.000804	< 0.000812	< 0.00108	< 0.00124	< 0.000924	**0.00136 J**	< 0.000819	< 0.000787	< 0.000796	< 0.000799	< 0.000806	< 0.000886
Toluene	2.9	< 0.00152	**0.205**	**0.0215**	**0.0957**	< 0.00192	**0.00465 J**	< 0.00165	**0.011**	**0.00222 J**	**0.00208 J**	< 0.00142	< 0.00143	< 0.00144	< 0.00158
trans-1,2-Dichloroethene	0.67	< 0.00174	< 0.00158	< 0.00164	< 0.00166	< 0.00220	< 0.00253	< 0.00189	< 0.00153	< 0.00167	< 0.00161	< 0.00163	< 0.00163	< 0.00165	< 0.00181
trans-1,3-Dichloropropene	--	< 0.00187	< 0.00169	< 0.00176	< 0.00177	< 0.00236	< 0.00270	< 0.00202	< 0.00164	< 0.00179	< 0.00172	< 0.00174	< 0.00175	< 0.00176	< 0.00194
Trichloroethene	0.46	< 0.000488	< 0.000442	< 0.000460	< 0.000464	< 0.000616	< 0.000707	< 0.000528	< 0.000428	< 0.000468	< 0.000450	< 0.000455	< 0.000457	< 0.000461	< 0.000506
Trichlorofluoromethane (CFC-11)	--	< 0.000610	< 0.000552	< 0.000575	< 0.000580	< 0.000770	< 0.000883	< 0.000660	< 0.000535	< 0.000585	< 0.000562	< 0.000569	< 0.000571	< 0.000576	< 0.000633
Trifluorotrichloroethane (Freon 113)	--	< 0.000823	< 0.000746	< 0.000776	< 0.000783	< 0.00104	< 0.00119	< 0.000891	< 0.000722	< 0.000790	< 0.000759	< 0.000768	< 0.000771	< 0.000777	< 0.000854
Vinyl chloride	0.0082	< 0.000833	< 0.000754	< 0.000785	< 0.000792	< 0.00105	< 0.00121	< 0.000902	< 0.000730	< 0.000799	< 0.000768	< 0.000777	< 0.000780	< 0.000787	< 0.000864
Xylene (total)	2.3	< 0.00583	**0.581**	**0.0472**	**0.252**	< 0.00736	< 0.00844	< 0.00631	**0.0217**	< 0.00559	< 0.00537	< 0.00544	< 0.00546	< 0.00551	< 0.00605

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-11	SS-11	SS-11	SS-12	SS-12	SS-12	SS-13	SS-13	SS-13	SS-14	SS-14	SS-14	SS-15	SS-15
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
Inorganic Compounds (mg/kg)															
Antimony, Total	31	< 0.852	< 0.836	< 0.874	< 0.907	< 0.815	**1.57 J**	**1.32 J**	**0.984 J**	**1.16 J**	**1.09 J**	**1.58 J**	**0.974 J**	**1.43 J**	**1.00 J**
Arsenic, Total	0.067	**6.83**	**5.16**	**5.52**	**6.52**	**5.85**	**3.73**	**5.92**	**6.89**	**3.57**	**4.73**	**4.92**	**8.04**	**3.96**	**3.85**
Barium, Total	3000	**185**	**219**	**297**	**207**	**245**	**353**	**231**	**212**	**470**	**213**	**193**	**188**	**138**	**229**
Beryllium, Total	42	**0.495**	**0.411**	**0.498**	**0.654**	**0.463**	**0.515**	**0.415**	**0.357**	**0.48**	**0.355**	**0.407**	**0.401**	**0.311**	**0.40**
Cadmium, Total	39	< 0.0795	< 0.0780	< 0.0815	**0.285 J**	< 0.0760	**0.217 J**	**0.200 J**	**0.0974 J**	**0.323 J**	**0.103 J**	**0.211 J**	**0.244 J**	**0.0871 J**	**0.190 J**
Chromium, Total	--	**75.9**	**84.1**	**72.8**	**41.3**	**64**	**77.2**	**75.7**	**79.8**	**71.7**	**51.8**	**65.4**	**68.4**	**39.4**	**70.5**
Cobalt, Total	23	**16.9**	**20.3**	**14**	**8.85**	**14.9**	**14.4**	**14.1**	**14.2**	**13.4**	**19.4**	**17**	**15.6**	**8.0**	**14**
Copper, Total	3100	**39.8**	**51.1**	**28.2**	**19.4**	**42.7**	**41.7**	**29.7**	**34.7**	**42.4**	**31.4**	**47**	**48.3**	**16.5**	**35.6**
Lead, Total	80	**11.1**	**10.9**	**9.69**	**15.5**	**17.1**	**14**	**57.3**	**8.04**	**15.4**	**9.46**	**29**	**15.8**	**9.71**	**14.3**
Mercury, Total	13	**0.0645**	**0.0824**	**0.0228 J**	**0.036**	**0.149**	**0.0515**	**0.164**	**0.0626**	**0.0475**	**0.0759**	**0.134**	**0.226**	**0.0609**	**0.0836**
Molybdenum, Total	390	< 0.182	< 0.178	< 0.186	**3.43**	**0.70**	**0.206 J**	**0.377 J**	**0.354 J**	**1.13**	**0.998**	**0.772**	**0.87**	**0.478 J**	**0.391 J**
Nickel, Total	86	**100**	**85.3**	**90.5**	**26.2**	**73.2**	**91.9**	**95.4**	**103**	**85**	**63.2**	**75.8**	**79.3**	**48.3**	**82.6**
Selenium, Total	390	< 0.704	< 0.691	< 0.722	< 0.750	< 0.674	< 0.768	< 0.712	< 0.704	**1.13 J**	< 0.681	< 0.663	< 0.686	< 0.676	< 0.710
Silver, Total	390	< 0.136	< 0.134	< 0.140	< 0.145	< 0.130	< 0.149	< 0.138	< 0.136	< 0.163	< 0.132	< 0.128	< 0.133	< 0.131	< 0.137
Thallium, Total	0.78	< 0.738	< 0.725	< 0.757	< 0.786	< 0.706	< 0.805	< 0.747	< 0.738	< 0.884	< 0.714	< 0.695	< 0.719	< 0.709	< 0.744
Vanadium, Total	390	**61.2**	**78**	**49.2**	**52.5**	**64.2**	**42**	**48.7**	**50.2**	**44.8**	**43.8**	**63**	**74.2**	**39.1**	**43.2**
Zinc, Total	23000	**62.3**	**58.2**	**50.3**	**47.6**	**101**	**72.3**	**70.9**	**61.2**	**68.6**	**47.5**	**76.8**	**79.1**	**39**	**60.9**
Other (%)															
Total Solids	--	**88**	**89.7**	**85.8**	**82.7**	**92.1**	**80.8**	**87**	**88**	**73.5**	**91.1**	**93.6**	**90.4**	**91.7**	**87.3**
Pesticides (mg/kg)															
4,4'-DDD	2.7	< 0.000186	**0.000242 J**	< 0.000191	**0.00237 J**	**0.00108 J**	**0.000889 J**	**0.00124 J**	< 0.000186	**0.000811 J**	< 0.000180	**0.000557 J**	**0.000236 J**	< 0.000179	< 0.000188
4,4'-DDE	1.9	**0.000758 J**	**0.00162 J**	< 0.000192	**0.00580 J**	**0.00232 J**	**0.0327**	**0.0118 J**	< 0.000187	**0.00887 J**	**0.000551 J**	**0.00173 J**	**0.0228**	**0.00239 J**	**0.0332**
4,4'-DDT	1.9	< 0.000302	**0.000463 J**	< 0.000310	**0.0101 J**	**0.00433 J**	**0.00238 J**	**0.0100 J**	< 0.000302	< 0.000362	**0.00112 J**	**0.00340 J**	**0.00232 J**	**0.00101 J**	**0.00266 J**
Aldrin	0.036	< 0.000265	< 0.000260	< 0.000271	< 0.000282	< 0.000253	< 0.000288	< 0.000268	< 0.000265	< 0.000317	< 0.000256	< 0.000249	< 0.000258	< 0.000254	< 0.000267
alpha-BHC	--	< 0.000219	< 0.000215	< 0.000225	< 0.000233	< 0.000210	< 0.000239	< 0.000222	< 0.000219	< 0.000263	< 0.000212	< 0.000206	< 0.000213	< 0.000211	< 0.000221
beta-BHC	--	< 0.000344	< 0.000338	< 0.000353	< 0.000366	< 0.000329	< 0.000375	< 0.000348	< 0.000344	< 0.000412	< 0.000333	< 0.000324	< 0.000335	< 0.000331	< 0.000347
Chlordane	0.48	< 0.0443	< 0.0435	< 0.0454	< 0.0472	< 0.0424	< 0.0483	< 0.0448	< 0.0443	< 0.0531	< 0.0428	< 0.0417	< 0.0431	< 0.0425	< 0.0447
delta-BHC	--	< 0.000172	< 0.000168	< 0.000176	< 0.000183	< 0.000164	< 0.000187	< 0.000173	< 0.000172	< 0.000205	< 0.000166	< 0.000161	< 0.000167	< 0.000165	< 0.000173
Dieldrin	0.00017	< 0.000101	< 0.0000992	< 0.000104	< 0.000108	< 0.0000967	< 0.000110	**0.000134 J**	< 0.000101	< 0.000121	< 0.0000977	**0.00145 J**	< 0.0000984	< 0.0000971	< 0.000102
Endosulfan I	--	< 0.000243	< 0.000239	< 0.000249	< 0.000259	< 0.000232	< 0.000265	< 0.000246	< 0.000243	< 0.000291	< 0.000235	< 0.000229	< 0.000237	< 0.000233	< 0.000245
Endosulfan II	--	< 0.000261	< 0.000256	< 0.000268	< 0.000278	< 0.000250	< 0.000285	< 0.000264	< 0.000261	< 0.000313	< 0.000253	< 0.000246	< 0.000254	< 0.000251	< 0.000263
Endosulfan sulfate	--	< 0.000193	< 0.000190	< 0.000198	< 0.000206	< 0.000185	< 0.000210	< 0.000195	< 0.000193	< 0.000231	< 0.000187	< 0.000182	< 0.000188	< 0.000185	< 0.000195
Endrin	0.00065	< 0.000249	< 0.000244	< 0.000255	< 0.000265	< 0.000238	< 0.000271	< 0.000252	< 0.000249	< 0.000298	< 0.000241	< 0.000234	< 0.000242	< 0.000239	< 0.000251
Endrin aldehyde	--	< 0.000275	< 0.000270	< 0.000282	< 0.000293	< 0.000263	< 0.000300	< 0.000278	< 0.000275	< 0.000329	< 0.000266	< 0.000259	< 0.000268	< 0.000264	< 0.000277
Endrin ketone	--	< 0.000181	< 0.000177	< 0.000185	< 0.000192	< 0.000173	< 0.000197	< 0.000183	< 0.000181	< 0.000216	< 0.000175	< 0.000170	< 0.000176	< 0.000173	< 0.000182
gamma-BHC (Lindane)	0.0098	< 0.000278	< 0.000273	< 0.000285	< 0.000296	< 0.000266	< 0.000303	< 0.000281	< 0.000278	< 0.000333	< 0.000269	< 0.000262	< 0.000271	< 0.000267	< 0.000281
Heptachlor	0.00077	< 0.000115	< 0.000113	< 0.000118	< 0.000122	< 0.000110	< 0.000125	< 0.000116	< 0.000115	< 0.000137	< 0.000111	< 0.000108	< 0.000112	< 0.000110	< 0.000116
Heptachlor epoxide	0.00042	< 0.000429	< 0.000421	< 0.000440	< 0.000457	< 0.000411	< 0.000468	< 0.000434	< 0.000429	< 0.000514	< 0.000415	< 0.000404	< 0.000418	< 0.000412	< 0.000433

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-11	SS-11	SS-11	SS-12	SS-12	SS-12	SS-13	SS-13	SS-13	SS-14	SS-14	SS-14	SS-15	SS-15
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
Hexachlorobenzene	0.34	< 0.000254	< 0.000250	< 0.000261	< 0.000271	< 0.000243	< 0.000277	< 0.000257	< 0.000254	< 0.000305	< 0.000246	< 0.000239	< 0.000248	< 0.000244	< 0.000256
Methoxychlor	19	< 0.000301	< 0.000295	< 0.000309	< 0.000320	< 0.000288	< 0.000328	< 0.000304	< 0.000301	< 0.000361	< 0.000291	< 0.000283	< 0.000293	< 0.000289	< 0.000303
Toxaphene	0.00042	< 0.0409	< 0.0401	< 0.0419	< 0.0435	< 0.0391	< 0.0446	< 0.0414	< 0.0409	< 0.0490	< 0.0395	< 0.0385	< 0.0398	< 0.0393	< 0.0412
Semi-Volatile Organic Compounds (SIM) (mg/kg)															
1-Methylnaphthalene	--	< 0.00227	< 0.00223	< 0.00233	< 0.00242	< 0.00217	< 0.00248	< 0.00230	**0.0118 J**	< 0.00272	< 0.00220	< 0.00214	< 0.00221	< 0.00218	< 0.00229
2-Chloronaphthalene	--	**0.00350 J**	< 0.00223	< 0.00233	< 0.00242	< 0.00217	< 0.00248	< 0.00230	< 0.00227	< 0.00272	< 0.00220	< 0.00214	< 0.00221	< 0.00218	< 0.00229
2-Methylnaphthalene	0.25	< 0.00227	< 0.00223	< 0.00233	< 0.00242	< 0.00217	< 0.00248	< 0.00230	**0.0179 J**	< 0.00272	< 0.00220	**0.00461 J**	**0.00444 J**	< 0.00218	< 0.00229
Acenaphthene	16	< 0.000682	< 0.000669	< 0.000699	< 0.000726	< 0.000652	< 0.000743	< 0.000689	< 0.000682	< 0.000816	< 0.000659	< 0.000641	< 0.000664	< 0.000655	< 0.000687
Acenaphthylene	13	< 0.000682	< 0.000669	< 0.000699	< 0.000726	< 0.000652	< 0.000743	< 0.000689	< 0.000682	< 0.000816	< 0.000659	< 0.000641	< 0.000664	< 0.000655	< 0.000687
Anthracene	2.8	< 0.000682	< 0.000669	< 0.000699	< 0.000726	< 0.000652	< 0.000743	**0.000868 J**	< 0.000682	< 0.000816	< 0.000659	**0.00118 J**	**0.00143 J**	< 0.000655	< 0.000687
Benzo(a)anthracene	0.16	**0.00113 J**	**0.00174 J**	< 0.000699	< 0.000726	**0.000968 J**	**0.00165 J**	**0.00882**	< 0.000682	**0.00278 J**	**0.00295 J**	**0.00375 J**	**0.00692**	< 0.000655	**0.00259 J**
Benzo(a)pyrene	0.016	**0.00173 J**	**0.00283 J**	< 0.000699	< 0.000726	**0.00129 J**	**0.00168 J**	**0.00912**	< 0.000682	**0.00321 J**	**0.00423 J**	**0.00508 J**	**0.00904**	< 0.000655	**0.00326 J**
Benzo(b)fluoranthene	0.16	**0.00220 J**	**0.00323 J**	< 0.000699	< 0.000726	< 0.000652	**0.00178 J**	**0.0114**	< 0.000682	**0.00385 J**	**0.00549 J**	**0.00861**	**0.0142**	< 0.000655	**0.00380 J**
Benzo(g,h,i)perylene	2.5	**0.00240 J**	**0.00597 J**	< 0.000699	< 0.000726	**0.00219 J**	**0.000911 J**	**0.0104**	< 0.000682	**0.00211 J**	**0.00381 J**	**0.0129**	**0.0166**	< 0.000655	**0.00238 J**
Benzo(k)fluoranthene	1.6	**0.00105 J**	**0.000819 J**	< 0.000699	< 0.000726	< 0.000652	**0.00101 J**	**0.00451 J**	< 0.000682	**0.00122 J**	**0.00176 J**	**0.000889 J**	< 0.000664	< 0.000655	**0.00153 J**
Chrysene	3.8	**0.00144 J**	**0.00166 J**	< 0.000699	< 0.000726	**0.00125 J**	**0.00196 J**	**0.0106**	< 0.000682	**0.00369 J**	**0.00524 J**	**0.00243 J**	**0.00869**	< 0.000655	**0.00361 J**
Dibenz(a,h)anthracene	0.016	< 0.000682	< 0.000669	< 0.000699	< 0.000726	< 0.000652	< 0.000743	**0.00235 J**	< 0.000682	< 0.000816	**0.000838 J**	**0.00306 J**	**0.00346 J**	< 0.000655	< 0.000687
Fluoranthene	60	**0.00256 J**	**0.00293 J**	< 0.000699	< 0.000726	**0.00158 J**	**0.00301 J**	**0.0156**	< 0.000682	**0.00648 J**	**0.00745**	**0.00580 J**	**0.0138**	< 0.000655	**0.00646 J**
Fluorene	8.9	< 0.000682	< 0.000669	< 0.000699	< 0.000726	< 0.000652	< 0.000743	< 0.000689	< 0.000682	< 0.000816	< 0.000659	< 0.000641	< 0.000664	< 0.000655	< 0.000687
Indeno(1,2,3-cd)pyrene	0.16	**0.00126 J**	**0.00140 J**	< 0.000699	< 0.000726	**0.000934 J**	**0.000838 J**	**0.00565 J**	< 0.000682	**0.00177 J**	**0.00262 J**	**0.00404 J**	**0.00481 J**	< 0.000655	**0.00173 J**
Naphthalene	0.033	< 0.00227	< 0.00223	< 0.00233	< 0.00242	< 0.00217	< 0.00248	**0.00308 J**	**0.0164 J**	< 0.00272	< 0.00220	**0.00333 J**	**0.00325 J**	< 0.00218	< 0.00229
Phenanthrene	11	**0.000963 J**	**0.00108 J**	< 0.000699	< 0.000726	**0.00128 J**	**0.000989 J**	**0.00432 J**	< 0.000682	**0.00226 J**	**0.00264 J**	**0.00419 J**	**0.00602 J**	< 0.000655	**0.00182 J**
Pyrene	85	**0.00234 J**	**0.00285 J**	< 0.000699	< 0.000726	**0.00180 J**	**0.00284 J**	**0.0117**	< 0.000682	**0.00464 J**	**0.00573 J**	**0.00575 J**	**0.0109**	< 0.000655	**0.00453 J**
Total Petroleum Hydrocarbons (mg/kg)															
Total Petroleum Hydrocarbons (C12-C22)	230	**1.59 J**	< 0.817	< 0.854	**6.63**	**12.4**	< 0.907	**1.05 J**	**0.917 J**	< 0.997	**2.65 J**	< 15.7	**1.03 J**	< 4.00	**1.12 J**
Total Petroleum Hydrocarbons (C22-C32)	230	**6.05**	**4.65**	**3.02 J**	**10.5**	**19.1**	**2.18 J**	**3.27 J**	**6.93**	< 1.81	**7.78**	**77.8 J**	**7.09**	**19.0 J**	**8.6**
Total Petroleum Hydrocarbons (C32-C40)	5100	**10.4**	**7.69**	**6.03**	**9.28**	**20.7**	< 1.65	**5.39**	**15.4**	< 1.81	**10.6**	**161**	**10.8**	**51.9**	**15.6**
Total Petroleum Hydrocarbons (C5-C12) GRO	100	**0.117**	**0.0888 J**	< 0.0387	**0.0625 J**	**0.0505 J**	**0.0427 J**	< 0.0381	< 0.0377	**0.275**	**0.0536 J**	< 0.0355	< 0.0367	**0.0600 J**	< 0.0380
Volatile Organic Compounds (mg/kg)															
1,1,1,2-Tetrachloroethane	0.01	< 0.000568	< 0.000580	< 0.000582	< 0.000605	< 0.000543	< 0.000619	< 0.000574	< 0.000568	< 0.000680	< 0.000549	< 0.000534	< 0.000553	< 0.000546	< 0.000572
1,1,1-Trichloroethane	7.8	< 0.000312	< 0.000319	< 0.000320	< 0.000333	< 0.000299	< 0.000340	< 0.000316	< 0.000312	< 0.000374	< 0.000302	< 0.000294	< 0.000304	< 0.000300	< 0.000315
1,1,2,2-Tetrachloroethane	0.018	< 0.000443	< 0.000453	< 0.000454	< 0.000472	< 0.000424	< 0.000483	< 0.000448	< 0.000443	< 0.000531	< 0.000428	< 0.000417	< 0.000431	< 0.000425	< 0.000447
1,1,2-Trichloroethane	0.07	< 0.00100	< 0.00102	< 0.00103	< 0.00107	< 0.000959	< 0.00109	< 0.00101	< 0.00100	< 0.00120	< 0.000970	< 0.000944	< 0.000977	< 0.000963	< 0.00101
1,1-Dichloroethane	0.2	< 0.000653	< 0.000667	< 0.000670	< 0.000695	< 0.000625	< 0.000712	< 0.000661	< 0.000653	< 0.000782	< 0.000631	< 0.000614	< 0.000636	< 0.000627	< 0.000658
1,1-Dichloroethene	0.55	< 0.000568	< 0.000580	< 0.000582	< 0.000605	< 0.000543	< 0.000619	< 0.000574	< 0.000568	< 0.000680	< 0.000549	< 0.000534	< 0.000553	< 0.000546	< 0.000572
1,1-Dichloropropene	--	< 0.000795	< 0.000812	< 0.000815	< 0.000847	< 0.000760	< 0.000867	< 0.000804	< 0.000795	< 0.000952	< 0.000769	< 0.000748	< 0.000774	< 0.000764	< 0.000801
1,2,3-Trichlorobenzene	--	< 0.000710	< 0.000725	< 0.000728	< 0.000756	< 0.000679	< 0.000774	< 0.000718	< 0.000710	< 0.000850	< 0.000686	< 0.000668	< 0.000691	< 0.000682	< 0.000716
1,2,3-Trichloropropane	--	< 0.00579	< 0.00591	< 0.00594	< 0.00617	< 0.00554	< 0.00631	< 0.00586	< 0.00579	< 0.00694	< 0.00560	< 0.00545	< 0.00564	< 0.00556	< 0.00584
1,2,3-Trimethylbenzene	--	< 0.00131	< 0.00134	< 0.00134	< 0.00139	< 0.00125	< 0.00142	< 0.00132	< 0.00131	< 0.00156	< 0.00126	< 0.00123	< 0.00127	< 0.00125	< 0.00132

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-11	SS-11	SS-11	SS-12	SS-12	SS-12	SS-13	SS-13	SS-13	SS-14	SS-14	SS-14	SS-15	SS-15
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
1,2,4-Trichlorobenzene	1.5	< 0.00547	< 0.00559	< 0.00561	< 0.00583	< 0.00524	< 0.00597	< 0.00554	< 0.00547	< 0.00656	< 0.00529	< 0.00515	< 0.00533	< 0.00526	< 0.00552
1,2,4-Trimethylbenzene	--	< 0.00132	< 0.00135	< 0.00135	< 0.00140	< 0.00126	< 0.00144	< 0.00133	< 0.00132	< 0.00158	< 0.00127	< 0.00124	< 0.00128	< 0.00127	< 0.00133
1,2-Dibromo-3-chloropropane (DBCP)	0.0045	< 0.00579	< 0.00591	< 0.00594	< 0.00617	< 0.00554	< 0.00631	< 0.00586	< 0.00579	< 0.00694	< 0.00560	< 0.00545	< 0.00564	< 0.00556	< 0.00584
1,2-Dibromoethane (Ethylene Dibromide)	0.00033	< 0.000596	< 0.000609	< 0.000612	< 0.000635	< 0.000570	< 0.000650	< 0.000603	< 0.000596	< 0.000714	< 0.000577	< 0.000561	< 0.000581	< 0.000573	< 0.000601
1,2-Dichlorobenzene	1.6	< 0.00165	< 0.00168	< 0.00169	< 0.00175	< 0.00158	< 0.00180	< 0.00167	< 0.00165	< 0.00197	< 0.00159	< 0.00155	< 0.00160	< 0.00158	< 0.00166
1,2-Dichloroethane	0.0045	< 0.000540	< 0.000551	< 0.000553	< 0.000574	< 0.000516	< 0.000588	< 0.000546	< 0.000540	< 0.000646	< 0.000522	< 0.000508	< 0.000525	< 0.000518	< 0.000544
1,2-Dichloropropane	0.12	< 0.00144	< 0.00147	< 0.00148	< 0.00154	< 0.00138	< 0.00157	< 0.00146	< 0.00144	< 0.00173	< 0.00139	< 0.00136	< 0.00140	< 0.00139	< 0.00145
1,3,5-Trimethylbenzene	--	< 0.00123	< 0.00125	< 0.00126	< 0.00131	< 0.00117	< 0.00134	< 0.00124	< 0.00123	< 0.00147	< 0.00119	< 0.00115	< 0.00119	< 0.00118	< 0.00124
1,3-Dichlorobenzene	7.4	< 0.00193	< 0.00197	< 0.00198	< 0.00206	< 0.00185	< 0.00210	< 0.00195	< 0.00193	< 0.00231	< 0.00187	< 0.00182	< 0.00188	< 0.00185	< 0.00195
1,3-Dichloropropane	--	< 0.00199	< 0.00203	< 0.00204	< 0.00212	< 0.00190	< 0.00217	< 0.00201	< 0.00199	< 0.00238	< 0.00192	< 0.00187	< 0.00194	< 0.00191	< 0.00200
1,4-Dichlorobenzene	0.59	< 0.00224	< 0.00229	< 0.00229	< 0.00238	< 0.00214	< 0.00244	< 0.00226	< 0.00224	< 0.00268	< 0.00216	< 0.00211	< 0.00218	< 0.00215	< 0.00226
2,2-Dichloropropane	--	< 0.000901	< 0.000920	< 0.000924	< 0.000959	< 0.000861	< 0.000982	< 0.000911	< 0.000901	< 0.00108	< 0.000871	< 0.000847	< 0.000877	< 0.000865	< 0.000908
2-Butanone (Methyl Ethyl Ketone)	5.1	< 0.0142	< 0.0145	< 0.0146	< 0.0151	< 0.0136	< 0.0155	< 0.0144	< 0.0142	< 0.0170	< 0.0137	< 0.0134	< 0.0138	< 0.0136	< 0.0143
2-Chlorotoluene	--	< 0.00105	< 0.00107	< 0.00107	< 0.00111	< 0.000999	< 0.00114	< 0.00106	< 0.00105	< 0.00125	< 0.00101	< 0.000983	< 0.00102	< 0.00100	< 0.00105
2-Phenylbutane (sec-Butylbenzene)	--	< 0.00287	< 0.00293	< 0.00295	< 0.00306	< 0.00275	< 0.00313	< 0.00291	< 0.00287	< 0.00344	< 0.00278	< 0.00270	< 0.00280	< 0.00276	< 0.00290
4-Chlorotoluene	--	< 0.00128	< 0.00132	< 0.00132	< 0.00137	< 0.00123	< 0.00140	< 0.00130	< 0.00128	< 0.00154	< 0.00124	< 0.00121	< 0.00125	< 0.00123	< 0.00129
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.8	< 0.0114	< 0.0116	< 0.0116	< 0.0121	< 0.0109	< 0.0124	< 0.0115	< 0.0114	< 0.0136	< 0.0110	< 0.0107	< 0.0111	< 0.0109	< 0.0114
Acetone	0.5	< 0.0156	< 0.0158	< 0.0160	< 0.0166	< 0.0149	< 0.0170	< 0.0157	< 0.0156	< 0.0186	< 0.0150	< 0.0146	< 0.0152	< 0.0149	< 0.0157
Acrylonitrile	--	< 0.00216	< 0.00221	< 0.00221	< 0.00230	< 0.00206	< 0.00235	< 0.00218	< 0.00216	< 0.00258	< 0.00209	< 0.00203	< 0.00210	< 0.00207	< 0.00218
Benzene	0.044	< 0.000454	< 0.000464	< 0.000466	< 0.000484	< 0.000435	< 0.000495	< 0.000460	< 0.000454	< 0.000544	< 0.000439	< 0.000427	< 0.000442	< 0.000436	< 0.000458
Bromobenzene	--	< 0.00119	< 0.00122	< 0.00122	< 0.00127	< 0.00114	< 0.00130	< 0.00121	< 0.00119	< 0.00143	< 0.00115	< 0.00112	< 0.00116	< 0.00115	< 0.00120
Bromodichloromethane	0.52	< 0.000895	< 0.000914	< 0.000918	< 0.000953	< 0.000856	< 0.000976	< 0.000905	< 0.000895	< 0.00107	< 0.000865	< 0.000842	< 0.000872	< 0.000860	< 0.000902
Bromoform	1.7	< 0.00679	< 0.00694	< 0.00697	< 0.00723	< 0.00650	< 0.00740	< 0.00687	< 0.00679	< 0.00814	< 0.00657	< 0.00639	< 0.00661	< 0.00652	< 0.00685
Bromomethane (Methyl Bromide)	0.3	< 0.00420	< 0.00429	< 0.00431	< 0.00447	< 0.00402	< 0.00458	< 0.00425	< 0.00420	< 0.00503	< 0.00406	< 0.00395	< 0.00409	< 0.00404	< 0.00424
Carbon tetrachloride	0.048	< 0.00123	< 0.00125	< 0.00126	< 0.00131	< 0.00117	< 0.00134	< 0.00124	< 0.00123	< 0.00147	< 0.00119	< 0.00115	< 0.00119	< 0.00118	< 0.00124
Chlorobenzene	1.5	< 0.000651	< 0.000665	< 0.000667	< 0.000693	< 0.000622	< 0.000709	< 0.000658	< 0.000651	< 0.000780	< 0.000629	< 0.000612	< 0.000634	< 0.000625	< 0.000656
Chloroethane	1.1	< 0.00123	< 0.00125	< 0.00126	< 0.00131	< 0.00117	< 0.00134	< 0.00124	< 0.00123	< 0.00147	< 0.00119	< 0.00115	< 0.00119	< 0.00118	< 0.00124
Chloroform (Trichloromethane)	0.068	< 0.000471	< 0.000482	< 0.000483	< 0.000502	< 0.000451	< 0.000514	< 0.000477	< 0.000471	< 0.000565	< 0.000456	< 0.000443	< 0.000459	< 0.000453	< 0.000475
Chloromethane (Methyl Chloride)	29	< 0.00158	< 0.00161	< 0.00162	< 0.00168	< 0.00151	< 0.00172	< 0.00160	< 0.00158	< 0.00189	< 0.00153	< 0.00149	< 0.00154	< 0.00152	< 0.00159
cis-1,2-Dichloroethene	0.19	< 0.000784	< 0.000801	< 0.000804	< 0.000834	< 0.000750	< 0.000854	< 0.000793	< 0.000784	< 0.000939	< 0.000758	< 0.000737	< 0.000763	< 0.000753	< 0.000790
cis-1,3-Dichloropropene	--	< 0.000770	< 0.000786	< 0.000790	< 0.000820	< 0.000737	< 0.000839	< 0.000779	< 0.000770	< 0.000922	< 0.000745	< 0.000725	< 0.000750	< 0.000740	< 0.000776
Cymene (p-Isopropyltoluene)	--	< 0.00265	< 0.00270	< 0.00271	**0.00887**	**0.00718**	< 0.00288	< 0.00268	< 0.00265	< 0.00317	< 0.00256	< 0.00249	< 0.00258	< 0.00254	< 0.00267
Dibromochloromethane	3.8	< 0.000511	< 0.000522	< 0.000524	< 0.000544	< 0.000489	< 0.000557	< 0.000517	< 0.000511	< 0.000612	< 0.000494	< 0.000481	< 0.000498	< 0.000491	< 0.000515
Dibromomethane	--	< 0.00114	< 0.00116	< 0.00116	< 0.00121	< 0.00109	< 0.00124	< 0.00115	< 0.00114	< 0.00136	< 0.00110	< 0.00107	< 0.00111	< 0.00109	< 0.00114
Dichlorodifluoromethane (CFC-12)	--	< 0.000929	< 0.000949	< 0.000953	< 0.000989	< 0.000889	< 0.00101	< 0.000940	< 0.000929	< 0.00111	< 0.000898	< 0.000874	< 0.000905	< 0.000892	< 0.000937
Diisopropyl ether (DIPE)	--	< 0.000398	< 0.000406	< 0.000408	< 0.000423	< 0.000380	< 0.000433	< 0.000402	< 0.000398	< 0.000476	< 0.000384	< 0.000374	< 0.000387	< 0.000382	< 0.000401
Ethylbenzene	1.4	< 0.000602	< 0.000614	< 0.000617	< 0.000641	< 0.000576	< 0.000656	< 0.000609	< 0.000602	< 0.000721	< 0.000582	< 0.000566	< 0.000586	< 0.000578	< 0.000607
Hexachlorobutadiene	0.68	< 0.0144	< 0.0147	< 0.0148	< 0.0154	< 0.0138	< 0.0157	< 0.0146	< 0.0144	< 0.0173	< 0.0139	< 0.0136	< 0.0140	< 0.0139	< 0.0145
Isopropylbenzene (Cumene)	--	< 0.000980	< 0.00100	< 0.00101	< 0.00104	< 0.000938	< 0.00107	< 0.000991	< 0.000980	< 0.00117	< 0.000948	< 0.000922	< 0.000955	< 0.000942	< 0.000988
Methyl Tert Butyl Ether	0.023	< 0.000335	< 0.000342	< 0.000344	< 0.000357	< 0.000320	< 0.000365	< 0.000339	< 0.000335	< 0.000401	< 0.000324	< 0.000315	< 0.000326	< 0.000322	< 0.000338
Methylene chloride	0.077	< 0.00754	< 0.00769	< 0.00773	< 0.00803	< 0.00721	< 0.00822	< 0.00763	< 0.00754	< 0.00903	< 0.00729	< 0.00710	< 0.00734	< 0.00724	< 0.00760
Naphthalene	0.033	< 0.00354	< 0.00361	< 0.00363	< 0.00377	< 0.00339	< 0.00386	< 0.00358	< 0.00354	< 0.00424	< 0.00343	< 0.00333	< 0.00345	< 0.00340	< 0.00357

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location		SS-11	SS-11	SS-11	SS-12	SS-12	SS-12	SS-13	SS-13	SS-13	SS-14	SS-14	SS-14	SS-15	SS-15
Sample Date	STATE-CA-ESL-SO-TIER1	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
n-Butylbenzene	--	< 0.00436	< 0.00445	< 0.00447	< 0.00464	< 0.00417	< 0.00475	< 0.00441	< 0.00436	< 0.00522	< 0.00422	< 0.00410	< 0.00425	< 0.00419	< 0.00440
n-Propylbenzene	--	< 0.00134	< 0.00137	< 0.00137	< 0.00143	< 0.00128	< 0.00146	< 0.00136	< 0.00134	< 0.00161	< 0.00130	< 0.00126	< 0.00131	< 0.00129	< 0.00135
Styrene	1.5	< 0.00310	< 0.00317	< 0.00318	< 0.00330	< 0.00297	< 0.00338	< 0.00314	< 0.00310	< 0.00371	< 0.00300	< 0.00292	< 0.00302	< 0.00298	< 0.00313
tert-Butylbenzene	--	< 0.00176	< 0.00180	< 0.00181	< 0.00187	< 0.00168	< 0.00192	< 0.00178	< 0.00176	< 0.00211	< 0.00170	< 0.00166	< 0.00171	< 0.00169	< 0.00177
Tetrachloroethene	0.42	< 0.000795	< 0.000812	< 0.000815	< 0.000847	< 0.000760	< 0.000867	< 0.000804	< 0.000795	< 0.000952	< 0.000769	< 0.000748	< 0.000774	< 0.000764	< 0.000801
Toluene	2.9	< 0.00142	< 0.00145	< 0.00146	< 0.00151	< 0.00136	< 0.00155	< 0.00144	< 0.00142	< 0.00170	< 0.00137	< 0.00134	< 0.00138	< 0.00136	< 0.00143
trans-1,2-Dichloroethene	0.67	< 0.00162	< 0.00166	< 0.00167	< 0.00173	< 0.00155	< 0.00177	< 0.00164	< 0.00162	< 0.00195	< 0.00157	< 0.00153	< 0.00158	< 0.00156	< 0.00164
trans-1,3-Dichloropropene	--	< 0.00174	< 0.00177	< 0.00178	< 0.00185	< 0.00166	< 0.00189	< 0.00176	< 0.00174	< 0.00208	< 0.00168	< 0.00164	< 0.00169	< 0.00167	< 0.00175
Trichloroethene	0.46	< 0.000454	< 0.000464	< 0.000466	< 0.000484	< 0.000435	< 0.000495	< 0.000460	< 0.000454	< 0.000544	< 0.000439	< 0.000427	< 0.000442	< 0.000436	< 0.000458
Trichlorofluoromethane (CFC-11)	--	< 0.000568	< 0.000580	< 0.000582	< 0.000605	< 0.000543	< 0.000619	< 0.000574	< 0.000568	< 0.000680	< 0.000549	< 0.000534	< 0.000553	< 0.000546	< 0.000572
Trifluorotrichloroethane (Freon 113)	--	< 0.000767	< 0.000783	< 0.000786	< 0.000816	< 0.000733	< 0.000836	< 0.000775	< 0.000767	< 0.000918	< 0.000741	< 0.000721	< 0.000747	< 0.000736	< 0.000773
Vinyl chloride	0.0082	< 0.000776	< 0.000792	< 0.000796	< 0.000826	< 0.000742	< 0.000846	< 0.000785	< 0.000776	< 0.000929	< 0.000750	< 0.000730	< 0.000755	< 0.000745	< 0.000782
Xylene (total)	2.3	< 0.00543	< 0.00554	< 0.00557	< 0.00578	< 0.00519	< 0.00592	< 0.00549	< 0.00543	< 0.00650	< 0.00525	< 0.00511	< 0.00529	< 0.00522	< 0.00547

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-15	SS-16	SS-16	SS-16	SS-17	SS-17	SS-17	SS-18	SS-18	SS-18	SS-19	SS-19	SS-19	SS-20
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)
Inorganic Compounds (mg/kg)															
Antimony, Total	31	**1.59 J**	< 0.830	< 0.800	< 0.890	< 0.841	< 0.806	< 0.846	< 0.800	< 0.862	< 0.937	**2.11**	**1.47 J**	**0.879 J**	< 0.856
Arsenic, Total	0.067	**4.71**	**5.94**	**7.16**	**7.09**	**4.79**	**7.65**	**6.16**	**1.42 J**	**3.88**	**5.38**	**2.00 J**	**2.71**	**3.38**	**3.32**
Barium, Total	3000	**304**	**203**	**234**	**265**	**202**	**272**	**244**	**122**	**276**	**319**	**134**	**170**	**198**	**150**
Beryllium, Total	42	**0.35**	**0.53**	**0.436**	**0.591**	**0.543**	**0.504**	**0.477**	**0.149 J**	**0.366**	**0.509**	< 0.0725	**0.0889 J**	**0.322**	**0.261**
Cadmium, Total	39	**0.119 J**	< 0.0775	< 0.0747	< 0.0831	< 0.0785	< 0.0752	< 0.0789	**0.646**	**1.61**	**0.995**	**0.419 J**	**0.652**	**0.395 J**	**0.625**
Chromium, Total	--	**64.6**	**68.7**	**75.7**	**80.7**	**69.6**	**81.6**	**72.7**	**45.3**	**91.6**	**70.4**	**74.1**	**73.8**	**71**	**41.5**
Cobalt, Total	23	**12**	**14.2**	**19.6**	**14.3**	**14.1**	**16.9**	**13.5**	**14.9**	**20.2**	**14.8**	**18.1**	**11**	**14**	**11.5**
Copper, Total	3100	**22**	**37**	**45.3**	**35.7**	**24.6**	**42.2**	**29**	**125**	**64.5**	**43.5**	**61.1**	**67.6**	**38.8**	**54**
Lead, Total	80	**5.57**	**7.71**	**7.41**	**8.17**	**5.41**	**10.9**	**8.72**	**55.2**	**73.1**	**41.8**	**36.1**	**56.5**	**23.2**	**37.9**
Mercury, Total	13	**0.0190 J**	**0.0931**	**0.14**	**0.0265**	**0.0998**	**0.159**	**0.0703**	**0.0498**	**0.0652**	**0.0678**	**0.0869**	**0.0435**	**0.0228 J**	**0.0717**
Molybdenum, Total	390	**0.288 J**	**0.293 J**	< 0.171	< 0.190	< 0.179	**0.257 J**	< 0.180	**1.09**	**1.27**	**0.261 J**	**0.991**	**0.926**	**0.414 J**	**0.67**
Nickel, Total	86	**82.5**	**76.6**	**97.2**	**95.9**	**99.3**	**111**	**82.8**	**84.2**	**78.4**	**85.2**	**70.6**	**64.8**	**72.4**	**47.9**
Selenium, Total	390	< 0.732	< 0.686	< 0.662	< 0.736	< 0.695	< 0.666	< 0.699	**0.780 J**	**0.744 J**	< 0.774	< 0.642	< 0.784	< 0.720	< 0.707
Silver, Total	390	< 0.142	< 0.133	< 0.128	< 0.142	< 0.135	< 0.129	< 0.135	**0.437 J**	< 0.138	< 0.150	**1.39**	< 0.152	< 0.139	< 0.137
Thallium, Total	0.78	< 0.767	< 0.720	< 0.694	< 0.771	< 0.729	< 0.699	< 0.733	< 0.693	< 0.747	< 0.812	< 0.673	< 0.822	< 0.755	< 0.742
Vanadium, Total	390	**41.7**	**57.2**	**72.7**	**57.8**	**50.3**	**64**	**50.2**	**60.3**	**84.9**	**48**	**83.1**	**55.3**	**63.9**	**46.4**
Zinc, Total	23000	**46**	**60**	**68.4**	**63.2**	**51.9**	**65.6**	**52.5**	**115**	**144**	**114**	**115**	**111**	**67.2**	**115**
Other (%)															
Total Solids	--	**84.7**	**90.3**	**93.7**	**84.3**	**89.2**	**93**	**88.7**	**93.8**	**87**	**80.1**	**96.6**	**79.1**	**86.1**	**87.7**
Pesticides (mg/kg)															
4,4'-DDD	2.7	< 0.000194	< 0.000182	**0.00209 J**	< 0.000195	< 0.000184	< 0.000176	< 0.000185	**0.00236 J**	**0.00516 J**	**0.00210 J**	< 0.000170	< 0.000207	**0.00444 J**	**0.000736 J**
4,4'-DDE	1.9	< 0.000195	**0.000281 J**	**0.0353**	**0.00262 J**	< 0.000185	**0.000507 J**	**0.00140 J**	**0.0144 J**	**0.0653**	**0.0239 J**	**0.00273 J**	**0.00486 J**	**0.0581**	**0.00414 J**
4,4'-DDT	1.9	< 0.000314	< 0.000294	**0.00906 J**	< 0.000316	< 0.000298	**0.000778 J**	< 0.000300	< 0.000284	**0.00394 J**	**0.00141 J**	**0.00184 J**	< 0.000336	< 0.000309	< 0.000303
Aldrin	0.036	< 0.000275	< 0.000258	< 0.000249	< 0.000277	< 0.000261	< 0.000250	< 0.000263	< 0.000248	< 0.000268	< 0.000291	< 0.000241	< 0.000295	< 0.000271	< 0.000266
alpha-BHC	--	< 0.000228	< 0.000214	< 0.000206	< 0.000229	< 0.000216	< 0.000207	< 0.000218	< 0.000206	< 0.000222	< 0.000241	< 0.000200	< 0.000244	< 0.000224	< 0.000220
beta-BHC	--	< 0.000358	< 0.000335	< 0.000323	< 0.000360	< 0.000340	< 0.000326	< 0.000342	< 0.000323	< 0.000348	< 0.000378	< 0.000314	< 0.000383	< 0.000352	< 0.000346
Chlordane	0.48	< 0.0460	< 0.0432	< 0.0416	< 0.0463	< 0.0437	< 0.0419	< 0.0440	< 0.0416	< 0.0448	< 0.0487	< 0.0404	< 0.0493	< 0.0453	< 0.0445
delta-BHC	--	< 0.000178	< 0.000167	< 0.000161	< 0.000179	< 0.000169	< 0.000162	< 0.000170	< 0.000161	< 0.000174	< 0.000189	< 0.000156	< 0.000191	< 0.000175	< 0.000172
Dieldrin	0.00017	< 0.000105	< 0.0000985	**0.00189 J**	< 0.000106	< 0.0000998	< 0.0000957	< 0.000100	< 0.0000949	**0.000293 J**	< 0.000111	< 0.0000921	< 0.000113	< 0.000103	< 0.000102
Endosulfan I	--	< 0.000253	< 0.000237	< 0.000228	< 0.000254	< 0.000240	< 0.000230	< 0.000241	< 0.000228	< 0.000246	< 0.000267	< 0.000222	< 0.000271	< 0.000249	< 0.000244
Endosulfan II	--	< 0.000271	< 0.000255	< 0.000245	< 0.000273	< 0.000258	< 0.000247	< 0.000259	< 0.000245	< 0.000264	< 0.000287	< 0.000238	< 0.000291	< 0.000267	< 0.000262
Endosulfan sulfate	--	< 0.000201	< 0.000188	< 0.000181	< 0.000202	< 0.000191	< 0.000183	< 0.000192	< 0.000181	< 0.000195	< 0.000212	< 0.000176	< 0.000215	< 0.000198	< 0.000194
Endrin	0.00065	< 0.000259	< 0.000242	**0.000696 J**	< 0.000260	< 0.000246	< 0.000235	< 0.000247	< 0.000234	< 0.000252	< 0.000274	< 0.000227	< 0.000277	< 0.000254	< 0.000250
Endrin aldehyde	--	< 0.000286	< 0.000268	< 0.000258	< 0.000287	< 0.000271	< 0.000260	< 0.000273	< 0.000258	< 0.000278	< 0.000302	< 0.000250	< 0.000306	< 0.000281	< 0.000276
Endrin ketone	--	< 0.000188	< 0.000176	< 0.000170	< 0.000189	< 0.000178	< 0.000171	< 0.000179	< 0.000170	< 0.000183	< 0.000199	< 0.000165	< 0.000201	< 0.000185	< 0.000181
gamma-BHC (Lindane)	0.0098	< 0.000289	< 0.000271	< 0.000261	< 0.000291	< 0.000275	< 0.000263	< 0.000276	< 0.000261	< 0.000282	< 0.000306	< 0.000254	< 0.000310	< 0.000285	< 0.000280
Heptachlor	0.00077	< 0.000119	< 0.000112	< 0.000108	< 0.000120	< 0.000113	< 0.000109	< 0.000114	< 0.000108	< 0.000116	< 0.000126	< 0.000105	< 0.000128	< 0.000117	< 0.000115
Heptachlor epoxide	0.00042	< 0.000446	< 0.000418	< 0.000403	< 0.000449	< 0.000424	< 0.000406	< 0.000426	< 0.000403	< 0.000435	< 0.000472	< 0.000391	< 0.000478	< 0.000439	< 0.000431

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-15	SS-16	SS-16	SS-16	SS-17	SS-17	SS-17	SS-18	SS-18	SS-18	SS-19	SS-19	SS-19	SS-20
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)
Hexachlorobenzene	0.34	< 0.000264	< 0.000248	< 0.000239	< 0.000266	< 0.000251	< 0.000241	< 0.000253	< 0.000239	< 0.000258	< 0.000280	< 0.000232	< 0.000283	< 0.000260	< 0.000256
Methoxychlor	19	< 0.000313	< 0.000293	< 0.000283	< 0.000314	< 0.000297	< 0.000285	< 0.000299	< 0.000283	< 0.000305	< 0.000331	< 0.000274	< 0.000335	< 0.000308	< 0.000302
Toxaphene	0.00042	< 0.0425	< 0.0399	< 0.0384	< 0.0427	< 0.0404	< 0.0387	< 0.0406	< 0.0384	< 0.0414	< 0.0450	< 0.0373	< 0.0455	< 0.0418	< 0.0411
Semi-Volatile Organic Compounds (SIM) (mg/kg)															
1-Methylnaphthalene	--	< 0.00236	< 0.00221	< 0.00213	< 0.00237	< 0.00224	**0.00422 J**	< 0.00226	**0.111 J**	**0.0245**	< 0.00250	< 0.0207	**0.00297 J**	**0.00636 J**	**0.00576 J**
2-Chloronaphthalene	--	< 0.00236	< 0.00221	< 0.00213	< 0.00237	< 0.00224	< 0.00215	< 0.00226	< 0.0213	< 0.00230	< 0.00250	< 0.0207	< 0.00253	< 0.00232	< 0.00228
2-Methylnaphthalene	0.25	< 0.00236	< 0.00221	< 0.00213	< 0.00237	< 0.00224	**0.00408 J**	< 0.00226	**0.193 J**	**0.0393**	**0.00382 J**	< 0.0207	**0.00376 J**	**0.00810 J**	**0.00342 J**
Acenaphthene	16	< 0.000708	< 0.000664	< 0.000640	< 0.000712	< 0.000673	< 0.000645	< 0.000677	< 0.00640	< 0.000690	< 0.000749	< 0.00621	< 0.000759	< 0.000697	< 0.000684
Acenaphthylene	13	< 0.000708	< 0.000664	< 0.000640	< 0.000712	< 0.000673	< 0.000645	< 0.000677	< 0.00640	< 0.000690	< 0.000749	< 0.00621	< 0.000759	< 0.000697	< 0.000684
Anthracene	2.8	< 0.000708	< 0.000664	< 0.000640	< 0.000712	< 0.000673	< 0.000645	< 0.000677	**0.0209 J**	< 0.000690	**0.000962 J**	< 0.00621	< 0.000759	< 0.000697	< 0.000684
Benzo(a)anthracene	0.16	< 0.000708	**0.00254 J**	**0.00258 J**	**0.00239 J**	**0.000814 J**	**0.00157 J**	< 0.000677	**0.0340 J**	**0.00899**	**0.00350 J**	**0.0134 J**	**0.000891 J**	**0.00934**	**0.00115 J**
Benzo(a)pyrene	0.016	< 0.000708	**0.00262 J**	< 0.000640	**0.00268 J**	**0.000721 J**	**0.00236 J**	< 0.000677	< 0.00640	**0.0145**	**0.00386 J**	**0.0222 J**	**0.00104 J**	**0.00951**	**0.00149 J**
Benzo(b)fluoranthene	0.16	< 0.000708	**0.00384 J**	< 0.000640	**0.00348 J**	**0.000892 J**	**0.00469 J**	< 0.000677	< 0.00640	**0.0262**	**0.00482 J**	< 0.00621	**0.00178 J**	**0.0144**	**0.00334 J**
Benzo(g,h,i)perylene	2.5	< 0.000708	**0.00286 J**	**0.00996**	**0.00220 J**	**0.000708 J**	**0.00539 J**	**0.0109**	**0.0656**	**0.0222**	**0.00318 J**	**0.0784**	**0.00295 J**	**0.00927**	**0.00605 J**
Benzo(k)fluoranthene	1.6	< 0.000708	**0.00120 J**	< 0.000640	< 0.000712	< 0.000673	< 0.000645	< 0.000677	< 0.00640	< 0.000690	**0.00177 J**	< 0.00621	< 0.000759	< 0.000697	< 0.000684
Chrysene	3.8	< 0.000708	**0.00344 J**	**0.00376 J**	**0.00281 J**	**0.000743 J**	**0.00197 J**	< 0.000677	**0.0272 J**	**0.0172**	**0.00471 J**	**0.0135 J**	**0.00110 J**	**0.0143**	**0.00147 J**
Dibenz(a,h)anthracene	0.016	< 0.000708	< 0.000664	< 0.000640	< 0.000712	< 0.000673	**0.00155 J**	< 0.000677	< 0.00640	< 0.000690	< 0.000749	< 0.00621	< 0.000759	**0.00258 J**	**0.00135 J**
Fluoranthene	60	< 0.000708	**0.00654 J**	**0.00496 J**	**0.00491 J**	**0.00170 J**	**0.00310 J**	**0.00330 J**	**0.0496 J**	**0.0159**	**0.00703 J**	**0.0218 J**	**0.00196 J**	**0.0155**	**0.00152 J**
Fluorene	8.9	< 0.000708	< 0.000664	< 0.000640	< 0.000712	< 0.000673	< 0.000645	< 0.000677	**0.0204 J**	< 0.000690	< 0.000749	< 0.00621	< 0.000759	< 0.000697	< 0.000684
Indeno(1,2,3-cd)pyrene	0.16	< 0.000708	**0.00159 J**	**0.00227 J**	**0.00135 J**	< 0.000673	**0.00116 J**	**0.00233 J**	< 0.00640	**0.0104**	**0.00219 J**	**0.0149 J**	< 0.000759	**0.00519 J**	**0.00176 J**
Naphthalene	0.033	< 0.00236	< 0.00221	< 0.00213	< 0.00237	< 0.00224	**0.00314 J**	< 0.00226	**0.117 J**	**0.0286**	**0.00405 J**	**0.0326 J**	**0.00271 J**	**0.00911 J**	**0.00479 J**
Phenanthrene	11	< 0.000708	**0.00178 J**	**0.00384 J**	**0.00170 J**	< 0.000673	**0.00526 J**	**0.00121 J**	**0.161**	**0.0143**	**0.00433 J**	**0.0129 J**	**0.00183 J**	**0.00755**	**0.00309 J**
Pyrene	85	< 0.000708	**0.00435 J**	**0.00445 J**	**0.00369 J**	**0.00118 J**	**0.00264 J**	**0.00359 J**	**0.123**	**0.0187**	**0.00588 J**	**0.0380 J**	**0.00268 J**	**0.0153**	**0.00365 J**
Total Petroleum Hydrocarbons (mg/kg)															
Total Petroleum Hydrocarbons (C12-C22)	230	< 0.865	< 16.3	< 39.2	< 1.74	< 0.822	< 7.88	< 166	**545 J**	**90.4**	**3.73 J**	**446 J**	**8.63**	**42.8**	**162 J**
Total Petroleum Hydrocarbons (C22-C32)	230	**3.97 J**	**74.4 J**	**114 J**	**8.03 J**	**1.70 J**	**32.9 J**	**942**	**2,460**	**352**	**13.6**	**2,770**	**44.7**	**159**	**340**
Total Petroleum Hydrocarbons (C32-C40)	5100	**8.07**	**114**	**237**	**11.4**	**2.06 J**	**60.4**	**1,130**	**1,710**	**193**	**8.21**	**1,950**	**21.1**	**54.3**	**419**
Total Petroleum Hydrocarbons (C5-C12) GRO	100	< 0.0392	**0.111**	< 0.0354	< 0.0394	**0.100 J**	< 0.0357	**0.0524 J**	**0.184**	**0.153**	**0.0707 J**	< 0.0344	< 0.0420	< 0.0386	**0.0633 J**
Volatile Organic Compounds (mg/kg)															
1,1,1,2-Tetrachloroethane	0.01	< 0.000590	< 0.000554	< 0.000534	< 0.000593	< 0.000561	< 0.000537	< 0.000564	< 0.00213	< 0.000575	< 0.000625	< 0.000518	< 0.000696	< 0.00581	< 0.000570
1,1,1-Trichloroethane	7.8	< 0.000325	< 0.000304	< 0.000293	< 0.000326	< 0.000308	< 0.000296	< 0.000310	< 0.000293	< 0.000316	< 0.000343	< 0.000285	< 0.000382	< 0.000320	< 0.000314
1,1,2,2-Tetrachloroethane	0.018	< 0.000460	< 0.000432	< 0.000416	< 0.000463	< 0.000437	< 0.000419	< 0.000440	< 0.000416	< 0.000448	< 0.000487	< 0.000404	< 0.000543	< 0.000453	< 0.000445
1,1,2-Trichloroethane	0.07	< 0.00104	< 0.000978	< 0.000942	< 0.00105	< 0.000990	< 0.000949	< 0.000996	< 0.00376	< 0.00102	< 0.00110	< 0.000914	< 0.00123	< 0.0103	< 0.00101
1,1-Dichloroethane	0.2	< 0.000679	< 0.000637	< 0.000614	< 0.000682	< 0.000645	< 0.000618	< 0.000649	< 0.000613	< 0.000661	< 0.000718	< 0.000595	< 0.000799	< 0.000668	< 0.000656
1,1-Dichloroethene	0.55	< 0.000590	< 0.000554	< 0.000534	< 0.000593	< 0.000561	< 0.000537	< 0.000564	< 0.000533	< 0.000575	< 0.000625	< 0.000518	< 0.000696	< 0.000581	< 0.000570
1,1-Dichloropropene	--	< 0.000826	< 0.000775	< 0.000747	< 0.000831	< 0.000785	< 0.000752	< 0.000789	< 0.000746	< 0.000805	< 0.000874	< 0.000725	< 0.000974	< 0.000813	< 0.000799
1,2,3-Trichlorobenzene	--	< 0.000738	< 0.000692	< 0.000667	< 0.000742	< 0.000701	< 0.000672	< 0.000705	< 0.000666	< 0.000719	< 0.000781	< 0.000647	< 0.000870	< 0.000726	< 0.000713
1,2,3-Trichloropropane	--	< 0.00602	< 0.00565	< 0.00544	< 0.00605	< 0.00572	< 0.00548	< 0.00575	< 0.00544	< 0.00586	< 0.00637	< 0.00528	< 0.00710	< 0.00593	< 0.00582
1,2,3-Trimethylbenzene	--	< 0.00136	< 0.00127	< 0.00123	< 0.00136	< 0.00129	< 0.00124	< 0.00130	**0.00998**	**0.00276 J**	< 0.00144	**0.00236 J**	**0.0196**	**0.0115**	**0.00789**

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-15	SS-16	SS-16	SS-16	SS-17	SS-17	SS-17	SS-18	SS-18	SS-18	SS-19	SS-19	SS-19	SS-20
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)
1,2,4-Trichlorobenzene	1.5	< 0.00569	< 0.00534	< 0.00514	< 0.00572	< 0.00541	< 0.00518	< 0.00544	< 0.00514	< 0.00554	< 0.00602	< 0.00499	< 0.00670	< 0.00560	< 0.00550
1,2,4-Trimethylbenzene	--	< 0.00137	< 0.00128	< 0.00124	< 0.00138	< 0.00130	< 0.00125	< 0.00131	**0.0417**	**0.00658**	< 0.00145	**0.00559**	**0.0448**	**0.0247**	**0.0121**
1,2-Dibromo-3-chloropropane (DBCP)	0.0045	< 0.00602	< 0.00565	< 0.00544	< 0.00605	< 0.00572	< 0.00548	< 0.00575	< 0.00544	< 0.00586	< 0.00637	< 0.00528	< 0.00710	< 0.00593	< 0.00582
1,2-Dibromoethane (Ethylene Dibromide)	0.00033	< 0.000620	< 0.000581	< 0.000560	< 0.000623	< 0.000589	< 0.000564	< 0.000592	< 0.00224	< 0.000604	< 0.000656	< 0.000543	< 0.000731	< 0.00610	< 0.000599
1,2-Dichlorobenzene	1.6	< 0.00171	< 0.00161	< 0.00155	< 0.00172	< 0.00163	< 0.00156	< 0.00164	< 0.00155	< 0.00167	< 0.00181	< 0.00150	< 0.00202	< 0.00168	< 0.00165
1,2-Dichloroethane	0.0045	< 0.000561	< 0.000526	< 0.000507	< 0.000564	< 0.000533	< 0.000511	< 0.000536	< 0.000507	< 0.000546	< 0.000593	< 0.000492	< 0.000660	< 0.000552	< 0.000542
1,2-Dichloropropane	0.12	< 0.00150	< 0.00141	< 0.00136	< 0.00151	< 0.00142	< 0.00137	< 0.00143	< 0.00135	< 0.00146	< 0.00159	**0.0152**	< 0.00177	< 0.00148	< 0.00145
1,3,5-Trimethylbenzene	--	< 0.00127	< 0.00120	< 0.00115	< 0.00128	< 0.00121	< 0.00116	< 0.00122	**0.0111**	**0.00270 J**	< 0.00135	**0.00269 J**	**0.0207**	**0.0137**	**0.00388 J**
1,3-Dichlorobenzene	7.4	< 0.00201	< 0.00188	< 0.00181	< 0.00202	< 0.00191	< 0.00183	< 0.00192	< 0.00181	< 0.00195	< 0.00212	< 0.00176	< 0.00237	< 0.00198	< 0.00194
1,3-Dichloropropane	--	< 0.00207	< 0.00194	< 0.00187	< 0.00208	< 0.00196	< 0.00188	< 0.00197	< 0.00746	< 0.00201	< 0.00219	< 0.00181	< 0.00243	< 0.0203	< 0.00200
1,4-Dichlorobenzene	0.59	< 0.00233	< 0.00218	< 0.00210	< 0.00234	< 0.00221	< 0.00212	< 0.00222	< 0.00210	< 0.00227	< 0.00246	< 0.00204	< 0.00274	< 0.00229	< 0.00225
2,2-Dichloropropane	--	< 0.000936	< 0.000878	< 0.000846	< 0.000941	< 0.000889	< 0.000852	< 0.000894	< 0.000846	< 0.000912	< 0.000990	< 0.000821	< 0.00110	< 0.000921	< 0.000905
2-Butanone (Methyl Ethyl Ketone)	5.1	< 0.0148	< 0.0138	< 0.0133	< 0.0148	**0.0182 J**	< 0.0134	< 0.0141	< 0.0133	< 0.0144	< 0.0156	< 0.0129	**0.0279 J**	< 0.0145	< 0.0143
2-Chlorotoluene	--	< 0.00109	< 0.00102	< 0.000982	< 0.00109	< 0.00103	< 0.000989	< 0.00104	< 0.000981	< 0.00106	< 0.00115	< 0.000952	< 0.00128	< 0.00107	< 0.00105
2-Phenylbutane (sec-Butylbenzene)	--	< 0.00299	< 0.00280	< 0.00270	< 0.00300	< 0.00284	< 0.00272	< 0.00285	< 0.00270	< 0.00291	< 0.00316	< 0.00262	< 0.00352	< 0.00294	< 0.00289
4-Chlorotoluene	--	< 0.00133	< 0.00125	< 0.00121	< 0.00134	< 0.00127	< 0.00121	< 0.00127	< 0.00120	< 0.00130	< 0.00141	< 0.00117	< 0.00157	< 0.00131	< 0.00129
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.8	< 0.0118	< 0.0111	< 0.0107	< 0.0119	< 0.0112	< 0.0107	< 0.0113	< 0.0427	< 0.0115	< 0.0125	< 0.0104	**0.0142 J**	< 0.116	< 0.0114
Acetone	0.5	< 0.0162	< 0.0152	< 0.0146	< 0.0163	**0.0176 J**	**0.0151 J**	< 0.0155	< 0.0146	< 0.0158	< 0.0171	< 0.0142	**0.0264 J**	< 0.0159	< 0.0156
Acrylonitrile	--	< 0.00224	< 0.00210	< 0.00203	< 0.00225	< 0.00213	< 0.00204	< 0.00214	< 0.00203	< 0.00218	< 0.00237	< 0.00197	< 0.00264	< 0.00221	< 0.00217
Benzene	0.044	< 0.000472	< 0.000443	< 0.000427	< 0.000475	< 0.000449	< 0.000430	< 0.000451	**0.0015**	< 0.000460	< 0.000500	**0.000919 J**	**0.0115**	**0.00381**	< 0.000456
Bromobenzene	--	< 0.00124	< 0.00116	< 0.00112	< 0.00125	< 0.00118	< 0.00113	< 0.00118	< 0.00112	< 0.00121	< 0.00131	< 0.00109	< 0.00147	< 0.00122	< 0.00120
Bromodichloromethane	0.52	< 0.000930	< 0.000872	< 0.000841	< 0.000935	< 0.000884	< 0.000847	< 0.000889	< 0.000840	< 0.000906	< 0.000984	< 0.000816	< 0.00110	< 0.000916	< 0.000899
Bromoform	1.7	< 0.00706	< 0.00662	< 0.00638	< 0.00710	< 0.00671	< 0.00643	< 0.00674	< 0.00638	< 0.00688	< 0.00747	< 0.00619	< 0.00832	< 0.00695	< 0.00682
Bromomethane (Methyl Bromide)	0.3	< 0.00437	< 0.00410	< 0.00395	< 0.00439	< 0.00415	< 0.00398	< 0.00417	< 0.00395	< 0.00425	< 0.00462	< 0.00383	< 0.00515	< 0.00430	< 0.00422
Carbon tetrachloride	0.048	< 0.00127	< 0.00120	< 0.00115	< 0.00128	< 0.00121	< 0.00116	< 0.00122	< 0.00115	< 0.00124	< 0.00135	< 0.00112	< 0.00151	< 0.00125	< 0.00123
Chlorobenzene	1.5	< 0.000676	< 0.000634	< 0.000612	< 0.000680	< 0.000643	< 0.000616	< 0.000646	< 0.00244	< 0.000659	< 0.000716	< 0.000593	**0.00214 J**	< 0.00666	< 0.000654
Chloroethane	1.1	< 0.00127	< 0.00120	< 0.00115	< 0.00128	< 0.00121	< 0.00116	< 0.00122	< 0.00115	< 0.00124	< 0.00135	< 0.00112	< 0.00151	< 0.00125	< 0.00123
Chloroform (Trichloromethane)	0.068	< 0.000490	< 0.000459	< 0.000443	< 0.000492	< 0.000465	< 0.000446	< 0.000468	< 0.000443	< 0.000477	< 0.000518	< 0.000430	< 0.000577	< 0.000482	< 0.000473
Chloromethane (Methyl Chloride)	29	< 0.00164	< 0.00154	< 0.00148	< 0.00165	< 0.00156	< 0.00149	< 0.00157	< 0.00148	< 0.00160	< 0.00174	< 0.00144	< 0.00194	< 0.00162	< 0.00159
cis-1,2-Dichloroethene	0.19	< 0.000814	< 0.000764	< 0.000736	< 0.000819	< 0.000774	< 0.000742	< 0.000778	< 0.000736	< 0.000793	< 0.000862	< 0.000714	< 0.000960	< 0.000802	< 0.000787
cis-1,3-Dichloropropene	--	< 0.000800	< 0.000751	< 0.000724	< 0.000805	< 0.000760	< 0.000729	< 0.000765	< 0.00289	< 0.000780	< 0.000847	< 0.000702	< 0.000944	< 0.00788	< 0.000773
Cymene (p-Isopropyltoluene)	--	< 0.00275	< 0.00258	< 0.00249	< 0.00277	< 0.00261	< 0.00250	< 0.00263	**0.0116**	**0.00359 J**	< 0.00291	**0.0118**	**0.0638**	**0.00400 J**	< 0.00266
Dibromochloromethane	3.8	< 0.000531	< 0.000498	< 0.000480	< 0.000534	< 0.000505	< 0.000484	< 0.000508	< 0.00192	< 0.000517	< 0.000562	< 0.000466	< 0.000626	< 0.00523	< 0.000513
Dibromomethane	--	< 0.00118	< 0.00111	< 0.00107	< 0.00119	< 0.00112	< 0.00107	< 0.00113	< 0.00107	< 0.00115	< 0.00125	< 0.00104	< 0.00139	< 0.00116	< 0.00114
Dichlorodifluoromethane (CFC-12)	--	< 0.000966	< 0.000906	< 0.000873	< 0.000971	< 0.000918	< 0.000879	< 0.000923	< 0.000872	< 0.000941	< 0.00102	< 0.000847	< 0.00114	< 0.000951	< 0.000933
Diisopropyl ether (DIPE)	--	< 0.000413	< 0.000387	< 0.000374	< 0.000415	< 0.000393	< 0.000376	< 0.000395	< 0.000373	< 0.000402	< 0.000437	< 0.000362	< 0.000487	< 0.000407	< 0.000399
Ethylbenzene	1.4	< 0.000626	< 0.000587	< 0.000566	< 0.000629	< 0.000594	**0.000673 J**	< 0.000598	**0.00619 J**	**0.00110 J**	**0.00122 J**	**0.00107 J**	**0.00875**	< 0.00616	**0.00251 J**
Hexachlorobutadiene	0.68	< 0.0150	< 0.0141	< 0.0136	< 0.0151	< 0.0142	< 0.0137	< 0.0143	< 0.0135	< 0.0146	< 0.0159	< 0.0131	< 0.0177	< 0.0148	< 0.0145
Isopropylbenzene (Cumene)	--	< 0.00102	< 0.000955	< 0.000921	< 0.00102	< 0.000968	< 0.000928	< 0.000973	**0.00276**	< 0.000992	< 0.00108	< 0.000893	**0.00330 J**	< 0.00100	**0.00121 J**
Methyl Tert Butyl Ether	0.023	< 0.000348	< 0.000327	< 0.000315	< 0.000350	< 0.000331	< 0.000317	< 0.000333	**0.000847 J**	< 0.000339	< 0.000368	< 0.000305	< 0.000410	**0.00334**	< 0.000337
Methylene chloride	0.077	< 0.00784	< 0.00735	**0.0135 J**	< 0.00788	< 0.00745	< 0.00714	< 0.00749	**0.00780 J**	**0.00926 J**	< 0.00829	**0.0100 J**	< 0.00923	< 0.00772	< 0.00758
Naphthalene	0.033	< 0.00368	< 0.00345	< 0.00333	< 0.00370	< 0.00350	< 0.00335	< 0.00352	**0.0131 J**	< 0.00359	< 0.00390	< 0.00323	**0.021**	**0.0159**	< 0.00356

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-15	SS-16	SS-16	SS-16	SS-17	SS-17	SS-17	SS-18	SS-18	SS-18	SS-19	SS-19	SS-19	SS-20
Sample Date		01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/04/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)
n-Butylbenzene	--	< 0.00453	< 0.00425	< 0.00410	< 0.00456	< 0.00431	< 0.00413	< 0.00433	< 0.00409	< 0.00442	< 0.00480	< 0.00397	< 0.00534	< 0.00446	< 0.00438
n-Propylbenzene	--	< 0.00139	< 0.00131	< 0.00126	< 0.00140	< 0.00132	< 0.00127	< 0.00133	**0.00453 J**	< 0.00136	< 0.00147	< 0.00122	**0.00495 J**	**0.00248 J**	**0.00185 J**
Styrene	1.5	< 0.00322	< 0.00302	< 0.00291	< 0.00324	< 0.00306	< 0.00293	< 0.00308	**0.0266**	< 0.00314	< 0.00341	**0.00386 J**	**0.0556**	< 0.00317	< 0.00311
tert-Butylbenzene	--	< 0.00183	< 0.00172	< 0.00165	< 0.00184	< 0.00174	< 0.00167	< 0.00175	< 0.00165	< 0.00178	< 0.00194	< 0.00160	< 0.00215	< 0.00180	< 0.00177
Tetrachloroethene	0.42	< 0.000826	< 0.000775	< 0.000747	< 0.000831	< 0.000785	< 0.000752	< 0.000789	< 0.00299	< 0.000805	< 0.000874	< 0.000725	< 0.000974	< 0.00813	< 0.000799
Toluene	2.9	< 0.00148	< 0.00138	< 0.00133	< 0.00148	< 0.00140	**0.00152 J**	< 0.00141	**0.00655 J**	**0.00186 J**	**0.00268 J**	**0.00371 J**	**0.0369**	**0.0165 J**	**0.00278 J**
trans-1,2-Dichloroethene	0.67	< 0.00169	< 0.00158	< 0.00153	< 0.00170	< 0.00160	< 0.00154	< 0.00161	< 0.00152	< 0.00164	< 0.00179	< 0.00148	< 0.00199	< 0.00166	< 0.00163
trans-1,3-Dichloropropene	--	< 0.00181	< 0.00169	< 0.00163	< 0.00182	< 0.00172	< 0.00164	< 0.00173	< 0.00653	< 0.00176	< 0.00191	**0.00401 J**	< 0.00213	< 0.0178	< 0.00175
Trichloroethene	0.46	< 0.000472	< 0.000443	< 0.000427	< 0.000475	< 0.000449	< 0.000430	< 0.000451	< 0.000427	< 0.000460	< 0.000500	< 0.000414	< 0.000557	< 0.000465	< 0.000456
Trichlorofluoromethane (CFC-11)	--	< 0.000590	< 0.000554	< 0.000534	< 0.000593	< 0.000561	< 0.000537	< 0.000564	< 0.000533	< 0.000575	< 0.000625	< 0.000518	< 0.000696	< 0.000581	< 0.000570
Trifluorotrichloroethane (Freon 113)	--	< 0.000797	< 0.000747	< 0.000720	< 0.000801	< 0.000757	< 0.000726	< 0.000761	< 0.000720	< 0.000776	< 0.000843	< 0.000699	< 0.000939	< 0.000784	< 0.000770
Vinyl chloride	0.0082	< 0.000806	< 0.000756	< 0.000729	< 0.000811	< 0.000766	< 0.000734	< 0.000770	< 0.000728	< 0.000785	< 0.000853	< 0.000707	< 0.000950	< 0.000794	< 0.000779
Xylene (total)	2.3	< 0.00564	< 0.00529	< 0.00510	< 0.00567	< 0.00536	**0.00569 J**	< 0.00539	**0.0305**	< 0.00550	< 0.00597	**0.00657 J**	**0.0481**	< 0.0555	**0.0118**

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-20	SS-20	SS-21	SS-21	SS-21	SS-23	SS-23	SS-23	SS-24	SS-24	SS-24	SS-25	SS-25	SS-25
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
Inorganic Compounds (mg/kg)															
Antimony, Total	31	< 0.998	< 1.11	< 0.779	< 0.899	< 0.953	1.36 J	1.24 J	1.00 J	1.27 J	1.16 J	1.57 J	1.25 J	< 0.962	< 0.934
Arsenic, Total	0.067	4.01	3.76	1.61 J	6.6	14.2	2.53	4.61	5.16	1.70 J	3.44	5.38	1.94 J	4.92	4.94
Barium, Total	3000	258	289	184	200	370	134	198	202	135	227	377	111	219	222
Beryllium, Total	42	0.335	0.508	0.150 J	0.299	0.443	< 0.0723	< 0.0808	0.203 J	< 0.0760	0.109 J	0.452	0.109 J	0.252 J	0.297
Cadmium, Total	39	0.974	0.516 J	0.401 J	0.73	0.803	0.414 J	0.596	0.502 J	0.57	0.764	0.387 J	0.295 J	0.712	0.721
Chromium, Total	--	68.9	68.2	70.8	51.4	72.7	59.3	75.8	56.6	78.4	96	74.6	44.9	59.7	58.9
Cobalt, Total	23	15.6	14.4	29.2	11.4	16.1	20.5	25.7	12.4	18.3	17.5	15.1	17.2	24.5	14.2
Copper, Total	3100	55.6	46.9	74.3	28.7	34.6	64.4	54.2	32.9	69	49.9	48.8	55.9	51.6	38.6
Lead, Total	80	35.8	16.8	10.7	30.1	35.4	16	29.1	46.2	76.6	95.6	37.6	13.9	20.8	23.1
Mercury, Total	13	0.0734	0.0456	0.0939	0.061	0.0736	0.0877	0.0729	0.0641	0.0388	0.0152 J	0.0768	0.0735	0.0722	0.0958
Molybdenum, Total	390	< 0.213	< 0.237	0.368 J	0.193 J	1.13	0.514 J	0.251 J	0.387 J	0.363 J	< 0.185	0.412 J	0.520 J	0.400 J	0.463 J
Nickel, Total	86	66.9	81.7	70.9	57.8	89.5	65.9	76.9	60.8	63	57.6	80.3	45.8	67.8	56.1
Selenium, Total	390	< 0.825	1.24 J	< 0.644	1.64 J	1.75 J	< 0.640	< 0.716	< 0.793	< 0.673	< 0.718	< 0.990	< 0.687	< 0.795	< 0.772
Silver, Total	390	< 0.160	< 0.178	< 0.125	< 0.144	< 0.152	< 0.124	< 0.139	< 0.153	1.29	< 0.139	< 0.192	< 0.133	< 0.154	< 0.149
Thallium, Total	0.78	< 0.865	< 0.964	< 0.675	< 0.779	< 0.826	< 0.671	< 0.751	< 0.831	< 0.705	< 0.753	< 1.04	< 0.720	< 0.834	< 0.810
Vanadium, Total	390	65.6	42.9	102	48.7	56	91.5	62.5	47.8	79.7	69.2	49.6	65.9	88.5	50.1
Zinc, Total	23000	167	77.4	85.2	54.1	67.6	86.8	85.5	60.5	99.5	105	77.5	132	93.3	72.9
Other (%)															
Total Solids	--	75.2	67.5	96.2	83.4	78.7	96.8	86.6	78.2	92.1	86.3	62.7	90.3	78	80.3
Pesticides (mg/kg)															
4,4'-DDD	2.7	< 0.000218	0.000571 J	< 0.000170	< 0.000197	0.000690 J	< 0.000169	< 0.000189	0.000326 J	0.000254 J	0.00207 J	0.000338 J	< 0.000182	< 0.000210	< 0.000204
4,4'-DDE	1.9	0.00871 J	0.00876 J	0.00126 J	0.0144 J	0.00418 J	0.00252 J	0.0381	0.00409 J	0.00436 J	0.0217 J	0.00375 J	< 0.000183	0.00648 J	0.00252 J
4,4'-DDT	1.9	< 0.000354	0.000671 J	< 0.000276	< 0.000319	0.000338 J	< 0.000275	< 0.000307	< 0.000340	0.00170 J	0.00284 J	< 0.000425	< 0.000295	< 0.000341	< 0.000331
Aldrin	0.036	< 0.000310	< 0.000345	< 0.000242	< 0.000279	< 0.000296	< 0.000241	< 0.000269	< 0.000298	< 0.000253	< 0.000270	< 0.000372	< 0.000258	< 0.000299	< 0.000290
alpha-BHC	--	< 0.000257	< 0.000286	< 0.000201	< 0.000231	< 0.000245	< 0.000199	< 0.000223	< 0.000247	< 0.000209	< 0.000224	< 0.000308	< 0.000214	< 0.000248	< 0.000240
beta-BHC	--	< 0.000403	< 0.000449	< 0.000315	< 0.000363	< 0.000385	< 0.000313	< 0.000350	< 0.000387	< 0.000329	< 0.000351	< 0.000484	< 0.000336	< 0.000389	< 0.000377
Chlordane	0.48	< 0.0519	< 0.0578	< 0.0405	< 0.0468	< 0.0496	< 0.0403	< 0.0450	< 0.0499	< 0.0423	< 0.0452	< 0.0622	< 0.0432	< 0.0500	< 0.0486
delta-BHC	--	< 0.000201	< 0.000224	< 0.000157	< 0.000181	< 0.000192	< 0.000156	< 0.000174	< 0.000193	< 0.000164	< 0.000175	< 0.000241	< 0.000167	< 0.000194	< 0.000188
Dieldrin	0.00017	< 0.000118	< 0.000132	< 0.0000925	< 0.000107	< 0.000113	0.000559 J	< 0.000103	< 0.000114	0.000984 J	0.00212 J	< 0.000142	< 0.0000986	< 0.000114	< 0.000111
Endosulfan I	--	< 0.000285	< 0.000317	< 0.000222	< 0.000257	< 0.000272	< 0.000221	< 0.000247	< 0.000274	< 0.000232	< 0.000248	< 0.000342	< 0.000237	< 0.000275	< 0.000267
Endosulfan II	--	< 0.000306	< 0.000341	< 0.000239	< 0.000276	< 0.000292	< 0.000238	< 0.000266	< 0.000294	< 0.000250	< 0.000266	< 0.000367	< 0.000255	< 0.000295	< 0.000286
Endosulfan sulfate	--	< 0.000226	< 0.000252	< 0.000177	< 0.000204	< 0.000216	< 0.000176	< 0.000196	< 0.000217	< 0.000185	< 0.000197	< 0.000271	< 0.000188	< 0.000218	< 0.000212
Endrin	0.00065	< 0.000291	< 0.000325	< 0.000228	< 0.000263	< 0.000278	< 0.000226	< 0.000253	< 0.000280	0.000827 J	< 0.000254	< 0.000350	< 0.000243	< 0.000281	< 0.000273
Endrin aldehyde	--	< 0.000322	< 0.000359	< 0.000251	< 0.000290	< 0.000308	< 0.000250	< 0.000279	< 0.000309	0.00534 J	< 0.000280	< 0.000386	< 0.000268	< 0.000310	< 0.000301
Endrin ketone	--	< 0.000212	< 0.000236	< 0.000165	< 0.000191	< 0.000202	< 0.000164	< 0.000184	< 0.000203	< 0.000173	< 0.000184	< 0.000254	< 0.000176	< 0.000204	< 0.000198
gamma-BHC (Lindane)	0.0098	< 0.000326	< 0.000363	< 0.000255	< 0.000294	< 0.000311	< 0.000253	< 0.000283	< 0.000313	< 0.000266	< 0.000284	< 0.000391	< 0.000271	< 0.000314	< 0.000305
Heptachlor	0.00077	< 0.000134	< 0.000150	< 0.000105	< 0.000121	< 0.000128	< 0.000104	< 0.000117	< 0.000129	< 0.000110	< 0.000117	< 0.000161	< 0.000112	< 0.000130	< 0.000126
Heptachlor epoxide	0.00042	< 0.000503	< 0.000560	< 0.000393	< 0.000453	< 0.000480	< 0.000390	< 0.000437	< 0.000483	< 0.000410	< 0.000438	< 0.000603	< 0.000419	< 0.000485	< 0.000471

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-20	SS-20	SS-21	SS-21	SS-21	SS-23	SS-23	SS-23	SS-24	SS-24	SS-24	SS-25	SS-25	SS-25
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
Hexachlorobenzene	0.34	< 0.000298	< 0.000332	< 0.000233	< 0.000269	< 0.000285	< 0.000231	< 0.000259	< 0.000286	< 0.000243	< 0.000260	< 0.000358	< 0.000248	< 0.000287	< 0.000279
Methoxychlor	19	< 0.000353	< 0.000393	< 0.000275	< 0.000318	< 0.000337	< 0.000274	< 0.000306	< 0.000339	< 0.000288	< 0.000307	< 0.000423	< 0.000293	< 0.000340	< 0.000330
Toxaphene	0.00042	< 0.0479	< 0.0534	< 0.0374	< 0.0432	< 0.0457	< 0.0372	< 0.0416	< 0.0460	< 0.0391	< 0.0417	< 0.0575	< 0.0399	< 0.0462	< 0.0448
Semi-Volatile Organic Compounds (SIM) (mg/kg)															
1-Methylnaphthalene	--	< 0.00266	< 0.00296	< 0.0208	**0.128**	**0.00302 J**	< 0.0103	**0.0131 J**	< 0.00256	< 0.0109	**0.00519 J**	< 0.00319	< 0.0111	**0.00648 J**	**0.00438 J**
2-Chloronaphthalene	--	< 0.00266	< 0.00296	< 0.0208	< 0.00240	< 0.00254	< 0.0103	< 0.00231	< 0.00256	< 0.0109	< 0.00232	< 0.00319	< 0.0111	< 0.00257	< 0.00249
2-Methylnaphthalene	0.25	< 0.00266	< 0.00296	< 0.0208	**0.199**	< 0.00254	**0.0107 J**	**0.0189 J**	< 0.00256	**0.0111 J**	**0.00750 J**	< 0.00319	< 0.0111	**0.00874 J**	**0.00659 J**
Acenaphthene	16	< 0.000798	< 0.000889	< 0.00623	< 0.000720	< 0.000762	< 0.00310	< 0.000693	< 0.000767	< 0.00326	< 0.000695	< 0.000958	< 0.00332	**0.00146 J**	< 0.000747
Acenaphthylene	13	< 0.000798	< 0.000889	< 0.00623	< 0.000720	< 0.000762	< 0.00310	< 0.000693	< 0.000767	< 0.00326	< 0.000695	< 0.000958	< 0.00332	< 0.000770	< 0.000747
Anthracene	2.8	< 0.000798	< 0.000889	< 0.00623	< 0.000720	< 0.000762	< 0.00310	< 0.000693	< 0.000767	< 0.00326	**0.00249 J**	< 0.000958	< 0.00332	**0.00323 J**	**0.00106 J**
Benzo(a)anthracene	0.16	**0.00129 J**	< 0.000889	< 0.00623	**0.00331 J**	< 0.000762	**0.0139 J**	**0.00378 J**	< 0.000767	**0.00909 J**	**0.00714**	< 0.000958	< 0.00332	**0.00255 J**	**0.00316 J**
Benzo(a)pyrene	0.016	**0.00153 J**	< 0.000889	< 0.00623	< 0.000720	< 0.000762	**0.0175 J**	**0.00515 J**	< 0.000767	< 0.00326	**0.00852**	< 0.000958	< 0.00332	**0.00339 J**	**0.00417 J**
Benzo(b)fluoranthene	0.16	**0.00269 J**	< 0.000889	< 0.00623	< 0.000720	< 0.000762	**0.0368**	**0.0119**	< 0.000767	**0.0371**	**0.00938**	< 0.000958	< 0.00332	**0.00634 J**	**0.00533 J**
Benzo(g,h,i)perylene	2.5	**0.00407 J**	< 0.000889	**0.0689**	**0.0169**	**0.00253 J**	**0.0659**	**0.0137**	**0.00164 J**	**0.0605**	**0.00899**	< 0.000958	**0.0519**	**0.013**	**0.00641 J**
Benzo(k)fluoranthene	1.6	< 0.000798	< 0.000889	< 0.00623	< 0.000720	< 0.000762	< 0.00310	< 0.000693	< 0.000767	< 0.00326	**0.00407 J**	< 0.000958	< 0.00332	**0.00205 J**	**0.00244 J**
Chrysene	3.8	**0.00174 J**	< 0.000889	**0.00846 J**	**0.00802**	< 0.000762	**0.0185 J**	**0.0113**	< 0.000767	**0.0256 J**	**0.00887**	< 0.000958	< 0.00332	**0.00369 J**	**0.00400 J**
Dibenz(a,h)anthracene	0.016	< 0.000798	< 0.000889	< 0.00623	< 0.000720	< 0.000762	**0.0163 J**	**0.00256 J**	< 0.000767	< 0.00326	< 0.000695	< 0.000958	< 0.00332	< 0.000770	**0.00105 J**
Fluoranthene	60	**0.00217 J**	< 0.000889	**0.0126 J**	**0.00974**	**0.00194 J**	**0.0184 J**	**0.00978**	**0.000800 J**	**0.0117 J**	**0.0155**	< 0.000958	**0.00744 J**	**0.00566 J**	**0.00735 J**
Fluorene	8.9	< 0.000798	< 0.000889	< 0.00623	< 0.000720	< 0.000762	< 0.00310	< 0.000693	< 0.000767	< 0.00326	**0.00148 J**	< 0.000958	< 0.00332	< 0.000770	< 0.000747
Indeno(1,2,3-cd)pyrene	0.16	**0.00128 J**	< 0.000889	< 0.00623	**0.00367 J**	< 0.000762	**0.0155 J**	**0.00465 J**	< 0.000767	< 0.00326	**0.00465 J**	< 0.000958	< 0.00332	**0.00235 J**	**0.00267 J**
Naphthalene	0.033	< 0.00266	< 0.00296	**0.0307 J**	**0.138**	**0.00799 J**	< 0.0103	**0.0156 J**	< 0.00256	< 0.0109	**0.00810 J**	< 0.00319	**0.0182 J**	**0.00498 J**	**0.00372 J**
Phenanthrene	11	**0.00149 J**	< 0.000889	**0.0142 J**	**0.0136**	**0.00188 J**	**0.0172 J**	**0.0132**	**0.000806 J**	**0.00956 J**	**0.00831**	< 0.000958	**0.00682 J**	**0.0116**	**0.0075**
Pyrene	85	**0.00251 J**	< 0.000889	**0.0204 J**	**0.0117**	**0.00250 J**	**0.0302 J**	**0.0126**	< 0.000767	**0.0177 J**	**0.0127**	< 0.000958	**0.0174 J**	**0.0124**	**0.00892**
Total Petroleum Hydrocarbons (mg/kg)															
Total Petroleum Hydrocarbons (C12-C22)	230	< 48.8	**1.40 J**	< 153	**80.6 J**	**21.6**	**90.9 J**	**55.3 J**	< 4.69	**136 J**	**50.5**	< 1.17	**247 J**	**32.6 J**	**5.28**
Total Petroleum Hydrocarbons (C22-C32)	230	**253 J**	**12.8**	**951**	**299**	**86.7**	**842**	**228**	**22.2 J**	**1,160**	**185**	**5.09 J**	**977**	**190**	**15.4**
Total Petroleum Hydrocarbons (C32-C40)	5100	**414**	**20.8**	**1,700**	**182**	**32.3**	**1,080**	**192**	**29.4**	**1,400**	**83.6**	**4.52 J**	**1,230**	**223**	**18.8**
Total Petroleum Hydrocarbons (C5-C12) GRO	100	**0.132 J**	< 0.0492	< 0.0345	**0.481**	**0.839**	< 0.0421	**0.0482 J**	**0.0527 J**	< 0.0360	**0.0858 J**	**0.174**	**0.16**	**0.134**	**0.124 J**
Volatile Organic Compounds (mg/kg)															
1,1,1,2-Tetrachloroethane	0.01	< 0.000665	< 0.000771	< 0.000520	< 0.000624	< 0.00635	< 0.000516	< 0.000577	< 0.000639	< 0.000543	< 0.000579	< 0.00319	< 0.000554	< 0.000641	< 0.000623
1,1,1-Trichloroethane	7.8	< 0.000366	< 0.000424	< 0.000286	< 0.000343	< 0.000349	**0.000298 J**	< 0.000318	< 0.000352	< 0.000298	< 0.000319	< 0.000439	< 0.000305	< 0.000353	< 0.000343
1,1,2,2-Tetrachloroethane	0.018	< 0.000519	< 0.000602	< 0.000405	< 0.000487	< 0.000496	< 0.000403	< 0.000450	< 0.000499	< 0.000423	< 0.000452	< 0.000622	< 0.000432	< 0.000500	< 0.000486
1,1,2-Trichloroethane	0.07	< 0.00117	< 0.00136	< 0.000918	< 0.00110	< 0.0112	< 0.000912	< 0.00102	< 0.00113	< 0.000958	< 0.00102	< 0.00563	< 0.000978	< 0.00113	< 0.00110
1,1-Dichloroethane	0.2	< 0.000765	< 0.000886	< 0.000598	< 0.000717	< 0.000731	< 0.000594	< 0.000664	< 0.000735	< 0.000624	< 0.000666	< 0.000918	< 0.000637	< 0.000738	< 0.000716
1,1-Dichloroethene	0.55	< 0.000665	< 0.000771	< 0.000520	< 0.000624	< 0.000635	< 0.000516	< 0.000577	< 0.000639	< 0.000543	< 0.000579	< 0.000798	< 0.000554	< 0.000641	< 0.000623
1,1-Dichloropropene	--	< 0.000931	< 0.00108	< 0.000727	< 0.000873	< 0.000890	< 0.000723	< 0.000808	< 0.000895	< 0.000760	< 0.000811	< 0.00112	< 0.000775	< 0.000898	< 0.000872
1,2,3-Trichlorobenzene	--	< 0.000831	< 0.000964	< 0.000649	< 0.000779	< 0.000794	< 0.000646	< 0.000722	< 0.000799	< 0.000678	**0.00100 J**	**0.00100 J**	< 0.000692	< 0.000802	< 0.000778
1,2,3-Trichloropropane	--	< 0.00678	< 0.00786	< 0.00530	< 0.00636	< 0.00648	< 0.00527	< 0.00589	< 0.00652	< 0.00554	< 0.00591	< 0.00814	< 0.00565	< 0.00654	< 0.00635
1,2,3-Trimethylbenzene	--	< 0.00153	< 0.00178	**0.00203 J**	**0.0469**	**0.00373 J**	**0.00245 J**	< 0.00133	**0.00399 J**	**0.00223 J**	< 0.00133	< 0.00184	**0.0611**	**0.013**	**0.00571 J**

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-20	SS-20	SS-21	SS-21	SS-21	SS-23	SS-23	SS-23	SS-24	SS-24	SS-24	SS-25	SS-25	SS-25
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
1,2,4-Trichlorobenzene	1.5	< 0.00641	< 0.00743	< 0.00501	< 0.00601	< 0.00613	< 0.00498	< 0.00557	< 0.00616	< 0.00523	< 0.00558	< 0.00769	< 0.00534	< 0.00618	< 0.00600
1,2,4-Trimethylbenzene	--	**0.00352 J**	< 0.00179	**0.00769**	**0.142**	**0.00604 J**	**0.0070**	**0.00195 J**	**0.00963**	**0.00553**	**0.00504 J**	**0.00283 J**	**0.326**	**0.0524**	**0.0129**
1,2-Dibromo-3-chloropropane (DBCP)	0.0045	< 0.00678	< 0.00786	< 0.00530	< 0.00636	< 0.00648	< 0.00527	< 0.00589	< 0.00652	< 0.00554	< 0.00591	< 0.00814	< 0.00565	< 0.00654	< 0.00635
1,2-Dibromoethane (Ethylene Dibromide)	0.00033	< 0.000698	< 0.000809	< 0.000546	< 0.000655	< 0.00667	< 0.000542	< 0.000606	< 0.000671	< 0.000570	< 0.000608	< 0.00335	< 0.000581	< 0.000673	< 0.000654
1,2-Dichlorobenzene	1.6	< 0.00193	< 0.00224	< 0.00151	< 0.00181	< 0.00184	< 0.00150	< 0.00167	< 0.00185	< 0.00157	< 0.00168	< 0.00231	< 0.00161	< 0.00186	< 0.00181
1,2-Dichloroethane	0.0045	< 0.000632	< 0.000732	< 0.000494	< 0.000592	< 0.000604	< 0.000491	< 0.000549	< 0.000607	< 0.000516	**0.00236 J**	< 0.000758	< 0.000526	< 0.000609	< 0.000592
1,2-Dichloropropane	0.12	< 0.00169	< 0.00196	< 0.00132	< 0.00158	< 0.00161	< 0.00131	< 0.00147	< 0.00162	< 0.00138	< 0.00147	< 0.00203	< 0.00141	< 0.00163	< 0.00158
1,3,5-Trimethylbenzene	--	< 0.00144	< 0.00166	**0.00225 J**	**0.0645**	**0.00282 J**	**0.00273 J**	< 0.00125	**0.00393 J**	**0.00268 J**	**0.00156 J**	< 0.00172	**0.104**	**0.0182**	**0.00876**
1,3-Dichlorobenzene	7.4	< 0.00226	< 0.00262	< 0.00177	< 0.00212	< 0.00216	< 0.00176	< 0.00196	< 0.00217	< 0.00185	< 0.00197	< 0.00271	< 0.00188	< 0.00218	< 0.00212
1,3-Dichloropropane	--	< 0.00233	< 0.00270	< 0.00182	< 0.00218	< 0.0222	< 0.00181	< 0.00202	< 0.00224	< 0.00190	< 0.00203	< 0.0112	< 0.00194	< 0.00224	< 0.00218
1,4-Dichlorobenzene	0.59	< 0.00262	< 0.00304	< 0.00205	< 0.00246	< 0.00250	< 0.00203	< 0.00228	< 0.00252	< 0.00214	< 0.00228	< 0.00314	< 0.00218	< 0.00253	< 0.00245
2,2-Dichloropropane	--	< 0.00105	< 0.00122	< 0.000824	< 0.000989	< 0.00101	< 0.000819	< 0.000916	< 0.00101	< 0.000861	< 0.000919	< 0.00127	< 0.000878	< 0.00102	< 0.000988
2-Butanone (Methyl Ethyl Ketone)	5.1	< 0.0166	< 0.0193	< 0.0130	< 0.0156	< 0.0159	**0.0292**	< 0.0144	< 0.0160	< 0.0136	< 0.0145	< 0.0200	< 0.0138	**0.0213 J**	< 0.0156
2-Chlorotoluene	--	< 0.00122	< 0.00142	< 0.000956	< 0.00115	< 0.00117	< 0.000950	< 0.00106	< 0.00118	< 0.000998	< 0.00107	< 0.00147	< 0.00102	< 0.00118	< 0.00115
2-Phenylbutane (sec-Butylbenzene)	--	< 0.00337	< 0.00390	< 0.00263	**0.00504 J**	< 0.00322	< 0.00261	< 0.00292	< 0.00324	< 0.00275	< 0.00293	< 0.00404	< 0.00280	< 0.00325	< 0.00315
4-Chlorotoluene	--	< 0.00150	< 0.00175	< 0.00117	< 0.00142	< 0.00144	< 0.00117	< 0.00131	< 0.00144	< 0.00123	< 0.00131	< 0.00180	**0.0109**	**0.00169 J**	< 0.00141
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.8	< 0.0133	< 0.0154	< 0.0104	< 0.0125	< 0.127	< 0.0103	< 0.0115	< 0.0128	< 0.0109	< 0.0116	< 0.0638	< 0.0111	< 0.0128	< 0.0125
Acetone	0.5	< 0.0182	< 0.0210	< 0.0142	< 0.0170	< 0.0174	**0.0692**	**0.0546**	**0.0792**	**0.0286**	< 0.0159	**0.0356 J**	**0.127**	**0.157**	**0.0342**
Acrylonitrile	--	< 0.00253	< 0.00294	< 0.00197	< 0.00237	< 0.00241	< 0.00196	< 0.00219	< 0.00243	< 0.00206	< 0.00220	< 0.00303	< 0.00210	< 0.00244	< 0.00237
Benzene	0.044	< 0.000532	< 0.000617	< 0.000416	< 0.000499	< 0.000508	**0.000843 J**	**0.00168**	**0.00223**	**0.000595 J**	**0.00365**	< 0.000638	**0.00322**	**0.00328**	**0.00325**
Bromobenzene	--	< 0.00140	< 0.00162	< 0.00109	< 0.00131	< 0.00133	< 0.00108	< 0.00121	< 0.00134	< 0.00114	< 0.00122	< 0.00168	< 0.00116	< 0.00135	< 0.00131
Bromodichloromethane	0.52	< 0.00105	< 0.00122	< 0.000819	< 0.000983	< 0.00100	< 0.000814	< 0.000910	< 0.00101	< 0.000855	< 0.000913	< 0.00126	< 0.000873	< 0.00101	< 0.000981
Bromoform	1.7	< 0.00796	< 0.00922	< 0.00621	< 0.00746	< 0.00760	< 0.00618	< 0.00691	< 0.00765	< 0.00649	< 0.00693	< 0.00954	< 0.00662	< 0.00767	< 0.00745
Bromomethane (Methyl Bromide)	0.3	< 0.00492	< 0.00571	< 0.00384	< 0.00462	< 0.00470	< 0.00382	< 0.00427	< 0.00473	< 0.00402	< 0.00429	< 0.00591	< 0.00410	< 0.00475	< 0.00461
Carbon tetrachloride	0.048	< 0.00144	< 0.00166	< 0.00112	< 0.00134	< 0.00137	< 0.00112	< 0.00125	< 0.00138	< 0.00117	< 0.00125	< 0.00172	< 0.00120	< 0.00139	< 0.00135
Chlorobenzene	1.5	< 0.000762	< 0.000883	< 0.000595	< 0.000715	< 0.00728	**0.00117 J**	**0.000699 J**	**0.00469**	< 0.000622	< 0.000664	< 0.00365	< 0.000635	**0.00389**	**0.0112**
Chloroethane	1.1	< 0.00144	< 0.00166	< 0.00112	< 0.00134	< 0.00137	< 0.00112	< 0.00125	< 0.00138	< 0.00117	< 0.00125	< 0.00172	< 0.00120	< 0.00139	< 0.00135
Chloroform (Trichloromethane)	0.068	< 0.000552	< 0.000640	< 0.000431	< 0.000518	< 0.000527	< 0.000429	< 0.000479	< 0.000531	< 0.000450	< 0.000481	< 0.000662	< 0.000460	< 0.000532	< 0.000517
Chloromethane (Methyl Chloride)	29	< 0.00185	< 0.00213	< 0.00144	< 0.00173	< 0.00177	< 0.00144	< 0.00161	< 0.00178	< 0.00151	< 0.00161	< 0.00222	< 0.00154	< 0.00178	< 0.00173
cis-1,2-Dichloroethene	0.19	< 0.000918	< 0.00106	< 0.000717	< 0.000861	< 0.000877	< 0.000713	< 0.000797	< 0.000882	< 0.000749	< 0.000799	< 0.00110	< 0.000764	< 0.000885	< 0.000859
cis-1,3-Dichloropropene	--	< 0.000902	< 0.00105	< 0.000705	< 0.000845	< 0.00862	< 0.000700	< 0.000783	< 0.000867	< 0.000736	< 0.000786	< 0.00433	< 0.000751	< 0.000870	< 0.000844
Cymene (p-Isopropyltoluene)	--	**0.00360 J**	**0.0265**	**0.0152**	**0.0121**	< 0.00296	**0.104**	**0.00824**	< 0.00298	< 0.00253	< 0.00270	< 0.00372	< 0.00258	< 0.00299	< 0.00290
Dibromochloromethane	3.8	< 0.000599	< 0.000694	< 0.000468	< 0.000561	< 0.00572	< 0.000465	< 0.000520	< 0.000575	< 0.000488	< 0.000521	< 0.00287	< 0.000498	< 0.000577	< 0.000560
Dibromomethane	--	< 0.00133	< 0.00154	< 0.00104	< 0.00125	< 0.00127	< 0.00103	< 0.00115	< 0.00128	< 0.00109	< 0.00116	< 0.00160	< 0.00111	< 0.00128	< 0.00125
Dichlorodifluoromethane (CFC-12)	--	< 0.00109	< 0.00126	< 0.000850	< 0.00102	< 0.00104	< 0.000845	< 0.000945	< 0.00105	< 0.000888	< 0.000948	< 0.00131	< 0.000906	< 0.00105	< 0.00102
Diisopropyl ether (DIPE)	--	< 0.000466	< 0.000540	< 0.000364	< 0.000437	< 0.000445	< 0.000361	< 0.000404	< 0.000448	< 0.000380	< 0.000406	< 0.000559	< 0.000388	< 0.000449	< 0.000436
Ethylbenzene	1.4	**0.00165 J**	< 0.000817	**0.00287**	**0.00286 J**	< 0.00674	**0.00379**	**0.00124 J**	**0.00356**	**0.00171 J**	**0.000820 J**	< 0.00338	**0.109**	**0.0104**	**0.00256 J**
Hexachlorobutadiene	0.68	< 0.0169	< 0.0196	< 0.0132	< 0.0158	< 0.0161	< 0.0131	< 0.0147	< 0.0162	< 0.0138	< 0.0147	< 0.0203	< 0.0141	< 0.0163	< 0.0158
Isopropylbenzene (Cumene)	--	< 0.00115	< 0.00133	**0.00322**	**0.00369**	< 0.00110	**0.00276**	< 0.000997	**0.00242 J**	**0.00146 J**	< 0.00100	< 0.00138	**0.00729**	**0.00251 J**	**0.00220 J**
Methyl Tert Butyl Ether	0.023	< 0.000392	< 0.000455	< 0.000307	< 0.000368	< 0.000375	< 0.000305	< 0.000341	< 0.000377	< 0.000320	< 0.000342	< 0.000471	< 0.000327	< 0.000378	< 0.000367
Methylene chloride	0.077	< 0.00883	< 0.0102	< 0.00690	**0.00990 J**	< 0.00844	< 0.00686	**0.0148 J**	< 0.00849	< 0.00721	< 0.00769	< 0.0106	< 0.00735	< 0.00852	< 0.00827
Naphthalene	0.033	< 0.00415	< 0.00480	**0.00407 J**	**0.0292**	< 0.00396	< 0.00322	< 0.00360	**0.0172**	< 0.00339	**0.00952 J**	< 0.00498	**0.0141**	**0.0140 J**	**0.0113 J**

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-20	SS-20	SS-21	SS-21	SS-21	SS-23	SS-23	SS-23	SS-24	SS-24	SS-24	SS-25	SS-25	SS-25
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
n-Butylbenzene	--	< 0.00511	< 0.00591	< 0.00399	**0.0149 J**	< 0.00488	< 0.00397	< 0.00443	< 0.00491	< 0.00417	< 0.00445	< 0.00613	**0.0232**	**0.00554 J**	< 0.00478
n-Propylbenzene	--	< 0.00157	< 0.00182	< 0.00123	**0.00871**	< 0.00150	**0.00201 J**	< 0.00136	**0.00203 J**	< 0.00128	< 0.00137	< 0.00188	**0.0363**	**0.00631 J**	**0.00299 J**
Styrene	1.5	< 0.00363	< 0.00421	**0.00609 J**	**0.00354 J**	< 0.00347	**0.00575 J**	< 0.00315	< 0.00349	**0.00465 J**	< 0.00316	< 0.00436	< 0.00302	< 0.00350	< 0.00340
tert-Butylbenzene	--	< 0.00206	< 0.00239	< 0.00161	< 0.00193	< 0.00197	< 0.00160	< 0.00179	< 0.00198	< 0.00168	< 0.00180	< 0.00247	< 0.00172	< 0.00199	< 0.00193
Tetrachloroethene	0.42	< 0.000931	< 0.00108	< 0.000727	< 0.000873	< 0.00890	< 0.000723	< 0.000808	< 0.000895	< 0.000760	< 0.000811	< 0.00447	< 0.000775	< 0.000898	< 0.000872
Toluene	2.9	**0.00180 J**	**0.00242 J**	**0.00430 J**	**0.00218 J**	< 0.0159	**0.0107**	**0.00230 J**	**0.00311 J**	**0.00420 J**	< 0.00145	< 0.00798	**0.108**	**0.0137**	**0.00534 J**
trans-1,2-Dichloroethene	0.67	< 0.00190	< 0.00221	< 0.00149	< 0.00179	< 0.00182	< 0.00148	< 0.00165	< 0.00183	< 0.00155	< 0.00166	< 0.00228	< 0.00158	< 0.00183	< 0.00178
trans-1,3-Dichloropropene	--	< 0.00204	< 0.00236	< 0.00159	< 0.00191	< 0.0194	< 0.00158	< 0.00177	< 0.00196	< 0.00166	< 0.00177	< 0.00977	< 0.00169	< 0.00196	< 0.00191
Trichloroethene	0.46	< 0.000532	< 0.000617	< 0.000416	< 0.000499	< 0.000508	< 0.000413	< 0.000462	< 0.000511	< 0.000434	< 0.000463	< 0.000638	< 0.000443	< 0.000513	< 0.000498
Trichlorofluoromethane (CFC-11)	--	< 0.000665	< 0.000771	< 0.000520	< 0.000624	< 0.000635	< 0.000516	< 0.000577	< 0.000639	**0.00136 J**	< 0.000579	< 0.000798	< 0.000554	< 0.000641	< 0.000623
Trifluorotrichloroethane (Freon 113)	--	< 0.000898	< 0.00104	< 0.000701	< 0.000842	< 0.000858	< 0.000697	< 0.000780	< 0.000863	< 0.000733	< 0.000782	< 0.00108	< 0.000747	< 0.000866	< 0.000841
Vinyl chloride	0.0082	< 0.000909	< 0.00105	< 0.000710	< 0.000851	< 0.000868	< 0.000705	< 0.000789	< 0.000873	< 0.000741	< 0.000791	< 0.00109	< 0.000756	< 0.000876	< 0.000851
Xylene (total)	2.3	**0.0108**	< 0.00737	**0.0118**	**0.0331**	< 0.0607	**0.0117**	< 0.00552	**0.00798 J**	**0.00786**	< 0.00554	< 0.0305	**0.65**	**0.0607**	**0.0107**

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-26	SS-26	SS-26	SS-27	SS-27	SS-27	SS-28	SS-28	SS-28	SS-29	SS-29	SS-29	SS-30	SS-30
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
Inorganic Compounds (mg/kg)															
Antimony, Total	31	< 0.966	< 0.973	**1.17 J**	< 0.776	< 0.815	< 1.00	< 0.818	< 0.841	< 0.883	< 0.910	< 0.844	< 0.833	< 0.807	< 0.916
Arsenic, Total	0.067	**4.28**	**2.89**	**6.29**	**4.15**	**2.69**	**4.21**	< 0.502	**4.9**	**4.37**	**2.04 J**	**1.00 J**	**4.24**	**2.84**	**6.6**
Barium, Total	3000	**204**	**182**	**267**	**166**	**211**	**407**	**87.1**	**212**	**347**	**201**	**208**	**152**	**671**	**215**
Beryllium, Total	42	**0.286**	**0.202 J**	**0.533**	**0.311**	**0.229**	**0.452**	< 0.0763	**0.435**	**0.345**	**0.155 J**	**0.154 J**	**0.237**	**0.229**	**0.474**
Cadmium, Total	39	**0.883**	**0.719**	**0.145 J**	**0.393 J**	**0.639**	**0.998**	**0.350 J**	**0.362 J**	**0.178 J**	**0.498 J**	**0.667**	**0.634**	**0.992**	**0.260 J**
Chromium, Total	--	**82.2**	**67.9**	**79.7**	**50.1**	**55.3**	**64.3**	**102**	**66.9**	**57.7**	**48.6**	**55**	**70.2**	**62.9**	**89.4**
Cobalt, Total	23	**16.7**	**22.2**	**15.5**	**13.4**	**15.3**	**12.6**	**34.9**	**13.9**	**12.3**	**7.8**	**31.5**	**10.9**	**17**	**16.6**
Copper, Total	3100	**50.3**	**49.6**	**36.3**	**43.8**	**48.6**	**39.1**	**68.7**	**34.3**	**26.9**	**24.5**	**87.5**	**42.9**	**46.9**	**34.9**
Lead, Total	80	**56.7**	**35.9**	**9.24**	**14.3**	**13.5**	**22.8**	**0.597**	**20.5**	**15.4**	**29.2**	**83.2**	**142**	**16.3**	**10.1**
Mercury, Total	13	**0.137**	**0.0434**	**0.0154 J**	**0.0445**	**0.036**	**0.0541**	< 0.00305	**0.0534**	**0.0306**	**0.0284**	**0.0119 J**	**0.0387**	**0.322**	**0.0755**
Molybdenum, Total	390	**0.79**	**0.273 J**	< 0.199	**0.53**	**0.688**	< 0.214	< 0.175	**0.434 J**	< 0.188	**0.789**	< 0.180	**0.844**	**0.842**	< 0.195
Nickel, Total	86	**59.8**	**65.6**	**94.1**	**57**	**54**	**70.8**	**81.3**	**80.4**	**66.3**	**61.8**	**54.2**	**77.4**	**92.1**	**121**
Selenium, Total	390	< 0.799	< 0.804	< 0.771	< 0.641	< 0.674	< 0.828	< 0.676	< 0.695	< 0.730	< 0.752	< 0.698	< 0.688	< 0.667	< 0.757
Silver, Total	390	< 0.155	< 0.156	< 0.149	< 0.124	< 0.130	< 0.160	< 0.131	< 0.134	< 0.141	< 0.146	< 0.135	< 0.133	< 0.129	< 0.147
Thallium, Total	0.78	< 0.837	< 0.843	< 0.808	< 0.672	< 0.706	< 0.868	< 0.709	< 0.729	< 0.765	< 0.789	< 0.731	< 0.722	< 0.700	< 0.794
Vanadium, Total	390	**78.2**	**77.8**	**53.7**	**59.3**	**62.1**	**42.9**	**108**	**49.4**	**47.1**	**54.5**	**122**	**36.4**	**90.1**	**52.2**
Zinc, Total	23000	**108**	**102**	**64.8**	**80**	**65.4**	**81.5**	**67.7**	**60.8**	**53.3**	**54.2**	**123**	**125**	**82.7**	**64.9**
Other (%)															
Total Solids	--	**77.6**	**77.1**	**80.4**	**96.7**	**92**	**74.9**	**91.7**	**89.2**	**85**	**82.4**	**88.9**	**90.1**	**92.9**	**81.9**
Pesticides (mg/kg)															
4,4'-DDD	2.7	< 0.000211	< 0.000213	< 0.000204	**0.00129 J**	< 0.000178	**0.00347 J**	< 0.000179	**0.00268 J**	**0.000592 J**	< 0.000199	< 0.000185	< 0.000182	< 0.000177	< 0.000200
4,4'-DDE	1.9	**0.00361 J**	**0.00115 J**	**0.00311 J**	**0.00372 J**	**0.0183 J**	**0.00624 J**	**0.000729 J**	**0.00479 J**	**0.00168 J**	< 0.000200	< 0.000186	< 0.000183	< 0.000178	**0.000463 J**
4,4'-DDT	1.9	< 0.000343	< 0.000345	< 0.000331	**0.00221 J**	< 0.000289	< 0.000355	< 0.000290	**0.00702 J**	**0.000763 J**	**0.000784 J**	< 0.000299	< 0.000295	< 0.000286	< 0.000325
Aldrin	0.036	< 0.000300	< 0.000302	< 0.000290	< 0.000241	< 0.000253	< 0.000311	< 0.000254	< 0.000261	< 0.000274	< 0.000283	< 0.000262	< 0.000259	< 0.000251	< 0.000285
alpha-BHC	--	< 0.000249	< 0.000250	< 0.000240	< 0.000200	< 0.000210	< 0.000258	< 0.000211	< 0.000216	< 0.000227	< 0.000234	< 0.000217	< 0.000214	< 0.000208	< 0.000236
beta-BHC	--	< 0.000390	< 0.000393	< 0.000377	< 0.000313	< 0.000329	< 0.000405	< 0.000330	< 0.000340	< 0.000357	< 0.000368	< 0.000341	< 0.000336	< 0.000326	< 0.000370
Chlordane	0.48	< 0.0502	< 0.0506	< 0.0485	< 0.0403	< 0.0424	< 0.0521	< 0.0425	< 0.0437	< 0.0459	< 0.0473	< 0.0439	< 0.0433	< 0.0420	< 0.0476
delta-BHC	--	< 0.000194	< 0.000196	< 0.000188	< 0.000156	< 0.000164	< 0.000202	< 0.000165	< 0.000169	< 0.000178	< 0.000183	< 0.000170	< 0.000168	< 0.000163	< 0.000184
Dieldrin	0.00017	< 0.000115	< 0.000115	< 0.000111	< 0.0000920	< 0.0000967	< 0.000119	< 0.0000971	**0.00107 J**	< 0.000105	< 0.000108	< 0.000100	< 0.0000988	< 0.0000958	< 0.000109
Endosulfan I	--	< 0.000276	< 0.000278	< 0.000266	< 0.000221	< 0.000233	< 0.000286	< 0.000233	< 0.000240	< 0.000252	< 0.000260	< 0.000241	< 0.000238	< 0.000230	< 0.000261
Endosulfan II	--	< 0.000296	< 0.000298	< 0.000286	< 0.000238	< 0.000250	< 0.000307	< 0.000251	< 0.000258	< 0.000271	< 0.000279	< 0.000259	< 0.000255	< 0.000248	< 0.000281
Endosulfan sulfate	--	< 0.000219	< 0.000221	< 0.000211	< 0.000176	< 0.000185	< 0.000227	< 0.000185	< 0.000191	< 0.000200	< 0.000206	< 0.000191	< 0.000189	< 0.000183	< 0.000208
Endrin	0.00065	< 0.000282	< 0.000284	< 0.000272	< 0.000227	< 0.000238	< 0.000293	< 0.000239	**0.00197 J**	< 0.000258	< 0.000266	< 0.000246	< 0.000243	< 0.000236	< 0.000268
Endrin aldehyde	--	< 0.000312	< 0.000314	< 0.000301	< 0.000250	< 0.000263	< 0.000323	< 0.000264	< 0.000271	< 0.000285	< 0.000294	< 0.000272	< 0.000269	< 0.000260	< 0.000296
Endrin ketone	--	< 0.000205	< 0.000206	< 0.000198	< 0.000164	< 0.000173	< 0.000212	< 0.000173	< 0.000178	< 0.000187	< 0.000193	< 0.000179	< 0.000177	< 0.000171	< 0.000194
gamma-BHC (Lindane)	0.0098	< 0.000316	< 0.000318	< 0.000305	< 0.000253	< 0.000266	< 0.000327	< 0.000267	< 0.000275	< 0.000288	< 0.000297	< 0.000276	< 0.000272	< 0.000264	< 0.000299
Heptachlor	0.00077	< 0.000130	< 0.000131	< 0.000126	< 0.000104	< 0.000110	< 0.000135	< 0.000110	< 0.000113	< 0.000119	< 0.000123	< 0.000114	< 0.000112	< 0.000109	< 0.000123
Heptachlor epoxide	0.00042	< 0.000487	< 0.000490	< 0.000470	< 0.000391	< 0.000411	< 0.000505	< 0.000412	< 0.000424	< 0.000445	< 0.000459	< 0.000425	< 0.000420	< 0.000407	< 0.000462

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-26	SS-26	SS-26	SS-27	SS-27	SS-27	SS-28	SS-28	SS-28	SS-29	SS-29	SS-29	SS-30	SS-30
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
Hexachlorobenzene	0.34	< 0.000289	< 0.000291	< 0.000279	< 0.000232	< 0.000243	< 0.000299	< 0.000244	< 0.000251	< 0.000264	< 0.000272	< 0.000252	< 0.000249	< 0.000241	< 0.000274
Methoxychlor	19	< 0.000341	< 0.000344	< 0.000330	< 0.000274	< 0.000288	< 0.000354	< 0.000289	< 0.000297	< 0.000312	< 0.000322	< 0.000298	< 0.000294	< 0.000285	< 0.000324
Toxaphene	0.00042	< 0.0464	< 0.0467	< 0.0448	< 0.0372	< 0.0391	< 0.0481	< 0.0393	< 0.0403	< 0.0424	< 0.0437	< 0.0405	< 0.0400	< 0.0387	< 0.0440
Semi-Volatile Organic Compounds (SIM) (mg/kg)															
1-Methylnaphthalene	--	< 0.00258	< 0.00259	< 0.00249	**0.00458 J**	**0.0858 J**	**0.00867 J**	< 0.00218	< 0.00224	< 0.0118	**0.0131 J**	**0.00272 J**	**0.068**	**0.00461 J**	< 0.00244
2-Chloronaphthalene	--	< 0.00258	< 0.00259	< 0.00249	< 0.00207	< 0.0109	< 0.00267	< 0.00218	< 0.00224	< 0.0118	< 0.00243	< 0.00225	< 0.00222	< 0.00215	< 0.00244
2-Methylnaphthalene	0.25	< 0.00258	< 0.00259	< 0.00249	**0.00762 J**	**0.112**	**0.00811 J**	< 0.00218	< 0.00224	< 0.0118	**0.0186 J**	**0.00461 J**	**0.107**	**0.0104 J**	< 0.00244
Acenaphthene	16	< 0.000773	< 0.000778	< 0.000746	< 0.000621	**0.0154 J**	< 0.000801	< 0.000654	< 0.000672	< 0.00353	< 0.000728	< 0.000675	**0.0222**	< 0.000646	< 0.000733
Acenaphthylene	13	< 0.000773	< 0.000778	< 0.000746	< 0.000621	< 0.00326	< 0.000801	< 0.000654	< 0.000672	< 0.00353	< 0.000728	< 0.000675	< 0.000666	< 0.000646	< 0.000733
Anthracene	2.8	< 0.000773	< 0.000778	< 0.000746	**0.000707 J**	**0.00629 J**	< 0.000801	< 0.000654	< 0.000672	< 0.00353	< 0.000728	< 0.000675	**0.0319**	< 0.000646	< 0.000733
Benzo(a)anthracene	0.16	**0.000969 J**	**0.000942 J**	< 0.000746	**0.00294 J**	**0.0122 J**	< 0.000801	**0.00115 J**	**0.00159 J**	< 0.00353	**0.00263 J**	< 0.000675	**0.036**	**0.00132 J**	< 0.000733
Benzo(a)pyrene	0.016	**0.00148 J**	< 0.000778	< 0.000746	**0.00474 J**	< 0.00326	< 0.000801	< 0.000654	**0.00184 J**	**0.00877 J**	**0.00144 J**	< 0.000675	**0.073**	**0.00121 J**	< 0.000733
Benzo(b)fluoranthene	0.16	**0.00309 J**	< 0.000778	< 0.000746	**0.00961**	< 0.00326	< 0.000801	**0.000765 J**	**0.00335 J**	< 0.00353	**0.00521 J**	< 0.000675	**0.0562**	**0.00235 J**	< 0.000733
Benzo(g,h,i)perylene	2.5	**0.00587 J**	< 0.000778	< 0.000746	**0.0141**	**0.0531**	**0.00423 J**	**0.00143 J**	**0.00570 J**	**0.0233 J**	**0.00422 J**	**0.00218 J**	**0.0737**	**0.00215 J**	< 0.000733
Benzo(k)fluoranthene	1.6	**0.00133 J**	< 0.000778	< 0.000746	**0.00140 J**	< 0.00326	< 0.000801	< 0.000654	**0.00124 J**	< 0.00353	**0.00159 J**	< 0.000675	**0.0243**	**0.000972 J**	< 0.000733
Chrysene	3.8	**0.00121 J**	**0.00136 J**	< 0.000746	**0.00439 J**	**0.0152 J**	< 0.000801	**0.00108 J**	**0.00196 J**	< 0.00353	**0.00484 J**	< 0.000675	**0.042**	**0.00353 J**	< 0.000733
Dibenz(a,h)anthracene	0.016	**0.00116 J**	< 0.000778	< 0.000746	**0.00291 J**	< 0.00326	< 0.000801	< 0.000654	< 0.000672	< 0.00353	< 0.000728	< 0.000675	< 0.000666	< 0.000646	< 0.000733
Fluoranthene	60	**0.00203 J**	**0.00205 J**	< 0.000746	**0.00601 J**	**0.0269 J**	< 0.000801	**0.000954 J**	**0.00331 J**	< 0.00353	**0.00982**	< 0.000675	**0.0799**	**0.00489 J**	**0.00271 J**
Fluorene	8.9	< 0.000773	< 0.000778	< 0.000746	< 0.000621	**0.00982 J**	< 0.000801	< 0.000654	< 0.000672	< 0.00353	< 0.000728	< 0.000675	< 0.000666	**0.00482 J**	< 0.000733
Indeno(1,2,3-cd)pyrene	0.16	**0.00184 J**	< 0.000778	< 0.000746	**0.00472 J**	< 0.00326	< 0.000801	< 0.000654	**0.00192 J**	< 0.00353	**0.00187 J**	< 0.000675	**0.0389**	**0.00101 J**	< 0.000733
Naphthalene	0.033	< 0.00258	< 0.00259	< 0.00249	**0.00663 J**	**0.0541 J**	**0.0147 J**	< 0.00218	< 0.00224	< 0.0118	**0.00927 J**	**0.00547 J**	**0.144**	**0.00535 J**	< 0.00244
Phenanthrene	11	**0.000903 J**	< 0.000778	< 0.000746	**0.00441 J**	**0.106**	< 0.000801	**0.00109 J**	**0.00175 J**	< 0.00353	**0.0126**	**0.0099**	**0.0472**	**0.0258**	**0.00310 J**
Pyrene	85	**0.00229 J**	**0.00174 J**	< 0.000746	**0.00766**	**0.0513**	< 0.000801	**0.00154 J**	**0.00359 J**	< 0.00353	**0.0258**	**0.0357**	**0.322**	**0.00476 J**	**0.00457 J**
Total Petroleum Hydrocarbons (mg/kg)															
Total Petroleum Hydrocarbons (C12-C22)	230	**6.99 J**	< 0.951	< 0.912	< 152	**391 J**	**250**	< 0.799	**9.86 J**	< 34.5	**58.2**	**565**	**572**	**6.07**	**1.07 J**
Total Petroleum Hydrocarbons (C22-C32)	230	**35.8**	**4.11 J**	**2.36 J**	**464 J**	**1,030**	**819**	< 1.45	**67.1**	**122 J**	**223**	**1,950**	**1,630**	**33.9**	**3.11 J**
Total Petroleum Hydrocarbons (C32-C40)	5100	**38.6**	**4.10 J**	**3.08 J**	**807 J**	**1,120**	**108**	**1.71 J**	**66.9**	**238**	**27.8**	**234**	**404**	**14.4**	**2.59 J**
Total Petroleum Hydrocarbons (C5-C12) GRO	100	< 0.0428	**0.0540 J**	< 0.0413	< 0.0343	**0.0818 J**	**0.111 J**	< 0.0362	< 0.0372	< 0.0391	**0.159**	**1.37**	**4.98**	**0.0426 J**	< 0.0406
Volatile Organic Compounds (mg/kg)															
1,1,1,2-Tetrachloroethane	0.01	< 0.000644	< 0.000649	< 0.000622	< 0.000517	< 0.000543	< 0.000668	< 0.000545	< 0.000560	< 0.000588	< 0.000607	< 0.000563	< 0.000588	< 0.000538	< 0.000611
1,1,1-Trichloroethane	7.8	< 0.000354	< 0.000357	< 0.000342	< 0.000284	< 0.000299	< 0.000367	< 0.000300	< 0.000308	< 0.000324	< 0.000334	< 0.000309	< 0.000324	< 0.000296	< 0.000336
1,1,2,2-Tetrachloroethane	0.018	< 0.000502	< 0.000506	< 0.000485	< 0.000403	< 0.000424	< 0.000521	< 0.000425	< 0.000437	< 0.000459	< 0.000473	< 0.000439	< 0.000458	< 0.000420	< 0.000476
1,1,2-Trichloroethane	0.07	< 0.00114	< 0.00115	< 0.00110	< 0.000913	< 0.000959	< 0.00118	< 0.000963	< 0.000990	< 0.00104	< 0.00107	< 0.000993	< 0.00104	< 0.000950	< 0.00108
1,1-Dichloroethane	0.2	< 0.000741	< 0.000746	< 0.000715	< 0.000595	< 0.000625	< 0.000768	< 0.000627	< 0.000644	< 0.000677	< 0.000698	< 0.000647	< 0.000677	< 0.000619	< 0.000702
1,1-Dichloroethene	0.55	< 0.000644	< 0.000649	< 0.000622	< 0.000517	< 0.000543	< 0.000668	< 0.000545	< 0.000560	< 0.000588	< 0.000607	< 0.000563	< 0.000588	< 0.000538	< 0.000611
1,1-Dichloropropene	--	< 0.000902	< 0.000908	< 0.000871	< 0.000724	< 0.000761	< 0.000935	< 0.000763	< 0.000785	< 0.000824	< 0.000849	< 0.000788	< 0.000824	< 0.000753	< 0.000855
1,2,3-Trichlorobenzene	--	< 0.000805	< 0.000811	< 0.000777	< 0.000646	< 0.000679	< 0.000835	< 0.000682	< 0.000701	< 0.000735	< 0.000758	< 0.000703	< 0.000735	< 0.000673	< 0.000763
1,2,3-Trichloropropane	--	< 0.00657	< 0.00662	< 0.00634	< 0.00527	< 0.00554	< 0.00681	< 0.00556	< 0.00572	< 0.00600	< 0.00619	< 0.00574	< 0.00601	< 0.00549	< 0.00623
1,2,3-Trimethylbenzene	--	< 0.00148	< 0.00149	< 0.00143	**0.00226 J**	**0.00305 J**	**0.00208 J**	< 0.00125	< 0.00129	< 0.00135	**0.00909**	**0.117**	**0.384**	**0.0121**	< 0.00140

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PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-26	SS-26	SS-26	SS-27	SS-27	SS-27	SS-28	SS-28	SS-28	SS-29	SS-29	SS-29	SS-30	SS-30
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
1,2,4-Trichlorobenzene	1.5	< 0.00621	< 0.00625	< 0.00599	< 0.00499	< 0.00524	< 0.00644	< 0.00526	< 0.00540	< 0.00567	< 0.00585	< 0.00542	< 0.00567	< 0.00519	< 0.00589
1,2,4-Trimethylbenzene	--	**0.00178 J**	< 0.00150	< 0.00144	**0.0079**	**0.00459 J**	**0.00433 J**	< 0.00127	< 0.00130	< 0.00137	**0.0308**	**0.176**	**0.782**	**0.0441**	**0.00161 J**
1,2-Dibromo-3-chloropropane (DBCP)	0.0045	< 0.00657	< 0.00662	< 0.00634	< 0.00527	< 0.00554	< 0.00681	< 0.00556	< 0.00572	< 0.00600	< 0.00619	< 0.00574	< 0.00601	< 0.00549	< 0.00623
1,2-Dibromoethane (Ethylene Dibromide)	0.00033	< 0.000676	< 0.000681	< 0.000653	< 0.000543	< 0.000570	< 0.000701	< 0.000573	< 0.000588	< 0.000618	< 0.000637	< 0.000591	< 0.000617	< 0.000565	< 0.000641
1,2-Dichlorobenzene	1.6	< 0.00187	< 0.00188	< 0.00180	< 0.00150	< 0.00158	< 0.00194	< 0.00158	< 0.00163	< 0.00171	< 0.00176	< 0.00163	< 0.00171	< 0.00156	< 0.00177
1,2-Dichloroethane	0.0045	< 0.000612	< 0.000616	< 0.000591	< 0.000491	< 0.000516	< 0.000634	< 0.000518	< 0.000532	< 0.000559	< 0.000576	< 0.000534	< 0.000559	**0.00292**	< 0.000580
1,2-Dichloropropane	0.12	< 0.00164	< 0.00165	< 0.00158	< 0.00131	< 0.00138	< 0.00170	< 0.00139	< 0.00142	< 0.00149	< 0.00154	< 0.00143	< 0.00150	< 0.00137	< 0.00155
1,3,5-Trimethylbenzene	--	< 0.00139	< 0.00140	< 0.00134	**0.00272 J**	**0.00210 J**	**0.00184 J**	< 0.00118	< 0.00121	< 0.00127	**0.0127**	**0.0514**	**0.283**	**0.0223**	< 0.00132
1,3-Dichlorobenzene	7.4	< 0.00219	< 0.00221	< 0.00211	< 0.00176	< 0.00185	< 0.00227	< 0.00185	< 0.00191	< 0.00200	< 0.00206	< 0.00191	< 0.00200	< 0.00183	< 0.00208
1,3-Dichloropropane	--	< 0.00225	< 0.00227	< 0.00218	< 0.00181	< 0.00190	< 0.00234	< 0.00191	< 0.00196	< 0.00206	< 0.00212	< 0.00197	< 0.00206	< 0.00188	< 0.00214
1,4-Dichlorobenzene	0.59	< 0.00254	< 0.00256	< 0.00245	< 0.00204	< 0.00214	< 0.00263	< 0.00215	< 0.00221	< 0.00232	< 0.00239	< 0.00222	< 0.00232	< 0.00212	< 0.00241
2,2-Dichloropropane	--	< 0.00102	< 0.00103	< 0.000986	< 0.000820	< 0.000862	< 0.00106	< 0.000865	< 0.000889	< 0.000933	< 0.000962	< 0.000892	< 0.000932	< 0.000853	< 0.000969
2-Butanone (Methyl Ethyl Ketone)	5.1	< 0.0161	< 0.0162	< 0.0155	< 0.0129	**0.0146 J**	**0.0178 J**	< 0.0136	< 0.0140	< 0.0147	< 0.0152	< 0.0141	< 0.0147	< 0.0135	< 0.0153
2-Chlorotoluene	--	< 0.00118	< 0.00119	< 0.00114	< 0.000952	< 0.00100	< 0.00123	< 0.00100	< 0.00103	< 0.00108	< 0.00112	< 0.00104	< 0.00108	< 0.000990	< 0.00112
2-Phenylbutane (sec-Butylbenzene)	--	< 0.00326	< 0.00328	< 0.00315	< 0.00262	< 0.00275	< 0.00338	< 0.00276	< 0.00284	< 0.00298	< 0.00307	**0.0106 J**	**0.0869**	**0.542**	**0.00614 J**
4-Chlorotoluene	--	< 0.00146	< 0.00147	< 0.00141	< 0.00117	< 0.00123	< 0.00151	< 0.00123	< 0.00127	< 0.00133	< 0.00137	< 0.00127	< 0.00133	< 0.00122	< 0.00138
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.8	< 0.0129	< 0.0130	< 0.0124	< 0.0103	< 0.0109	< 0.0134	< 0.0109	< 0.0112	< 0.0118	< 0.0121	< 0.0113	< 0.0118	< 0.0108	< 0.0122
Acetone	0.5	**0.0474**	**0.057**	**0.0246 J**	< 0.0142	**0.133**	**0.155**	< 0.0149	**0.0448**	**0.0495**	< 0.0166	< 0.0154	< 0.0161	< 0.0147	< 0.0167
Acrylonitrile	--	< 0.00245	< 0.00246	< 0.00236	< 0.00197	< 0.00206	< 0.00254	< 0.00207	< 0.00213	< 0.00224	< 0.00231	< 0.00214	< 0.00223	< 0.00204	< 0.00232
Benzene	0.044	< 0.000515	< 0.000519	< 0.000497	**0.000658 J**	**0.00136**	**0.00253**	< 0.000436	< 0.000448	< 0.000471	**0.000945 J**	**0.0367**	**0.0655**	**0.0162**	**0.000515 J**
Bromobenzene	--	< 0.00135	< 0.00136	< 0.00131	< 0.00109	< 0.00114	< 0.00140	< 0.00115	< 0.00118	< 0.00124	< 0.00127	< 0.00118	< 0.00123	< 0.00113	< 0.00128
Bromodichloromethane	0.52	< 0.00101	< 0.00102	< 0.000980	< 0.000815	< 0.000856	< 0.00105	< 0.000859	< 0.000883	< 0.000927	< 0.000956	< 0.000887	< 0.000927	< 0.000848	< 0.000963
Bromoform	1.7	< 0.00770	< 0.00776	< 0.00744	< 0.00618	< 0.00650	< 0.00799	< 0.00652	< 0.00670	< 0.00704	< 0.00726	< 0.00673	< 0.00704	< 0.00644	< 0.00730
Bromomethane (Methyl Bromide)	0.3	< 0.00477	< 0.00480	< 0.00460	< 0.00383	< 0.00402	< 0.00494	< 0.00404	< 0.00415	< 0.00435	< 0.00449	< 0.00416	< 0.00435	< 0.00398	< 0.00452
Carbon tetrachloride	0.048	< 0.00139	< 0.00140	< 0.00134	< 0.00112	< 0.00117	< 0.00144	< 0.00118	< 0.00121	< 0.00127	< 0.00131	< 0.00122	< 0.00127	< 0.00116	< 0.00132
Chlorobenzene	1.5	< 0.000738	< 0.000743	< 0.000713	< 0.000593	**0.00206 J**	**0.0208**	< 0.000625	< 0.000642	< 0.000674	< 0.000695	**0.00273 J**	< 0.000674	< 0.000617	< 0.000700
Chloroethane	1.1	< 0.00139	< 0.00140	< 0.00134	< 0.00112	< 0.00117	< 0.00144	< 0.00118	< 0.00121	< 0.00127	< 0.00131	< 0.00122	< 0.00127	< 0.00116	< 0.00132
Chloroform (Trichloromethane)	0.068	< 0.000535	< 0.000538	< 0.000516	< 0.000429	< 0.000451	< 0.000554	< 0.000453	< 0.000465	< 0.000488	< 0.000504	< 0.000467	< 0.000488	< 0.000447	< 0.000507
Chloromethane (Methyl Chloride)	29	< 0.00179	< 0.00180	< 0.00173	< 0.00144	< 0.00151	**0.00272 J**	< 0.00152	< 0.00156	< 0.00164	< 0.00169	< 0.00156	< 0.00163	< 0.00150	< 0.00170
cis-1,2-Dichloroethene	0.19	< 0.000889	< 0.000895	< 0.000858	< 0.000714	< 0.000750	< 0.000922	< 0.000753	< 0.000773	< 0.000812	< 0.000837	< 0.000776	< 0.000811	< 0.000743	< 0.000843
cis-1,3-Dichloropropene	--	< 0.000873	< 0.000880	< 0.000843	< 0.000701	< 0.000737	< 0.000906	< 0.000739	< 0.000760	< 0.000798	< 0.000823	< 0.000763	< 0.000798	< 0.000730	< 0.000828
Cymene (p-Isopropyltoluene)	--	**0.00697**	< 0.00302	< 0.00290	< 0.00241	**0.00315 J**	< 0.00311	< 0.00254	**0.00544 J**	**0.00557 J**	< 0.00283	**0.0082**	**0.0496**	**0.0103**	< 0.00285
Dibromochloromethane	3.8	< 0.000580	< 0.000584	< 0.000560	< 0.000465	< 0.000489	< 0.000601	< 0.000491	< 0.000504	< 0.000530	< 0.000546	< 0.000506	< 0.000530	< 0.000484	< 0.000550
Dibromomethane	--	< 0.00129	< 0.00130	< 0.00124	< 0.00103	< 0.00109	< 0.00134	< 0.00109	< 0.00112	< 0.00118	< 0.00121	< 0.00113	< 0.00118	< 0.00108	< 0.00122
Dichlorodifluoromethane (CFC-12)	--	< 0.00105	< 0.00106	< 0.00102	< 0.000846	< 0.000889	< 0.00109	< 0.000892	< 0.000917	< 0.000963	< 0.000993	< 0.000920	< 0.000962	< 0.000880	< 0.000999
Diisopropyl ether (DIPE)	--	< 0.000451	< 0.000454	< 0.000435	< 0.000362	< 0.000380	< 0.000468	< 0.000382	< 0.000392	< 0.000412	< 0.000425	< 0.000394	< 0.000412	< 0.000377	< 0.000428
Ethylbenzene	1.4	**0.000742 J**	< 0.000688	< 0.000659	**0.00230 J**	**0.00121 J**	**0.00168 J**	< 0.000578	< 0.000594	< 0.000624	**0.0561**	**0.0187**	**0.047**	**0.0876**	**0.00135 J**
Hexachlorobutadiene	0.68	< 0.0164	< 0.0165	< 0.0158	< 0.0131	< 0.0138	< 0.0170	< 0.0139	< 0.0142	< 0.0149	< 0.0154	< 0.0143	< 0.0150	< 0.0137	< 0.0155
Isopropylbenzene (Cumene)	--	< 0.00111	< 0.00112	< 0.00107	**0.00128 J**	**0.00114 J**	**0.00214 J**	< 0.000941	< 0.000967	< 0.00102	**0.00258 J**	**0.033**	**0.10**	**2.0**	**0.0153**
Methyl Tert Butyl Ether	0.023	< 0.000380	< 0.000383	< 0.000367	< 0.000305	< 0.000321	< 0.000394	< 0.000322	< 0.000331	< 0.000347	< 0.000358	< 0.000332	**0.00947**	< 0.000318	< 0.000360
Methylene chloride	0.077	**0.0105 J**	**0.0164 J**	< 0.00826	< 0.00687	**0.0149 J**	< 0.00887	< 0.00724	**0.0120 J**	**0.0119 J**	< 0.00806	< 0.00747	< 0.00782	< 0.00715	< 0.00811
Naphthalene	0.033	< 0.00402	< 0.00405	< 0.00388	**0.00404 J**	**0.00721 J**	**0.0125 J**	< 0.00340	< 0.00350	< 0.00367	**0.0122 J**	**0.0471**	**0.237**	**0.0218**	< 0.00381

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level														
Location	STATE-CA-ESL-SO-TIER1	SS-26	SS-26	SS-26	SS-27	SS-27	SS-27	SS-28	SS-28	SS-28	SS-29	SS-29	SS-29	SS-30	SS-30
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)		0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)	0.5 (ft)	1.5 (ft)
n-Butylbenzene	--	< 0.00495	< 0.00498	< 0.00478	< 0.00397	< 0.00417	< 0.00513	< 0.00419	< 0.00430	< 0.00452	< 0.00466	**0.0177**	**0.147**	**0.00719 J**	< 0.00469
n-Propylbenzene	--	< 0.00152	< 0.00153	< 0.00147	**0.00123 J**	< 0.00128	< 0.00158	< 0.00129	< 0.00132	< 0.00139	**0.00324 J**	**0.0612**	**0.205**	**0.237**	**0.00255 J**
Styrene	1.5	< 0.00352	< 0.00354	< 0.00340	**0.00308 J**	< 0.00297	< 0.00365	< 0.00298	< 0.00306	< 0.00321	< 0.00331	< 0.00307	< 0.00321	**0.129**	< 0.00333
tert-Butylbenzene	--	< 0.00200	< 0.00201	< 0.00193	< 0.00160	< 0.00168	< 0.00207	< 0.00169	< 0.00174	< 0.00182	< 0.00188	**0.00211 J**	**0.018**	**5.2**	**0.00415 J**
Tetrachloroethene	0.42	< 0.000902	< 0.000908	< 0.000871	< 0.000724	< 0.000761	< 0.000935	< 0.000763	< 0.000785	< 0.000824	< 0.000849	< 0.000788	< 0.000824	< 0.000753	< 0.000855
Toluene	2.9	**0.00197 J**	< 0.00162	< 0.00155	**0.0153**	**0.00247 J**	**0.00192 J**	< 0.00136	< 0.00140	< 0.00147	**0.00518 J**	**0.0139**	**0.0286**	**0.0303**	< 0.00153
trans-1,2-Dichloroethene	0.67	< 0.00184	< 0.00185	< 0.00178	< 0.00148	< 0.00155	< 0.00191	< 0.00156	< 0.00160	< 0.00168	< 0.00174	< 0.00161	< 0.00169	< 0.00154	< 0.00175
trans-1,3-Dichloropropene	--	< 0.00197	< 0.00198	< 0.00190	< 0.00158	< 0.00166	< 0.00204	< 0.00167	< 0.00171	< 0.00180	< 0.00186	< 0.00172	< 0.00180	< 0.00165	< 0.00187
Trichloroethene	0.46	< 0.000515	< 0.000519	< 0.000497	< 0.000414	< 0.000435	< 0.000534	< 0.000436	< 0.000448	< 0.000471	< 0.000485	< 0.000450	< 0.000471	< 0.000431	< 0.000489
Trichlorofluoromethane (CFC-11)	--	< 0.000644	< 0.000649	< 0.000622	< 0.000517	< 0.000543	< 0.000668	< 0.000545	< 0.000560	< 0.000588	< 0.000607	< 0.000563	< 0.000588	< 0.000538	< 0.000611
Trifluorotrichloroethane (Freon 113)	--	< 0.000869	< 0.000876	< 0.000839	< 0.000698	< 0.000733	< 0.000902	< 0.000736	< 0.000757	< 0.000794	< 0.000819	< 0.000759	< 0.000795	< 0.000726	< 0.000825
Vinyl chloride	0.0082	< 0.000880	< 0.000886	< 0.000849	< 0.000706	< 0.000742	< 0.000912	< 0.000745	< 0.000766	< 0.000804	< 0.000829	< 0.000768	< 0.000804	< 0.000735	< 0.000834
Xylene (total)	2.3	< 0.00616	< 0.00620	< 0.00594	**0.0118**	< 0.00519	**0.00689 J**	< 0.00521	< 0.00536	< 0.00563	**0.493**	**0.243**	**0.424**	**0.136**	< 0.00584

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level				
Location	STATE-CA-ESL-SO-TIER1	SS-30	SS-32	SS-32	SS-32
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
Inorganic Compounds (mg/kg)					
Antimony, Total	31	< 0.921	< 0.814	< 0.850	< 0.888
Arsenic, Total	0.067	**5.65**	**1.86 J**	**5.5**	**4.38**
Barium, Total	3000	**236**	**287**	**174**	**228**
Beryllium, Total	42	**0.481**	**0.177 J**	**0.456**	**0.515**
Cadmium, Total	39	**0.280 J**	**2.2**	**1.26**	**0.271 J**
Chromium, Total	--	**91.2**	**49.9**	**66.7**	**85.4**
Cobalt, Total	23	**15.5**	**14.8**	**10.9**	**17.4**
Copper, Total	3100	**35.2**	**45**	**28.3**	**36.8**
Lead, Total	80	**10.7**	**20.2**	**72.9**	**13.5**
Mercury, Total	13	**0.0897**	**0.158**	**0.0503**	**0.0494**
Molybdenum, Total	390	< 0.196	**0.991**	**0.983**	**0.346 J**
Nickel, Total	86	**119**	**59.9**	**77.2**	**104**
Selenium, Total	390	< 0.761	< 0.673	< 0.703	< 0.734
Silver, Total	390	< 0.147	< 0.130	< 0.136	< 0.142
Thallium, Total	0.78	< 0.798	< 0.706	< 0.737	< 0.769
Vanadium, Total	390	**52.4**	**164**	**48.3**	**55**
Zinc, Total	23000	**64.7**	**101**	**56.8**	**69.7**
Other (%)					
Total Solids	--	**81.4**	**92.1**	**88.2**	**84.5**
Pesticides (mg/kg)					
4,4'-DDD	2.7	**0.000296 J**	< 0.000178	**0.00196 J**	**0.000201 J**
4,4'-DDE	1.9	**0.000597 J**	< 0.000179	**0.00324 J**	**0.00135 J**
4,4'-DDT	1.9	< 0.000327	< 0.000289	**0.00134 J**	< 0.000315
Aldrin	0.036	< 0.000286	< 0.000253	< 0.000264	< 0.000276
alpha-BHC	--	< 0.000237	< 0.000210	< 0.000219	< 0.000228
beta-BHC	--	< 0.000372	< 0.000329	< 0.000343	< 0.000359
Chlordane	0.48	< 0.0479	< 0.0423	< 0.0442	< 0.0462
delta-BHC	--	< 0.000185	< 0.000164	< 0.000171	< 0.000179
Dieldrin	0.00017	< 0.000109	< 0.0000966	< 0.000101	**0.000166 J**
Endosulfan I	--	< 0.000263	< 0.000232	< 0.000243	< 0.000253
Endosulfan II	--	< 0.000282	< 0.000250	< 0.000261	< 0.000272
Endosulfan sulfate	--	< 0.000209	< 0.000185	< 0.000193	< 0.000201
Endrin	0.00065	< 0.000269	< 0.000238	**0.000314 J**	< 0.000259
Endrin aldehyde	--	< 0.000297	< 0.000263	< 0.000274	< 0.000286
Endrin ketone	--	< 0.000195	< 0.000173	< 0.000180	< 0.000188
gamma-BHC (Lindane)	0.0098	< 0.000301	< 0.000266	< 0.000278	< 0.000290
Heptachlor	0.00077	< 0.000124	< 0.000110	< 0.000114	< 0.000120
Heptachlor epoxide	0.00042	< 0.000464	< 0.000410	< 0.000428	< 0.000447

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level				
Location	STATE-CA-ESL-SO-TIER1	SS-30	SS-32	SS-32	SS-32
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
Hexachlorobenzene	0.34	< 0.000275	< 0.000243	< 0.000254	< 0.000265
Methoxychlor	19	< 0.000325	< 0.000288	< 0.000300	< 0.000314
Toxaphene	0.00042	< 0.0442	< 0.0391	< 0.0408	< 0.0426
Semi-Volatile Organic Compounds (SIM) (mg/kg)					
1-Methylnaphthalene	--	< 0.00246	**0.00608 J**	< 0.00227	< 0.00237
2-Chloronaphthalene	--	< 0.00246	< 0.00217	< 0.00227	< 0.00237
2-Methylnaphthalene	0.25	< 0.00246	**0.0101 J**	< 0.00227	< 0.00237
Acenaphthene	16	< 0.000737	< 0.000651	< 0.000680	< 0.000710
Acenaphthylene	13	< 0.000737	< 0.000651	< 0.000680	< 0.000710
Anthracene	2.8	< 0.000737	< 0.000651	< 0.000680	< 0.000710
Benzo(a)anthracene	0.16	< 0.000737	**0.00106 J**	< 0.000680	< 0.000710
Benzo(a)pyrene	0.016	< 0.000737	**0.000678 J**	< 0.000680	< 0.000710
Benzo(b)fluoranthene	0.16	< 0.000737	**0.00192 J**	< 0.000680	< 0.000710
Benzo(g,h,i)perylene	2.5	< 0.000737	**0.00194 J**	< 0.000680	< 0.000710
Benzo(k)fluoranthene	1.6	< 0.000737	< 0.000651	< 0.000680	< 0.000710
Chrysene	3.8	< 0.000737	**0.00319 J**	< 0.000680	< 0.000710
Dibenz(a,h)anthracene	0.016	< 0.000737	< 0.000651	< 0.000680	< 0.000710
Fluoranthene	60	**0.00281 J**	**0.00286 J**	**0.000796 J**	**0.000872 J**
Fluorene	8.9	< 0.000737	**0.00299 J**	< 0.000680	< 0.000710
Indeno(1,2,3-cd)pyrene	0.16	< 0.000737	< 0.000651	< 0.000680	< 0.000710
Naphthalene	0.033	< 0.00246	**0.00646 J**	< 0.00227	**0.00246 J**
Phenanthrene	11	**0.00117 J**	**0.0153**	< 0.000680	**0.000844 J**
Pyrene	85	**0.00177 J**	**0.00409 J**	**0.000884 J**	**0.000746 J**
Total Petroleum Hydrocarbons (mg/kg)					
Total Petroleum Hydrocarbons (C12-C22)	230	< 0.900	**7.48**	**1.51 J**	**2.10 J**
Total Petroleum Hydrocarbons (C22-C32)	230	< 1.63	**45.8**	**8.72**	**6.27**
Total Petroleum Hydrocarbons (C32-C40)	5100	**2.04 J**	**9.14**	**12.4**	**2.78 J**
Total Petroleum Hydrocarbons (C5-C12) GRO	100	< 0.0408	< 0.0371	< 0.0376	< 0.0393
Volatile Organic Compounds (mg/kg)					
1,1,1,2-Tetrachloroethane	0.01	< 0.000614	< 0.000543	< 0.000567	< 0.000592
1,1,1-Trichloroethane	7.8	< 0.000338	< 0.000299	< 0.000312	< 0.000326
1,1,2,2-Tetrachloroethane	0.018	< 0.000479	< 0.000423	< 0.000442	< 0.000462
1,1,2-Trichloroethane	0.07	< 0.00108	< 0.000959	< 0.00100	< 0.00105
1,1-Dichloroethane	0.2	< 0.000706	< 0.000624	< 0.000652	< 0.000681
1,1-Dichloroethene	0.55	< 0.000614	< 0.000543	< 0.000567	< 0.000592
1,1-Dichloropropene	--	< 0.000860	< 0.000760	< 0.000794	< 0.000829
1,2,3-Trichlorobenzene	--	< 0.000767	< 0.000679	< 0.000708	< 0.000740
1,2,3-Trichloropropane	--	< 0.00626	< 0.00554	< 0.00578	< 0.00604
1,2,3-Trimethylbenzene	--	< 0.00141	**0.0192**	**0.00172 J**	< 0.00136

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level				
Location	STATE-CA-ESL-SO-TIER1	SS-30	SS-32	SS-32	SS-32
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
1,2,4-Trichlorobenzene	1.5	< 0.00592	< 0.00523	< 0.00546	< 0.00571
1,2,4-Trimethylbenzene	--	< 0.00142	**0.0407**	**0.00378 J**	< 0.00137
1,2-Dibromo-3-chloropropane (DBCP)	0.0045	< 0.00626	< 0.00554	< 0.00578	< 0.00604
1,2-Dibromoethane (Ethylene Dibromide)	0.00033	< 0.000645	< 0.000570	< 0.000595	< 0.000621
1,2-Dichlorobenzene	1.6	< 0.00178	< 0.00157	< 0.00164	< 0.00172
1,2-Dichloroethane	0.0045	< 0.000583	< 0.000516	< 0.000538	< 0.000562
1,2-Dichloropropane	0.12	< 0.00156	< 0.00138	< 0.00144	< 0.00150
1,3,5-Trimethylbenzene	--	< 0.00133	**0.0277**	**0.00178 J**	< 0.00128
1,3-Dichlorobenzene	7.4	< 0.00209	< 0.00185	< 0.00193	< 0.00201
1,3-Dichloropropane	--	< 0.00215	< 0.00190	< 0.00198	< 0.00207
1,4-Dichlorobenzene	0.59	< 0.00242	< 0.00214	< 0.00223	< 0.00233
2,2-Dichloropropane	--	< 0.000974	< 0.000861	< 0.000899	< 0.000939
2-Butanone (Methyl Ethyl Ketone)	5.1	< 0.0153	< 0.0136	< 0.0142	< 0.0148
2-Chlorotoluene	--	< 0.00113	< 0.000999	< 0.00104	< 0.00109
2-Phenylbutane (sec-Butylbenzene)	--	< 0.00311	< 0.00275	< 0.00287	< 0.00300
4-Chlorotoluene	--	< 0.00139	< 0.00123	< 0.00128	< 0.00134
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	2.8	< 0.0123	< 0.0109	< 0.0113	< 0.0118
Acetone	0.5	< 0.0168	< 0.0149	< 0.0155	< 0.0162
Acrylonitrile	--	< 0.00233	< 0.00206	< 0.00215	< 0.00225
Benzene	0.044	< 0.000491	**0.00795**	**0.00146**	**0.00108 J**
Bromobenzene	--	< 0.00129	< 0.00114	< 0.00119	< 0.00124
Bromodichloromethane	0.52	< 0.000968	< 0.000856	< 0.000893	< 0.000933
Bromoform	1.7	< 0.00734	< 0.00649	< 0.00678	< 0.00708
Bromomethane (Methyl Bromide)	0.3	< 0.00454	< 0.00402	< 0.00419	< 0.00438
Carbon tetrachloride	0.048	< 0.00133	< 0.00117	< 0.00122	< 0.00128
Chlorobenzene	1.5	< 0.000704	< 0.000622	< 0.000650	< 0.000678
Chloroethane	1.1	< 0.00133	< 0.00117	< 0.00122	< 0.00128
Chloroform (Trichloromethane)	0.068	< 0.000510	< 0.000451	< 0.000470	< 0.000491
Chloromethane (Methyl Chloride)	29	< 0.00171	< 0.00151	< 0.00158	< 0.00165
cis-1,2-Dichloroethene	0.19	< 0.000847	< 0.000749	< 0.000782	< 0.000817
cis-1,3-Dichloropropene	--	< 0.000833	< 0.000736	< 0.000769	< 0.000803
Cymene (p-Isopropyltoluene)	--	< 0.00286	< 0.00253	**0.00754**	**0.00637**
Dibromochloromethane	3.8	< 0.000553	< 0.000489	< 0.000510	< 0.000533
Dibromomethane	--	< 0.00123	< 0.00109	< 0.00113	< 0.00118
Dichlorodifluoromethane (CFC-12)	--	< 0.00100	< 0.000888	< 0.000927	< 0.000968
Diisopropyl ether (DIPE)	--	< 0.000430	< 0.000380	< 0.000397	< 0.000414
Ethylbenzene	1.4	< 0.000651	**0.0143**	**0.00124 J**	**0.000772 J**
Hexachlorobutadiene	0.68	< 0.0156	< 0.0138	< 0.0144	< 0.0150
Isopropylbenzene (Cumene)	--	< 0.00106	< 0.000937	< 0.000978	< 0.00102
Methyl Tert Butyl Ether	0.023	< 0.000362	< 0.000320	< 0.000334	< 0.000349
Methylene chloride	0.077	< 0.00815	< 0.00721	< 0.00753	< 0.00786
Naphthalene	0.033	< 0.00383	**0.0110 J**	< 0.00354	< 0.00369

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level				
Location	STATE-CA-ESL-SO-TIER1	SS-30	SS-32	SS-32	SS-32
Sample Date		01/03/2019	01/03/2019	01/03/2019	01/03/2019
Sample Type		Primary	Primary	Primary	Primary
Sample Depth (bgs)		2.5 (ft)	0.5 (ft)	1.5 (ft)	2.5 (ft)
n-Butylbenzene	--	< 0.00472	< 0.00417	< 0.00435	< 0.00455
n-Propylbenzene	--	< 0.00145	**0.00380 J**	< 0.00134	< 0.00140
Styrene	1.5	< 0.00335	< 0.00296	< 0.00309	< 0.00323
tert-Butylbenzene	--	< 0.00190	< 0.00168	< 0.00176	< 0.00183
Tetrachloroethene	0.42	< 0.000860	< 0.000760	< 0.000794	< 0.000829
Toluene	2.9	< 0.00153	**0.0442**	**0.00339 J**	**0.00200 J**
trans-1,2-Dichloroethene	0.67	< 0.00176	< 0.00155	< 0.00162	< 0.00169
trans-1,3-Dichloropropene	--	< 0.00188	< 0.00166	< 0.00173	< 0.00181
Trichloroethene	0.46	< 0.000491	< 0.000434	< 0.000453	< 0.000474
Trichlorofluoromethane (CFC-11)	--	< 0.000614	< 0.000543	< 0.000567	< 0.000592
Trifluorotrichloroethane (Freon 113)	--	< 0.000829	< 0.000733	< 0.000765	< 0.000799
Vinyl chloride	0.0082	< 0.000839	< 0.000742	< 0.000774	< 0.000809
Xylene (total)	2.3	< 0.00587	**0.122**	**0.0075**	< 0.00566

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level												
Location	STATE-CA-ESL-WG-TIER1	GW-01	GW-02	GW-03	GW-04	GW-05	GW-06	GW-07	GW-08	GW-09	GW-11	GW-12	GW-13
Sample Date		01/04/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019	01/02/2019	01/03/2019	01/03/2019	01/04/2019	01/04/2019	01/04/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Total Petroleum Hydrocarbons (ug/L)													
Total Petroleum Hydrocarbons (C12-C22)	100	**1,430**	**43.2 J**	**2,580**	**175**	**189**	**352**	**103 J**	< 33.0	**707**	< 33.0	< 33.0	< 33.0
Total Petroleum Hydrocarbons (C22-C32)	100	**701**	< 33.0	**3,340**	**129**	**157**	**336**	**70.9 J**	**88.7 J**	**1,140**	**54.8 J**	< 33.0	< 33.0
Total Petroleum Hydrocarbons (C32-C40)	See Note 3	**78.4 J**	< 33.0	**595**	< 33.0	< 34.0	**37.2 J**	< 66.0	< 33.0	**175**	< 33.0	< 33.0	< 33.0
Total Petroleum Hydrocarbons (C5-C12) GRO	100	**58.8 J**	< 30.4	< 30.4	< 30.4	< 30.4	**6,580**	< 30.4	< 30.4	< 30.4	< 30.4	< 30.4	< 30.4
Volatile Organic Compounds (ug/L)													
1,1,1,2-Tetrachloroethane	0.57	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385	< 0.385
1,1,1-Trichloroethane	62	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319	< 0.319
1,1,2,2-Tetrachloroethane	1	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130
1,1,2-Trichloroethane	5	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383	< 0.383
1,1-Dichloroethane	5	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259
1,1-Dichloroethene	3.2	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398
1,1-Dichloropropene	--	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352
1,2,3-Trichlorobenzene	--	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230	< 0.230
1,2,3-Trichloropropane	--	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807	< 0.807
1,2,3-Trimethylbenzene	--	**2.83**	< 0.321	< 0.321	< 0.321	**0.390 J**	**46.2**	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321
1,2,4-Trichlorobenzene	5	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355	< 0.355
1,2,4-Trimethylbenzene	--	**10.2**	< 0.373	< 0.373	< 0.373	< 0.373	**165**	< 0.373	< 0.373	< 0.373	< 0.373	< 0.373	< 0.373
1,2-Dibromo-3-chloropropane (DBCP)	0.2	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33	< 1.33
1,2-Dibromoethane (Ethylene Dibromide)	0.05	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381	< 0.381
1,2-Dichlorobenzene	14	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349
1,2-Dichloroethane	0.5	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361
1,2-Dichloropropane	5	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306	< 0.306
1,3,5-Trimethylbenzene	--	**3.11**	< 0.387	< 0.387	< 0.387	< 0.387	**57.5**	< 0.387	< 0.387	< 0.387	< 0.387	< 0.387	< 0.387
1,3-Dichlorobenzene	65	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220	< 0.220
1,3-Dichloropropane	--	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366	< 0.366
1,4-Dichlorobenzene	5	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274	< 0.274
2,2-Dichloropropane	--	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321	< 0.321
2-Butanone (Methyl Ethyl Ketone)	5600	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93	< 3.93
2-Chlorotoluene	--	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375	< 0.375
2-Phenylbutane (sec-Butylbenzene)	--	**8.75**	< 0.365	< 0.365	< 0.365	< 0.365	< 0.365	< 0.365	< 0.365	< 0.365	< 0.365	< 0.365	< 0.365
4-Chlorotoluene	--	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351	< 0.351
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	120	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14
Acetone	1500	< 10.0	< 10.0	< 10.0	**13.7 J**	< 10.0	< 10.0	< 10.0	< 10.0	**14.1 J**	< 10.0	< 10.0	< 10.0
Acrolein	--	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87	< 8.87
Acrylonitrile	--	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87
Benzene	1	< 0.331	< 0.331	< 0.331	< 0.331	< 0.331	**67.8**	< 0.331	< 0.331	< 0.331	< 0.331	< 0.331	< 0.331
Bromobenzene	--	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352	< 0.352
Bromodichloromethane	80	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380	< 0.380
Bromoform	80	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469	< 0.469
Bromomethane (Methyl Bromide)	7.5	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866	< 0.866

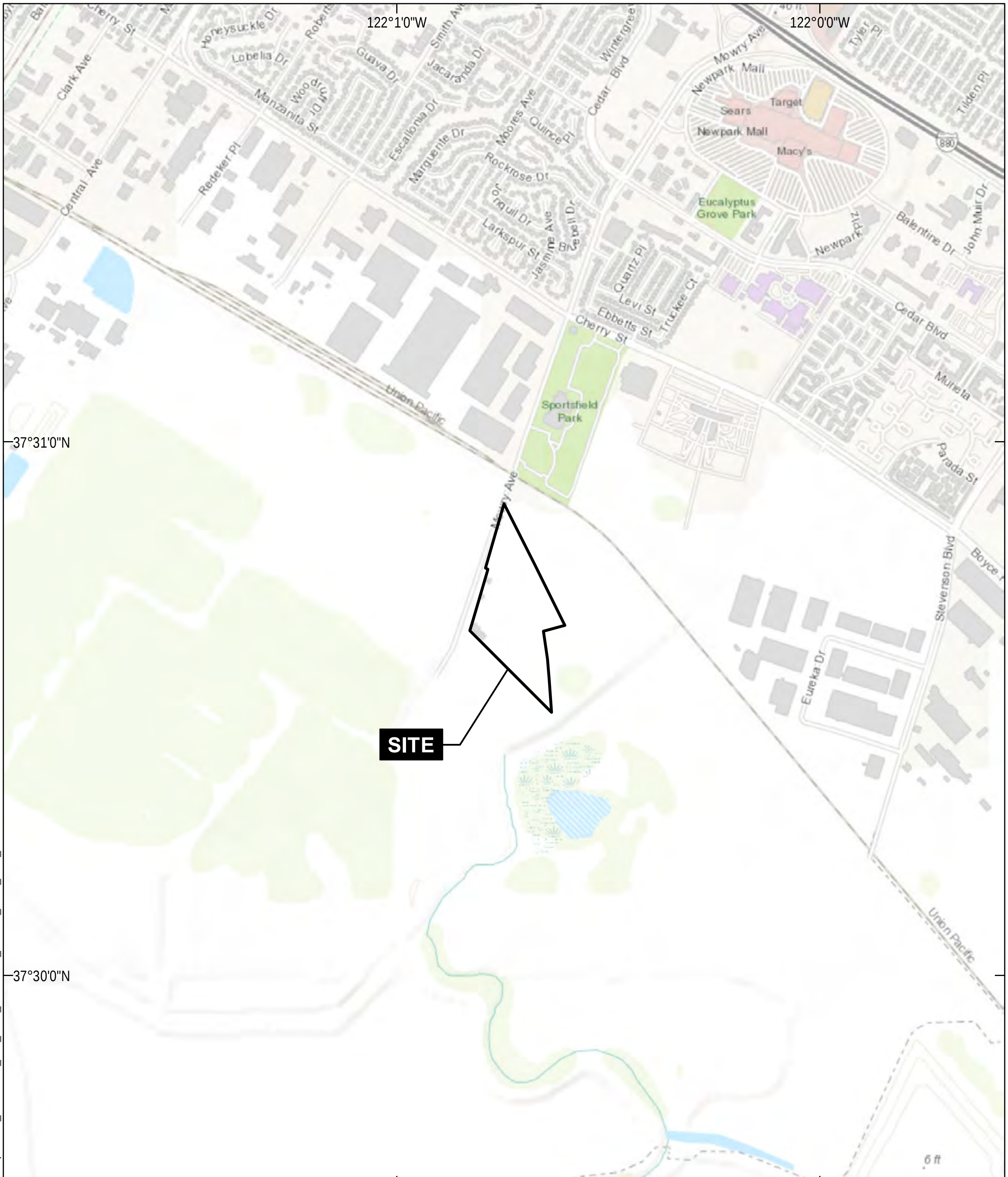
TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
PICK-N-PULL PHASE II
NEWARK, CA

Location Group	Action Level												
Location	STATE-CA-ESL-WG-TIER1	GW-01	GW-02	GW-03	GW-04	GW-05	GW-06	GW-07	GW-08	GW-09	GW-11	GW-12	GW-13
Sample Date		01/04/2019	01/02/2019	01/02/2019	01/02/2019	01/03/2019	01/03/2019	01/02/2019	01/03/2019	01/03/2019	01/04/2019	01/04/2019	01/04/2019
Sample Type		Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Carbon tetrachloride	0.22	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379	< 0.379
Chlorobenzene	25	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348	< 0.348
Chloroethane	16	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453	< 0.453
Chloroform (Trichloromethane)	2.3	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324	< 0.324
Chloromethane (Methyl Chloride)	190	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276	< 0.276
cis-1,2-Dichloroethene	6	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260	< 0.260
cis-1,3-Dichloropropene	--	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418	< 0.418
Cymene (p-Isopropyltoluene)	--	< 0.350	< 0.350	< 0.350	< 0.350	< 0.350	**4.25**	< 0.350	< 0.350	< 0.350	< 0.350	< 0.350	< 0.350
Dibromochloromethane	46	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327	< 0.327
Dibromomethane	--	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346	< 0.346
Dichlorodifluoromethane (CFC-12)	--	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551	< 0.551
Diisopropyl ether (DIPE)	--	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320	< 0.320
Ethylbenzene	13	**2.73**	< 0.384	< 0.384	< 0.384	< 0.384	**180**	< 0.384	< 0.384	< 0.384	< 0.384	< 0.384	< 0.384
Hexachlorobutadiene	0.14	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256	< 0.256
Isopropylbenzene (Cumene)	--	< 0.326	< 0.326	< 0.326	< 0.326	< 0.326	**8.84**	< 0.326	< 0.326	< 0.326	< 0.326	< 0.326	< 0.326
Methyl Tert Butyl Ether	5	**7.16**	< 0.367	**0.704 J**	< 0.367	**1.11**	**0.378 J**	< 0.367	**3.36**	< 0.367	< 0.367	< 0.367	< 0.367
Methylene chloride	5	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Naphthalene	0.17	**1.08 J**	< 1.00	< 1.00	< 1.00	< 1.00	**8.08**	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
n-Butylbenzene	--	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361	< 0.361
n-Propylbenzene	--	**1.39**	< 0.349	< 0.349	< 0.349	< 0.349	**32.1**	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349	< 0.349
Styrene	10	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307	< 0.307
tert-Butylbenzene	--	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399	< 0.399
Tetrachloroethene	3	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372	< 0.372
Toluene	40	**5.16**	< 0.412	< 0.412	< 0.412	**1.34**	< 0.412	< 0.412	< 0.412	**0.462 J**	< 0.412	< 0.412	< 0.412
trans-1,2-Dichloroethene	10	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396	< 0.396
trans-1,3-Dichloropropene	--	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419	< 0.419
Trichloroethene	5	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398	< 0.398
Trichlorofluoromethane (CFC-11)	--	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20
Trifluorotrichloroethane (Freon 113)	--	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303	< 0.303
Vinyl chloride	0.061	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259	< 0.259
Xylene (total)	20	**17.6**	< 1.06	< 1.06	< 1.06	< 1.06	**929**	< 1.06	< 1.06	< 1.06	< 1.06	< 1.06	< 1.06

Notes:
Data is reported to the method detection limit (< MDL).
Detected results are **bolded.**
Highlighted results exceed the Tier 1 Soil ESL.
Orange highlighted results exceed the Tier 1 Soil ESL.
Green highlightd results indicate the method detection limit is below the Tier 1 Soil ESL.

Note 3 states that TPH motor oil is not soluble. TPH motor oil detections in water most likely are petroleum degradates or less likely NAPL. If the detections are degradates, add TPH motor oil and TPH diesel results and compare to the TPH diesel criterion. See User's Guide Cahpter 9 for further information.

FIGURES



MAP SOURCE: ESRI
SITE COORDINATES: 37°30'18"N, 122°0'54"W

HALEY ALDRICH

ASTM PHASE I ENVIRONMENTAL SITE ASSESSMENT
7400 MOWRY AVENUE
NEWARK, CALIFORNIA

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
MAY 2018

FIGURE 1

GIS FILE PATH: G:\131942_Mowry_Road\GIS\Maps\2018_05\131942_002_0001_PROJECT_LOCUS_PICK_AND_PULL.mxd — USER: ibruce — LAST SAVED: 5/18/2018 3:04:50 PM

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LEGEND

SITE BOUNDARY

PARCEL BOUNDARY

NOTES
1. HISTORICAL SAMPLING DATA SOURCE: 2007, CORNERSTONE EARTH GROUP
2. AERIAL IMAGERY SOURCE: ESRI
3. PARCEL SOURCE: ALAMEDA COUNTY

0 175 350
SCALE IN FEET

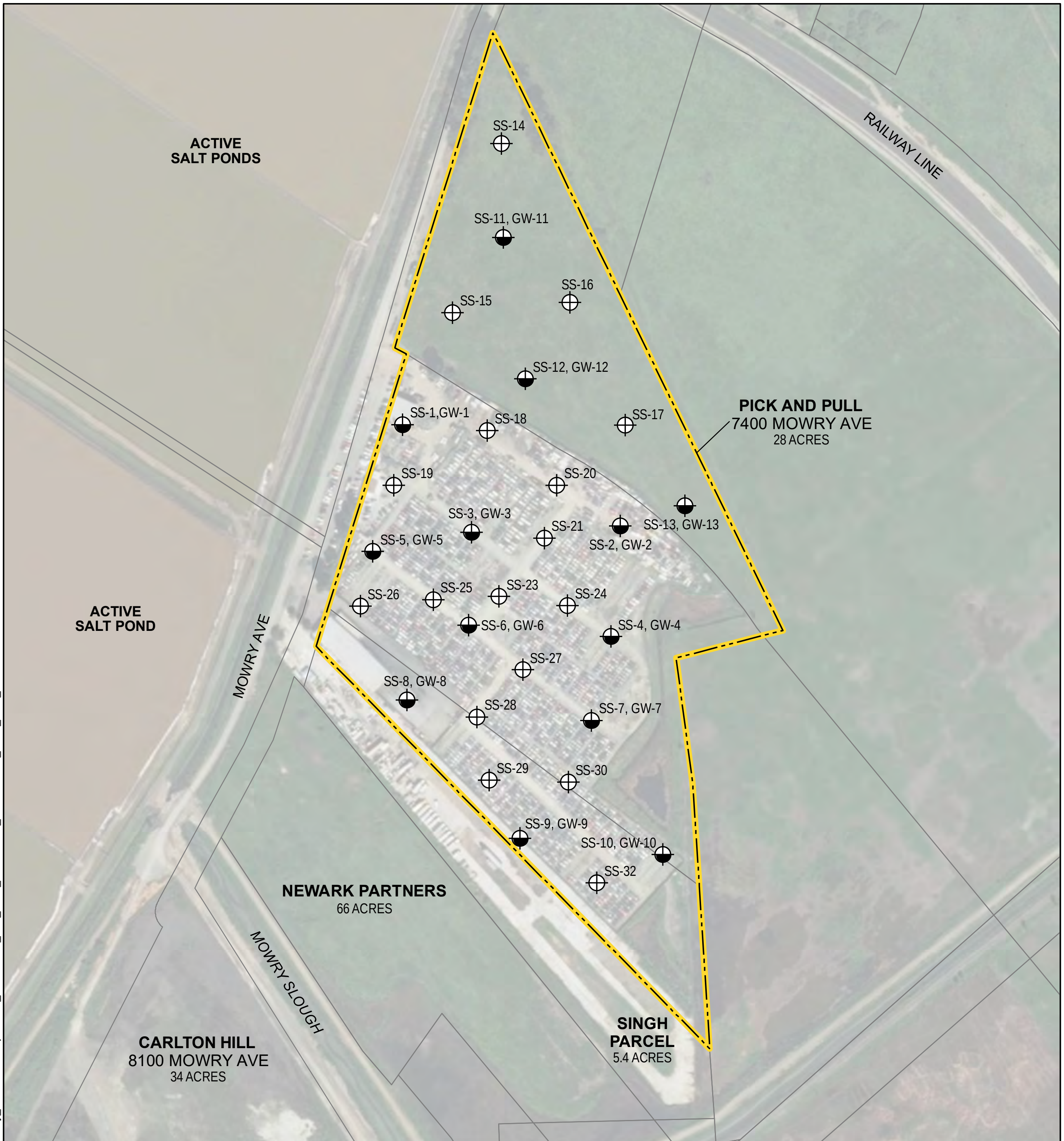
HALEY ALDRICH

ASTM PHASE II ENVIRONMENTAL SITE ASSESSMENT WORK PLAN
7400 MOWRY AVENUE
NEWARK, CALIFORNIA

SITE PLAN

JANUARY 2019

FIGURE 2



LEGEND

- SHALLOW SOIL SAMPLE
- SOIL AND GROUNDWATER SAMPLE
- SITE BOUNDARY
- PARCEL BOUNDARY

N

0 175 350

SCALE IN FEET

NOTES
1. HISTORICAL SAMPLING DATA SOURCE: 2007, CORNERSTONE EARTH GROUP
2. AERIAL IMAGERY SOURCE: ESRI
3. PARCEL SOURCE: ALAMEDA COUNTY

HALEY ALDRICH

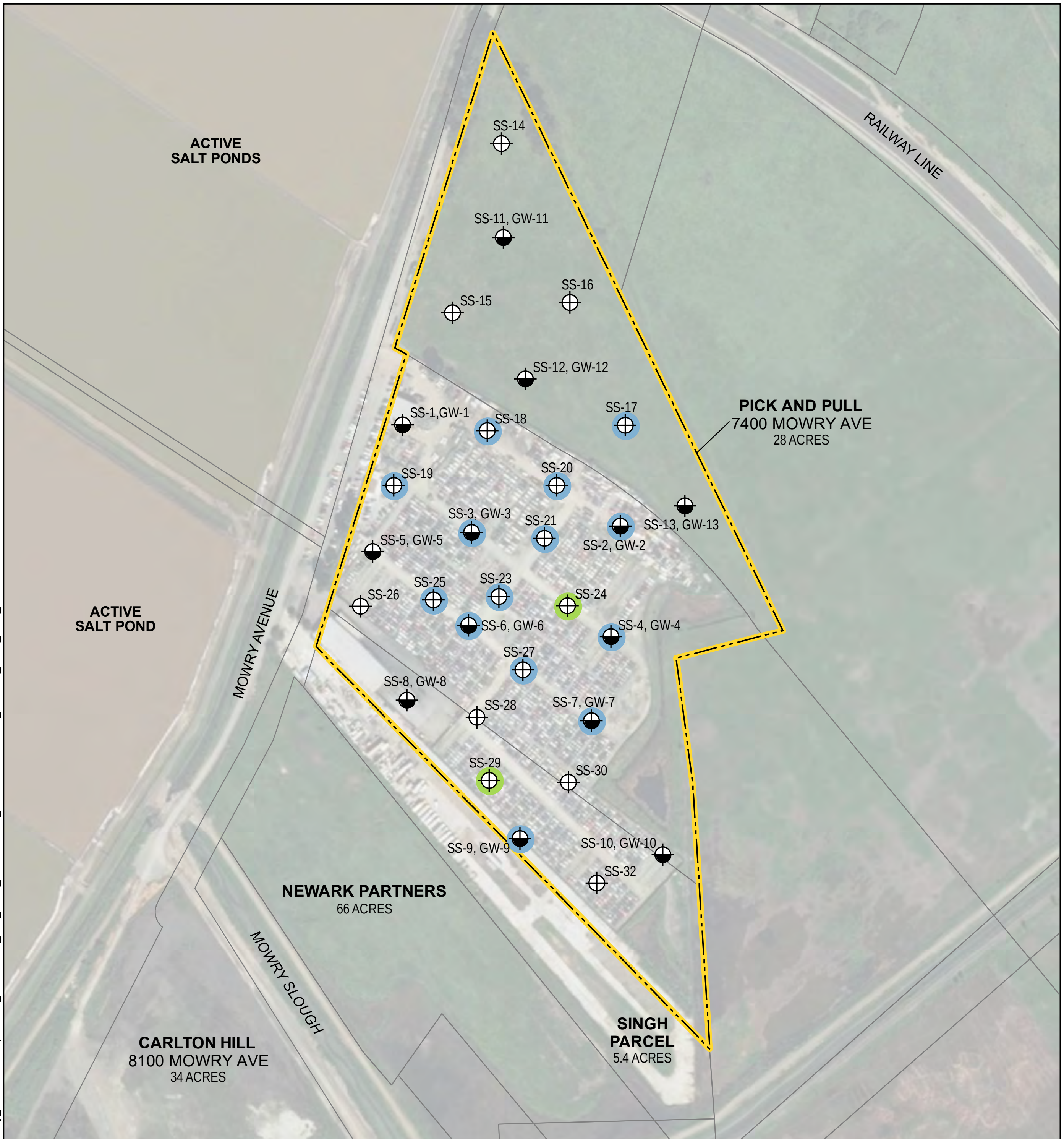
ASTM PHASE II ENVIRONMENTAL SITE ASSESSMENT WORK PLAN
7400 MOWRY AVENUE
NEWARK, CALIFORNIA

SAMPLING LOCATIONS

JANUARY 2019

FIGURE 3

GIS FILE PATH: \\haleyaldrich.com\share\oak_common\131942_Mowry_Road\GIS\Maps\2019_01\131942_002_0002_SAMPLING_LOCATIONS_PICK_AND_PULL.mxd — USER: hwachholz — LAST SAVED: 1/15/2019 3:13:54 PM



LEGEND

SHALLOW SOIL SAMPLE

SOIL AND GROUNDWATER SAMPLE

TPHd AND LEAD CONCENTRATION ABOVE TIER 1 ESL

TPHd CONCENTRATION ABOVE TIER 1 ESL

SITE BOUNDARY

PARCEL BOUNDARY

N

0 175 350

SCALE IN FEET

HALEY ALDRICH

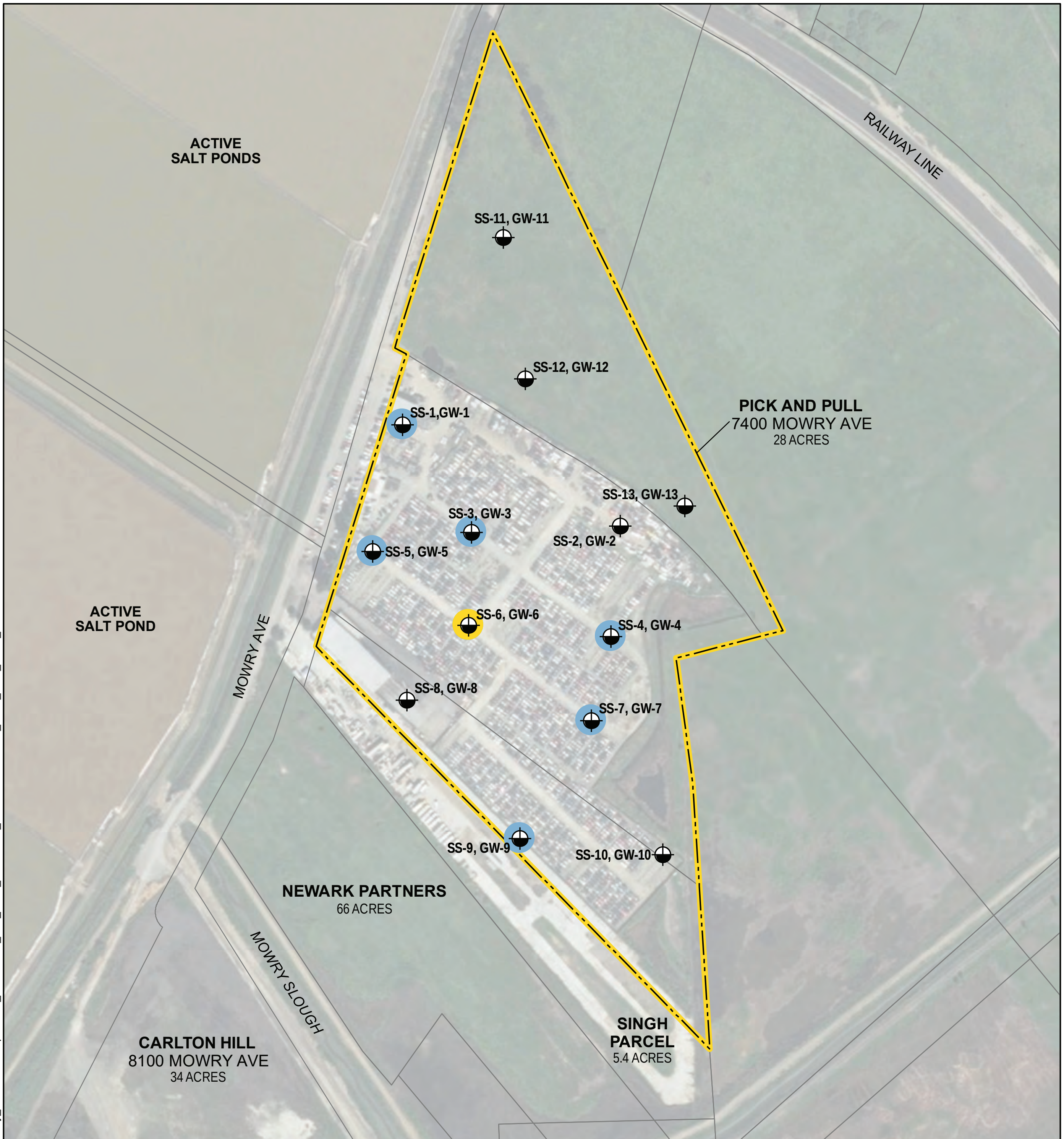
ASTM PHASE II ENVIRONMENTAL SITE ASSESSMENT WORK PLAN
7400 MOWRY AVENUE
NEWARK, CALIFORNIA

TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND LEAD IN SOIL

JANUARY 2019

FIGURE 4

GIS FILE PATH: \\haleyaldrich.com\share\oak_common\131942_Mowry_Road\GIS\Maps\2019_01\131942_002_0004_PETROLEUM_HYDROCARBONS_DIESEL_PICK_AND_PULL.mxd — USER: hwachholz — LAST SAVED: 1/16/2019 4:36:16 PM



LEGEND

SOIL AND GROUNDWATER SAMPLE

BENZENE AND ETHYLBENZENE CONCENTRATION ABOVE TIER 1 ESL

TPHd CONCENTRATION ABOVE TIER 1 ESL

SITE BOUNDARY

PARCEL BOUNDARY

N

0 175 350

SCALE IN FEET

NOTES

1. HISTORICAL SAMPLING DATA SOURCE: 2007, CORNERSTONE EARTH GROUP
2. PARCEL SOURCE: ALAMEDA COUNTY
3. AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

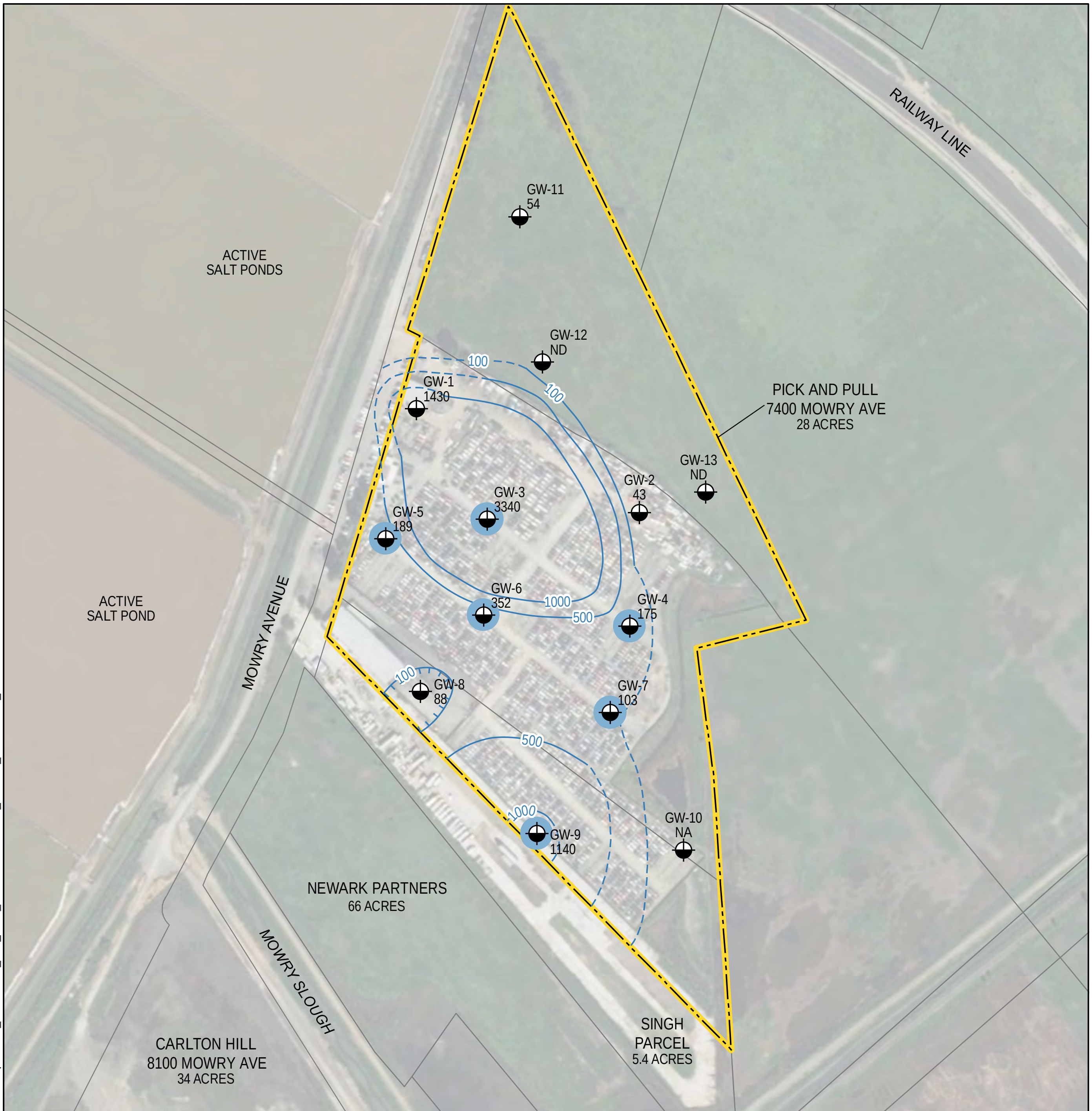
ASTM PHASE II ENVIRONMENTAL SITE ASSESSMENT WORK PLAN
7400 MOWRY AVENUE
NEWARK, CALIFORNIA

TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

JANUARY 2019

FIGURE 5

GIS FILE PATH: \\haleyaldrich.com\share\oak_common\131942_Mowry_Road\GIS\Maps\2019_01\131942_002_0005_VOLATILE_HYDROCARBONS_PICK_AND_PULL_.mxd — USER: hwachholz — LAST SAVED: 1/16/2019 4:43:35 PM



LEGEND

GRAB GROUNDWATER SAMPLE

TPHd CONCENTRATION ABOVE TIER 1 ESL

INFERRED ISOCONTOUR LINE, INDICATING TPHd CONCENTRATION IN MICROGRAMS PER LITER (µg/L)

ISOCONTOUR LINE, INDICATING TPHd CONCENTRATION IN MICROGRAMS PER LITER (µg/L)

SITE BOUNDARY

PARCEL BOUNDARY

N

0 175 350

SCALE IN FEET

NOTES

1. HISTORICAL SAMPLING DATA SOURCE: 2007, CORNERSTONE EARTH GROUP
2. PARCEL SOURCE: ALAMEDA COUNTY
3. AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

ASTM PHASE II ENVIRONMENTAL SITE ASSESSMENT WORK PLAN
7400 MOWRY AVENUE
NEWARK, CALIFORNIA

CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS AS DIESEL IN GROUNDWATER

JANUARY 2019

FIGURE 6

APPENDIX A

Limitations
Professional Services Agreement dated 30 July 2018

APPENDIX B

Historical Research Documentation

APPENDIX C

Regulatory Records Documentation

APPENDIX D

Subject Site Photographs

APPENDIX E

Laboratory Analytical Results

Appendix G

Noise Modeling

M1

Site Survey

Job # IPG-35	Project Name: Mowry Village

Date: 4/30/19	Site #:	Engineer: Martin Rolph

Address:

LD Meter: LXT1	Serial #: 0001013	Calibrator: CAL150	Serial #: 5529

Notes: Noise from Pick-n-Pull (off-road equipment, backup alarms)
Acft on approach to SFO ~2 minute intervals
1 Train (commuter)

Sketch:

Temp: 59°F	Wind Spd: 7 mph	mph	Humidity: 61 %

Start of Measurement: 9:23	End of Measurement: 9:38	48.5 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
Noise Measurement for Information Only		
No Through Roadways		
No Calibration Analysis Will Be Provided		

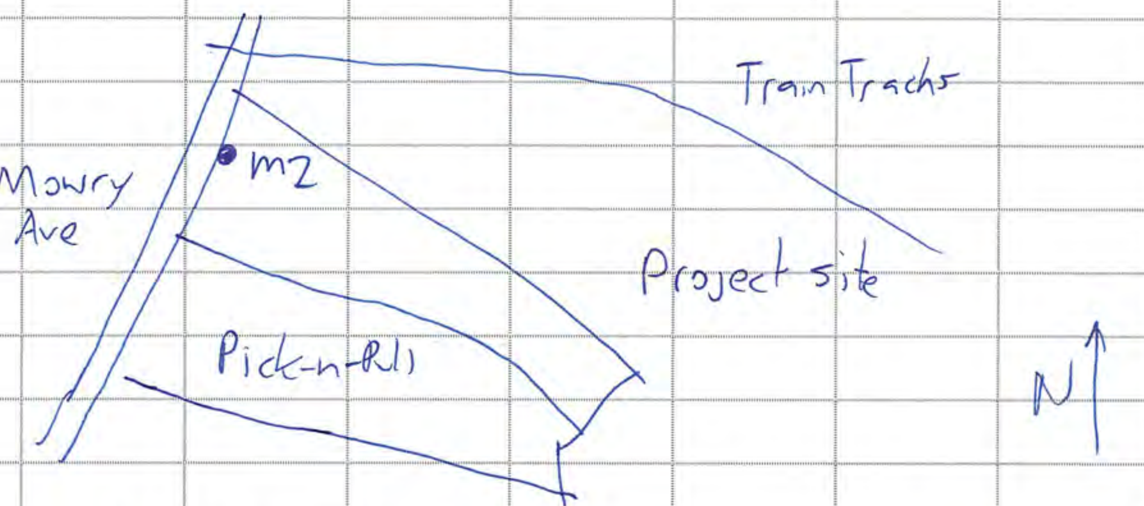
M2

Site Survey

Job # 1P2-35	Project Name: Mowry Village		
Date: 4/30/19	Site #:	Engineer: Martin Rolph	
Address:			
Meter: LD LXT1	Serial #: 1013	Calibrator: CAL150	Serial #: 5529

Notes: Noise from Pick-n-Pull operation (off-road equipment, backup Alm)
Acft on approach to SFO ~ 2-4 minute intervals
3 commuter trains

Sketch:



Temp:	61°F	Wind Spd:	8 mph	mph Humidity:	59 %
Start of Measurement:	9:46	End of Measurement:	10:01		58.4 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
~~𝍸 𝍸 1~~	11	111
60 cars	2 medium trucks	3 HD trucks
Noise Measurement for Information Only		
No Through Roadways		
No Calibration Analysis Will Be Provided		

TNM Traffic Input

Intersection Turn Counts from Traffic Study													
Existing (2019) Condition PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Mowry Avenue	Cherry Street	64	146	42	91	82	342	506	640	53	27	1101	288
Mowry Avenue	Cedar Blvd	91	768	148	267	419	309	207	351	48	149	432	173
Mowry Avenue	Alpenrose Court	43	1023	84	448	910	13	88	12	35	78	12	251
Mowry Avenue	I-880 Southbound Ramps	0	1230	351	0	1047	523	559	0	354	0	0	0
Mowry Avenue	I-880 Northbound Ramps	0	1404	376	0	1276	462	0	0	0	297	0	940
Central Avenue	Cherry Street	19	331	648	186	127	61	88	353	10	442	578	463
Stevenson Blvd	Cherry St	119	356	134	163	70	152	220	482	13	38	1166	416

Project Trips PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Mowry Avenue	Cherry Street	9	18	9	0	56	0	0	0	28	27	0	0
Mowry Avenue	Cedar Blvd	0	18	0	0	56	0	0	0	0	0	0	0
Mowry Avenue	Alpenrose Court	0	15	3	0	47	0	0	0	0	9	0	0
Mowry Avenue	I-880 Southbound Ramps	0	8	7	0	30	0	0	0	17	0	0	0
Mowry Avenue	I-880 Northbound Ramps	0	3	0	0	9	0	0	0	0	21	0	0
Central Avenue	Cherry Street	0	0	2	10	0	0	0	16	0	1	5	3
Stevenson Blvd	Cherry St	0	0	0	0	0	13	4	5	0	0	14	0

Existing Plus Project PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Mowry Avenue	Cherry Street	73	164	51	91	138	342	506	640	81	54	1101	288
Mowry Avenue	Cedar Blvd	91	786	148	267	475	309	207	351	48	149	432	173
Mowry Avenue	Alpenrose Court	43	1038	87	448	957	13	88	12	35	87	12	251
Mowry Avenue	I-880 Southbound Ramps	0	1238	358	0	1077	523	559	0	371	0	0	0
Mowry Avenue	I-880 Northbound Ramps	0	1407	376	0	1285	462	0	0	0	318	0	940
Central Avenue	Cherry Street	19	331	650	196	127	61	88	369	10	443	583	466
Stevenson Blvd	Cherry St	119	356	134	163	70	165	224	487	13	38	1180	416

2040 No Project PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Mowry Avenue	Cherry Street	100	220	60	250	130	520	770	1150	80	50	1830	520
Mowry Avenue	Cedar Blvd	160	1230	230	430	720	470	320	560	100	230	680	280
Mowry Avenue	Alpenrose Court	70	1590	170	680	1430	20	130	20	50	180	20	380
Mowry Avenue	I-880 Southbound Ramps	0	1910	540	0	1630	800	850	0	550	0	0	0
Mowry Avenue	I-880 Northbound Ramps	0	2170	570	0	1970	700	0	0	0	460	0	1430
Central Avenue	Cherry Street	30	500	1000	360	190	90	130	610	20	680	950	770
Stevenson Blvd	Cherry St	300	740	250	250	420	380	590	770	170	130	1820	630

2040 Plus Project PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Mowry Avenue	Cherry Street	109	238	69	250	186	520	770	1150	108	77	1830	520
Mowry Avenue	Cedar Blvd	160	1248	230	430	776	470	320	560	100	230	680	280
Mowry Avenue	Alpenrose Court	70	1605	173	680	1477	20	130	20	50	189	20	380
Mowry Avenue	I-880 Southbound Ramps	0	1918	547	0	1660	800	850	0	567	0	0	0
Mowry Avenue	I-880 Northbound Ramps	0	2173	570	0	1979	700	0	0	0	481	0	1430
Central Avenue	Cherry Street	30	500	1002	370	190	90	130	626	20	681	955	773
Stevenson Blvd	Cherry St	300	740	250	250	420	393	594	775	170	130	1834	630

TNM Street Segment Traffic Input								
Mowry	Peak Hr	Car	MDT	HDT	Width	Speed	NSLU	Distance
Project to Cherry	414	402	12	4	75	35	Rec	170
Cherry St. to Cedar Blvd.	1556	1509	47	16	80	35	Res	50
Cedar Blvd. to Alpenrose Ct.	2171	2106	65	22	105	35	Com	80
Alpenrose Ct. to I-880	2763	2680	83	28	105	35	Res	120
Cherry								
Central Ave. to Mowry Ave.	2694	2613	81	27	75	45	Res	45
Mowry Ave. to Stephenson Blvd.	2210	2144	66	22	105	45	Res	55
Project Trips PM								
Mowry	Peak Hr	Car	MDT	HDT	Width	Speed	NSLU	Distance
Project to Cherry	147	143	4	1	75	35	Rec	170
Cherry St. to Cedar Blvd.	74	72	2	1	80	35	Res	50
Cedar Blvd. to Alpenrose Ct.	74	72	2	1	105	35	Com	80
Alpenrose Ct. to I-880	62	60	2	1	105	35	Res	120
Cherry								
Central Ave. to Mowry Ave.	37	36	1	0	75	45	Res	45
Mowry Ave. to Stephenson Blvd.	36	35	1	0	105	45	Res	55
Existing Plus Project PM								
Mowry	Peak Hr	Car	MDT	HDT	Width	Speed	NSLU	Distance
Project to Cherry	561	544	17	6	75	35	Rec	170
Cherry St. to Cedar Blvd.	1630	1581	49	16	80	35	Res	50
Cedar Blvd. to Alpenrose Ct.	2245	2178	67	22	105	35	Com	80
Alpenrose Ct. to I-880	2825	2740	85	28	105	35	Res	120
Cherry								
Central Ave. to Mowry Ave.	2731	2649	82	27	75	45	Res	45
Mowry Ave. to Stephenson Blvd.	2246	2179	67	22	105	45	Res	55
2040 No Project PM								
Mowry	Peak Hr	Car	MDT	HDT	Width	Speed	NSLU	Distance
Project to Cherry	640	621	19	6	75	35	Rec	170
Cherry St. to Cedar Blvd.	2560	2483	77	26	80	35	Res	50
Cedar Blvd. to Alpenrose Ct.	3490	3385	105	35	105	35	Com	80
Alpenrose Ct. to I-880	4280	4152	128	43	105	35	Res	120
Cherry								
Central Ave. to Mowry Ave.	4420	4287	133	44	75	45	Res	45
Mowry Ave. to Stephenson Blvd.	3960	3841	119	40	105	45	Res	55
2040 Plus Project PM								
Mowry	Peak Hr	Car	MDT	HDT	Width	Speed	NSLU	Distance
Project to Cherry	787	763	24	8	75	35	Rec	170
Cherry St. to Cedar Blvd.	2634	2555	79	26	80	35	Res	50
Cedar Blvd. to Alpenrose Ct.	3564	3457	107	36	105	35	Com	80
Alpenrose Ct. to I-880	4342	4212	130	43	105	35	Res	120
Cherry								
Central Ave. to Mowry Ave.	4457	4323	134	45	75	45	Res	45
Mowry Ave. to Stephenson Blvd.	3996	3876	120	40	105	45	Res	55

Federal Transit Administration
Noise Impact Assessment Spreadsheet

version: 1/29/2019

Project:	**Mowry Village East Residence**

Project Results Summary

Existing Ldn:	65 dBA
Total Project Ldn:	64 dBA
Total Noise Exposure:	68 dBA
Increase:	3 dB
Impact?:	**Moderate**

Distance to Impact Contours

Dist to Mod. Impact Contour:	---
Dist to Sev. Impact Contour:	---

Receiver Parameters	
Receiver:	**Receiver 1**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	**65 dBA**

Noise Source Parameters	
Number of Noise Sources:	**6**

Noise Source Parameters		**Source 1**
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	**Avg. Number of Locos/train**	1
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	**Avg. Number of Locos/train**	1
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	**Distance from Source to Receiver (ft)**	480
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 1 Results

Leq(day):	43.3 dBA
Leq(night):	35.1 dBA
Ldn:	44.1 dBA

Noise Source Parameters		**Source 2**
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	**Avg. Number of Rail Cars/train**	6
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	**Avg. Number of Rail Cars/train**	3
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	**Distance from Source to Receiver (ft)**	480
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No
	Embedded Track?	Yes
	Aerial Structure?	No

Source 2 Results

Leq(day):	44.1 dBA
Leq(night):	32.9 dBA
Ldn:	43.7 dBA
Incremental Ldn (Src 1-2):	46.9 dBA

Noise Source Parameters		**Source 3**
	Source Type:	Fixed Guideway
	Specific Source:	Transit warning device
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	**Distance from Source to Receiver (ft)**	580
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 3 Results

Leq(day):	43.8 dBA
Leq(night):	37.9 dBA
Ldn:	45.8 dBA
Incremental Ldn (Src 1-3):	49.4 dBA

Noise Source Parameters		Source 4
	Source Type:	Fixed Guideway
	Specific Source:	Locomotive Warning Horn
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	Distance from Source to Receiver (ft)	480
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 4 Results

Leq(day):	62.0 dBA
Leq(night):	56.1 dBA
Ldn:	64.0 dBA
Incremental Ldn (Src 1-4):	64.2 dBA

Noise Source Parameters		Source 5
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	480
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 5 Results

Leq(day):	40.0 dBA
Leq(night):	39.1 dBA
Ldn:	45.6 dBA
Incremental Ldn (Src 1-5):	64.2 dBA

Noise Source Parameters		Source 6
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	Avg. Number of Rail Cars/train	50
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Rail Cars/train	50
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	480
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	
	Embedded Track?	Yes
	Aerial Structure?	

Source 6 Results

Leq(day):	44.0 dBA
Leq(night):	43.1 dBA
Ldn:	49.7 dBA
Incremental Ldn (Src 1-6):	64.4 dBA

Federal Transit Administration
Noise Impact Assessment Spreadsheet

version: 1/29/2019

Project:	**Mowry Village East Residence**

Receiver Parameters	
Receiver:	**Receiver 1**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	**65 dBA**

Noise Source Parameters	
Number of Noise Sources:	**6**

Noise Source Parameters		Source 1
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	**Avg. Number of Locos/train**	1
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	**Avg. Number of Locos/train**	1
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	**Distance from Source to Receiver (ft)**	975
	Number of Intervening Rows of Buildings	0
Adjustments		

Noise Source Parameters		Source 2
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	**Avg. Number of Rail Cars/train**	6
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	**Avg. Number of Rail Cars/train**	3
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	**Distance from Source to Receiver (ft)**	975
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No
	Embedded Track?	Yes
	Aerial Structure?	No

Noise Source Parameters		Source 3
	Source Type:	Fixed Guideway
	Specific Source:	Transit warning device
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	**Distance from Source to Receiver (ft)**	1730
	Number of Intervening Rows of Buildings	0
Adjustments		

Project Results Summary

Existing Ldn:	65 dBA
Total Project Ldn:	59 dBA
Total Noise Exposure:	66 dBA
Increase:	1 dB
Impact?:	None

Distance to Impact Contours

Dist to Mod. Impact Contour:	---
Dist to Sev. Impact Contour:	---

Source 1 Results

Leq(day):	38.7 dBA
Leq(night):	30.5 dBA
Ldn:	39.5 dBA

Source 2 Results

Leq(day):	39.5 dBA
Leq(night):	28.2 dBA
Ldn:	39.1 dBA
Incremental Ldn (Src 1-2):	42.3 dBA

Source 3 Results

Leq(day):	36.7 dBA
Leq(night):	30.7 dBA
Ldn:	38.7 dBA
Incremental Ldn (Src 1-3):	43.9 dBA

Noise Source Parameters		Source 4
	Source Type:	Fixed Guideway
	Specific Source:	Locomotive Warning Horn
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	Distance from Source to Receiver (ft)	1000
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 4 Results

Leq(day):	57.3 dBA
Leq(night):	51.3 dBA
Ldn:	59.3 dBA
Incremental Ldn (Src 1-4):	59.4 dBA

Noise Source Parameters		Source 5
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	975
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 5 Results

Leq(day):	35.3 dBA
Leq(night):	34.5 dBA
Ldn:	41.0 dBA
Incremental Ldn (Src 1-5):	59.4 dBA

Noise Source Parameters		Source 6
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	Avg. Number of Rail Cars/train	25
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Rail Cars/train	25
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	975
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	
	Embedded Track?	Yes
	Aerial Structure?	

Source 6 Results

Leq(day):	36.4 dBA
Leq(night):	35.5 dBA
Ldn:	42.1 dBA
Incremental Ldn (Src 1-6):	59.5 dBA

Federal Transit Administration
Noise Impact Assessment Spreadsheet

version: 1/29/2019

Project:	Mowry Village Lot 204

Project Results Summary

Existing Ldn:	67 dBA
Total Project Ldn:	67 dBA
Total Noise Exposure:	70 dBA
Increase:	3 dB
Impact?:	Moderate

Distance to Impact Contours

Dist to Mod. Impact Contour:	---
Dist to Sev. Impact Contour:	---

Receiver Parameters	
Receiver:	Project Lot 204
Land Use Category:	2. Residential
Existing Noise (Measured or Generic Value):	67 dBA

Noise Source Parameters	
Number of Noise Sources:	6

Noise Source Parameters		Source 1
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	Avg. Number of Locos/train	1
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	Avg. Number of Locos/train	1
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	300
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 1 Results

Leq(day):	46.4 dBA
Leq(night):	38.2 dBA
Ldn:	47.1 dBA

Noise Source Parameters		Source 2
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	Avg. Number of Rail Cars/train	6
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	Avg. Number of Rail Cars/train	3
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	300
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No
	Joint Track/Crossover?	No
	Embedded Track?	Yes
	Aerial Structure?	No

Source 2 Results

Leq(day):	47.2 dBA
Leq(night):	35.9 dBA
Ldn:	46.8 dBA
Incremental Ldn (Src 1-2):	50.0 dBA

Noise Source Parameters		Source 3
	Source Type:	Fixed Guideway
	Specific Source:	Transit warning device
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	Distance from Source to Receiver (ft)	295
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 3 Results

Leq(day):	48.2 dBA
Leq(night):	42.3 dBA
Ldn:	50.2 dBA
Incremental Ldn (Src 1-3):	53.1 dBA

Noise Source Parameters		Source 4
	Source Type:	Fixed Guideway
	Specific Source:	Locomotive Warning Horn
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	Distance from Source to Receiver (ft)	300
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 4 Results

Leq(day):	65.1 dBA
Leq(night):	59.2 dBA
Ldn:	67.1 dBA
Incremental Ldn (Src 1-4):	67.3 dBA

Noise Source Parameters		Source 5
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	300
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 5 Results

Leq(day):	43.0 dBA
Leq(night):	42.1 dBA
Ldn:	48.7 dBA
Incremental Ldn (Src 1-5):	67.3 dBA

Noise Source Parameters		Source 6
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	Avg. Number of Rail Cars/train	25
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Rail Cars/train	25
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	300
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	
	Joint Track/Crossover?	
	Embedded Track?	Yes
	Aerial Structure?	

Source 6 Results

Leq(day):	44.1 dBA
Leq(night):	43.2 dBA
Ldn:	49.7 dBA
Incremental Ldn (Src 1-6):	67.4 dBA

Federal Transit Administration
Noise Impact Assessment Spreadsheet

version: 1/29/2019

Project:	SPA LT1

Project Results Summary

Existing Ldn:	70 dBA
Total Project Ldn:	74 dBA
Total Noise Exposure:	76 dBA
Increase:	6 dB
Impact?:	Severe

Distance to Impact Contours

Dist to Mod. Impact Contour:	---
Dist to Sev. Impact Contour:	---

Receiver Parameters		
	Receiver:	Measurement Location LT-1
	Land Use Category:	2. Residential
	Existing Noise (Measured or Generic Value):	70 dBA

Noise Source Parameters		
	Number of Noise Sources:	6

Noise Source Parameters		Source 1
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	Avg. Number of Locos/train	1
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	Avg. Number of Locos/train	1
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 1 Results

Leq(day):	53.6 dBA
Leq(night):	45.3 dBA
Ldn:	54.3 dBA

Noise Source Parameters		Source 2
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	Avg. Number of Rail Cars/train	6
	Speed (mph)	50
	Avg. Number of Events/hr	1.47
Nighttime hrs	Avg. Number of Rail Cars/train	3
	Speed (mph)	50
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No
	Joint Track/Crossover?	No
	Embedded Track?	No
	Aerial Structure?	No

Source 2 Results

Leq(day):	51.3 dBA
Leq(night):	40.1 dBA
Ldn:	50.9 dBA
Incremental Ldn (Src 1-2):	55.9 dBA

Noise Source Parameters		Source 3
	Source Type:	Fixed Guideway
	Specific Source:	Transit warning device
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	Distance from Source to Receiver (ft)	520
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 3 Results

Leq(day):	44.5 dBA
Leq(night):	38.6 dBA
Ldn:	46.5 dBA
Incremental Ldn (Src 1-3):	56.4 dBA

Noise Source Parameters		Source 4
	Source Type:	Fixed Guideway
	Specific Source:	Locomotive Warning Horn
Daytime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	1.73
Nighttime hrs		
	Speed (mph)	50
	Avg. Number of Events/hr	0.44
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 4 Results

Leq(day):	72.3 dBA
Leq(night):	66.3 dBA
Ldn:	74.3 dBA
Incremental Ldn (Src 1-4):	74.3 dBA

Noise Source Parameters		Source 5
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Locos/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments		

Source 5 Results

Leq(day):	50.2 dBA
Leq(night):	49.3 dBA
Ldn:	55.8 dBA
Incremental Ldn (Src 1-5):	74.4 dBA

Noise Source Parameters		Source 6
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	Avg. Number of Rail Cars/train	25
	Speed (mph)	40
	Avg. Number of Events/hr	0.27
Nighttime hrs	Avg. Number of Rail Cars/train	25
	Speed (mph)	40
	Avg. Number of Events/hr	0.22
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	
	Joint Track/Crossover?	
	Embedded Track?	No
	Aerial Structure?	

Source 6 Results

Leq(day):	48.2 dBA
Leq(night):	47.3 dBA
Ldn:	53.9 dBA
Incremental Ldn (Src 1-6):	74.4 dBA

Appendix H
Transportation Impact Analysis Report

Mowry Avenue Residential Development

Draft Transportation Impact Analysis Report

Prepared for:
City of Newark
37101 Newark Boulevard
Newark, CA 94560

September 2021

OK19-0311.00

FEHR PEERS

Table of Contents

Appendices

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1 INTRODUCTION

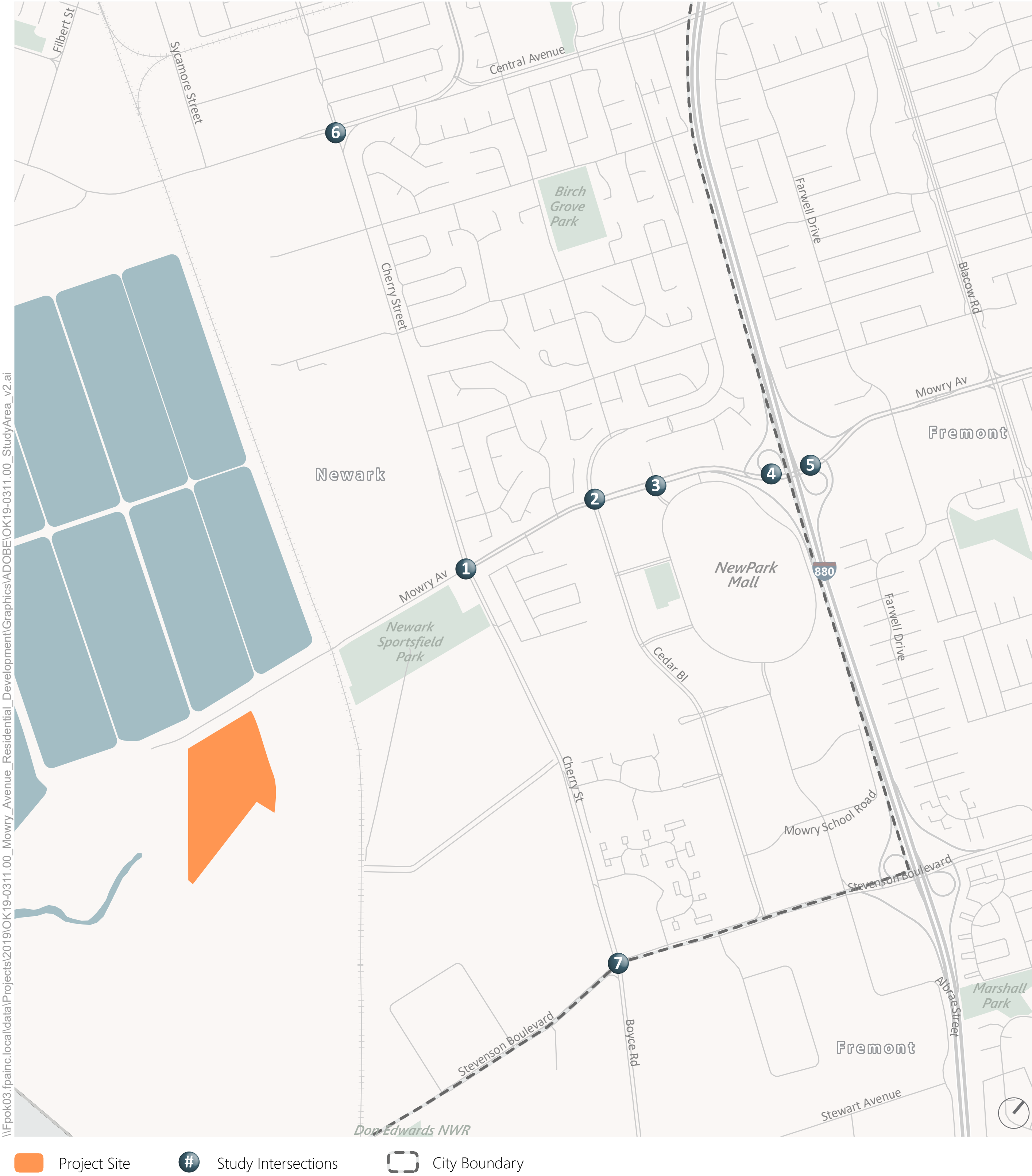
This report presents the analysis and findings of the Transportation Impact Analysis (TIA) for the Mowry Avenue Development Project (Project) located in the City of Newark. This chapter discusses the TIA purpose, analysis methods, criteria used to identify impacts, and report organization.

1.1. Study Purpose

This TIA evaluates the impacts of the proposed Project on transportation, consistent with the California Environmental Quality Act (CEQA) requirements, including an analysis of vehicle miles traveled (VMT). In addition, this TIA presents the effects of the proposed Project on traffic operations at study intersections and evaluates the proposed Project's access, circulation, and parking.

The Project site is in the City of Newark. The Project is located at 7400 Mowry Avenue, about 1,800 feet west of the at-grade Union Pacific railroad tracks on a site currently occupied by a Pick-n-Pull used auto parts store that would be demolished. Project site access would be provided via two access points on Mowry Avenue. **Figure 1** shows the Project site vicinity. The proposed Project would consist of 204 single-family residential units as shown on **Figure 2** (see ***Chapter 3: Project Characteristics*** for further details).

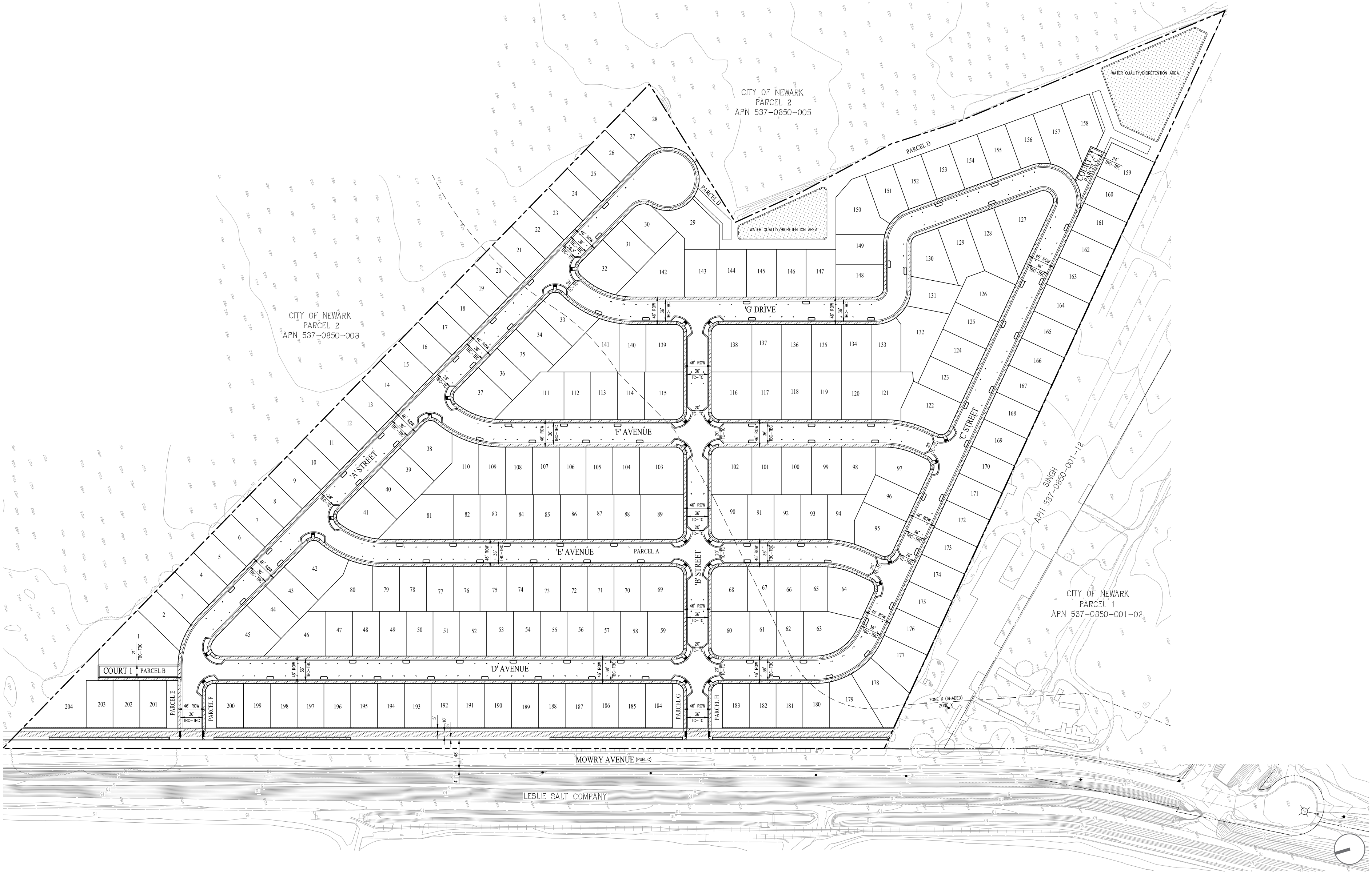
The Project site is part of the Newark Areas 3 and 4 Specific Plan. It is located in Sub Area D of the Specific Plan, which the Specific Plan assumed to be a golf course. The *Newark Areas 3 and 4 Specific Plan Recirculated Draft Environmental Impact Report* (SP REIR, August 2014) evaluated the impacts of the Specific Plan on the environment, including the transportation system. Since CEQA requirements for transportation analysis have changed since the SP EIR and the currently proposed Project is different from the assumptions used for the site in the SP REIR, this TIA evaluates the impacts of the proposed Project on the transportation network serving the site.



\\Fpok03.fpainc.local\data\Projects\2019\OK19-0311.00_Mowry_Avenue_Residential_Development\Graphics\ADOBE\OK19-0311.00_StudyArea_v2.ai

Figure 1

Project Area and Study Intersection Locations



Site Plan Source: Carlson, Barbee & Gibson, Inc.

Figure 2

Conceptual Project Site Plan

OK19-0311_2_SitePlan

1.2. Analysis Methods

This analysis considers two measures of the effects of the Project on the transportation network: vehicle miles traveled (VMT) and level of service (LOS).

1.2.1. Vehicle Miles Traveled

One performance measure used to quantify automobile travel is VMT. VMT refers to the amount and distance of automobile travel attributable to a Project. In 2013, Governor Brown signed Senate Bill (SB) 743, which added Public Resources Code Section 21099 to CEQA, to change the way that transportation impacts are analyzed in transit priority areas under CEQA to better align local environmental review with statewide objectives to reduce greenhouse gas (GHG) emissions, encourage infill mixed-use development in designated priority development areas, reduce regional sprawl development, and reduce VMT in California.

Increased VMT leads to various direct and indirect impacts to the environment and human health. Among other effects, increasing VMT on the roadway network leads to increased emissions of air pollutants, including GHGs, as well as increased consumption of energy. Transportation is associated with more GHG emissions than any other sector in California.

VMT is typically an output from travel demand models and is calculated based on the estimated number of vehicles multiplied by the distance traveled by each vehicle. This analysis uses total VMT per population, where VMT includes all automobile trips with an origin and/or destination within the analyzed geographic area generated on a typical weekday. Population is defined as the total number of residents in the analyzed geographic area.

This analysis uses the Alameda County Transportation Commission (CTC) Countywide Travel Demand Model to estimate VMT. The Model includes year 2020, which approximates existing conditions. The Bay Area regional average daily VMT per capita is 19.8 and the City of Newark citywide average daily VMT per capita is 22.8 under 2020 conditions.

1.2.2. Level of Service

The operations of roadway facilities are described with the term LOS. LOS is a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from

LOS A (free flow operating conditions) to LOS F (congested operating conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result, and operations are designated LOS F.

1.2.3. Signalized Intersections

Traffic conditions at signalized intersections were evaluated using methodologies proposed by the Transportation Research Board (TRB), as documented in the 2010 Highway Capacity Manual (2010 HCM) for vehicles. The HCM 2010 methods calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. These delay estimates are considered meaningful indicators of driver discomfort and frustration, fuel consumption, and lost travel time. The relationship between LOS and control delay is summarized in **Table 1**. This analysis calculates the average control delay using the Synchro 10 software package using the HCM 2010 methods.

Table 1: Intersection Level of Service Thresholds

Level of Service	Signalized Intersection Control Delay (sec/veh)[1]	General Description
A	≤10.0	Little to no congestion or delays.
B	>10.0 and ≤20.0	Limited congestion. Short delays.
C	>20.0 and ≤35.0	Some congestion with average delays.
D	>35.0 and ≤55.0	Significant congestion and delays.
E	>55.0 and ≤80.0	Severe congestion and delays.
F	> 80.0	Total breakdown with extreme delays.

Notes:

1. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.

Source: *Highway Capacity Manual,* Chapter 18 (Signalized Intersections) and Chapters 19 and 20 (Unsignalized Intersections), Transportation Research Board, 2010.

1.2.4. Significance Criteria

The following thresholds of significance are based on Appendix G to the CEQA Guidelines. The Project would have a significant impact on the environment if it would:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible land uses (e.g., farm equipment)
- Result in inadequate emergency access

Consistent with the California Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018), the following thresholds are used to determine if the proposed Project would have a significant impact on VMT:

- For residential uses, the Project would cause substantial additional VMT if it exceeds existing citywide household VMT per capita minus 15 percent.

1.2.5. Thresholds for Traffic Operations

Project changes to LOS cannot be considered a significant impact under CEQA but is included in this report as a non-CEQA effect[1] on the transportation network.

1.3. Report Organization

This report is divided into seven chapters as described below:

- **Chapter 1 – Introduction** discusses the purpose and organization of the report.
- **Chapter 2 – Existing Conditions** describes the transportation system in the Project vicinity, including the surrounding roadway network morning and evening peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.

[1] Since Project effects on traffic operations is not considered an environmental topic under CEQA, this report uses the terms "effect," "substantial," and "improvement," instead of "impact," "significant," and "mitigation" when discussing traffic operations and LOS results to differentiate between the CEQA and the non-CEQA analyses.

- **Chapter 3 – Project Characteristics** presents relevant Project information, including the Project components and Project trip generation, distribution, and assignment.
- **Chapter 4 – VMT Assessment** addresses the VMT with the Project and discusses VMT impacts.
- **Chapter 5 – Existing with Project Conditions** addresses the Existing conditions plus the Project and discusses non-CEQA Project vehicular effects.
- **Chapter 6 – Cumulative Conditions** addresses the long-term future condition, both without and with the Project, and discusses non-CEQA Project vehicular effects.
- **Chapter 7 – Site Plan Review** describes Project access and circulation for all travel modes and provides recommendations to improve site access.

2 EXISTING CONDITIONS

The existing transportation-related context in which the Project would be implemented is described below, beginning with a description of the study area and street. Existing transit, bicycle, and pedestrian facilities are also described.[2]

2.1. Existing Street and Highway System

The following describes both regional and local vehicular access to the Project site.

2.1.1. Regional Access

A brief description of the regional roadway network serving the City of Newark and the Project site is provided below. Average daily traffic volumes were obtained from Caltrans' Traffic Volumes on the State Highway System (2017).

Interstate 880 (I-880) also known as the Nimitz Freeway, extends in a north-south direction on the east side of the San Francisco Bay. It extends between Oakland in the north and San Jose in the south. I-880 is an eight-lane facility in the Project vicinity, with four lanes in each direction (three mixed-flow lanes and one High Occupancy Vehicle (HOV) lane). I-880 has an interchange at Mowry Avenue that provides access to the Project site. Near the study area the average daily traffic (ADT) volume is approximately 217,000 vehicles.

State Route (SR) 84 is a six-lane State highway approximately three miles northwest of the Project area. The Dumbarton Bridge crossing of the San Francisco Bay is designated SR 84. Two interchanges are provided which serve the City of Newark at Thornton Avenue and Newark Boulevard. This crossing is a toll road west of the Thornton Avenue interchange. Near the study area the ADT volume is approximately 68,000 vehicles.

2.1.2. Local Access

A brief description of the local and arterial streets serving the study area is provided below:

[2] The transportation context of the Project is described as of September 2019 or other dates as noted. Vehicle volumes and transit frequencies as of August 2021 are generally lower due to the COVID-19 pandemic, but are assumed to return to similar levels as September 2019 in the future.

2.1.3. North-South Roadways

Cedar Boulevard is a four-lane arterial that extends between Haley Street in the north and Stevenson Boulevard in the south. Near Mowry Avenue, Cedar Boulevard has an intermittent center median and Class II bike lanes and continuous sidewalks on both sides of the street. The speed limit along Cedar Boulevard is 35-40 miles per hour (mph).

Cherry Street is a four-lane arterial with a landscaped median or center two-way left turn lane and turn pockets. Class II bike lanes are provided for most of the street south of Central Avenue, although they are missing at several constraint points including the Mowry Avenue/Cherry Street intersection. Cherry Street provides connections to Fremont, and it becomes Boyce Road south of the Newark City limit. There are continuous sidewalks on both sides of the street. The posted speed limit is 45 mph south of Central Avenue, and 35 mph north of Central Avenue.

2.1.4. East-West Roadways

Mowry Avenue is a six-lane arterial between Cedar Boulevard and I-880, providing the main point of access to NewPark Mall and the Project site. Between Cedar Boulevard and Cherry Street, Mowry Avenue narrows to four lanes and is designated a Class III bike route. Between Cherry Street and the Union Pacific Railroad tracks, Mowry Avenue continues as a four-lane road with Class II bike lanes. West of the railroad tracks, Mowry Avenue is one lane in each direction with no designated bicycle facilities. There are continuous sidewalks on both sides of the street east of the railroad tracks. The posted speed limit on Mowry Avenue is 35 mph.

Central Avenue is a four-lane arterial between I-880 and Newark Boulevard with Class II bike lanes. This section has a posted speed limit of 45 miles per hour. West of Newark Boulevard, Central Avenue is designated a Class III bike route with posted speed limits between 40 and 45 mph. There are continuous sidewalks on both sides of the street.

Stevenson Boulevard is the southernmost east-west arterial in Newark. Stevenson Boulevard is a four-lane road with landscaped median with a speed limit of 40 mph. Class II bicycle lanes and continuous sidewalks are provided along the entire length of Stevenson Boulevard.

2.1.5. Traffic Operations Analysis Locations and Scenarios

The following seven intersections (shown on Figure 1) were selected for the non-CEQA traffic operations analysis based on an assessment of Project trip assignment:

1. Mowry Avenue/Cherry Street
2. Mowry Avenue/Cedar Boulevard
3. Mowry Avenue/Alpenrose Court
4. Mowry Avenue/I-880 Southbound Ramps
5. Mowry Avenue/I-880 Northbound Ramps
6. Cherry Street/Central Avenue
7. Cherry Street/Stevenson Boulevard

For this study, the following scenarios were evaluated for the peak hours during the typical weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods:

- ***Existing*** – Existing (2019) conditions based on March 2019 traffic counts at the study intersections listed above.
- ***Existing with Project*** – Existing (2019) conditions plus Project-related traffic.
- ***Cumulative without Project*** – Forecasts for the Cumulative without Project scenario are based on year 2040 forecasts from the Alameda County Transportation Commission (Alameda CTC) Countywide Travel Demand Model.
- ***Cumulative with Project*** – Year 2040 forecast conditions plus Project-related traffic.

2.1.6. Existing Intersection Volumes and Lane Configurations

The operations of the study intersections are evaluated for the highest one-hour volume during the weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period conditions. Existing peak period intersection counts were conducted at the study intersections in March 2019 on clear days with area schools in regular session. These counts formed the basis of the Existing conditions intersection operations analysis. **Appendix A** provides the count data. Existing lane configurations and signal controls were obtained through field observations and/or City of Newark and Caltrans signal timing sheets. **Figure B-1** in **Appendix B** presents the existing AM and PM peak-hour turning movement volumes, corresponding lane configurations, and traffic control devices.

2.1.7. Existing Intersection Levels of Service

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the LOS for the study intersections during the AM and PM peak hours under Existing conditions using the methods described in Chapter 1. **Table 2** summarizes the results of the LOS analysis under Existing conditions. The LOS calculations sheets are provided in **Appendix C**. All the study intersections operate at LOS D or better during both the AM and PM peak hours under Existing conditions.

Table 2: Existing Intersection Peak Hour Levels of Service[1]

Intersection	Control[2]	Peak Hour	Delay	LOS
1. Mowry Avenue/Cherry Street	Signal	AM PM	24 25	C C
2. Mowry Avenue/Cedar Boulevard	Signal	AM PM	30 32	C C
3. Mowry Avenue/ Alpenrose Court	Signal	AM PM	11 18	B B
4. Mowry Avenue/I-880 Southbound Ramps	Signal	AM PM	10 13	A B
5. Mowry Avenue/I-880 Northbound Ramps	Signal	AM PM	8 18	A B
6. Cherry Street/Central Avenue	Signal	AM PM	33 31	C C
7. Cherry Street/ Stevenson Boulevard	Signal	AM PM	40 26	D C

Notes:

1. Analysis results present delay (seconds per vehicle) and LOS based on delay thresholds published in the HCM (Transportation Research Board, 2010). Average delay is listed for signalized intersections.
2. Signal = signalized intersection.

Source: Fehr & Peers, 2021.

2.2. Existing Transit Service

Alameda-Contra Costa (AC) Transit provides local bus service in the East Bay and Transbay bus service to the Transbay Terminal in San Francisco. Bay Area Rapid Transit (BART) provides regional rail service connecting San Francisco, northern San Mateo county, and the East Bay. ACE and Amtrak also provide regional rail service within the San Francisco Bay Area and beyond. The service frequency for each transit provider is shown in **Table 3.**

Table 3: Existing Transit Service			
Line	**Description**	**Frequency of Service (minutes)**	
		Commute Times[1]	**Non-Commute Times[2]**
AC Transit Routes			
200	Union City BART, Fremont, Newark, Fremont BART	30	30
216	Newark, Fremont BART, Union City BART	60	60
251	Newark, Fremont BART	60	60
BART			
Orange	Richmond-Warm Springs/ South Fremont	15	20
Green	Daly City-Warm Springs/ South Fremont	15	20
ACE			
Stockton to San Jose	Westbound	75	N/A
San Jose to Stockton	Eastbound	60	N/A
Amtrak			
Capitol Corridor	Westbound	40-65	120-180
Capitol Corridor	Eastbound	65-80	120-180

Notes:
1. Commute times are weekdays from 6:00 to 9:00 AM and 4:00 to 7:00 PM.
2. Non-commute times are weekdays outside of commute times and weekends.

Sources: AC Transit, September 2019; BART, September 2019; Amtrak, September 2019.

2.2.1. AC Transit

AC Transit is the primary bus service provider in 13 cities and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo and Santa Clara Counties.

Three AC Transit bus routes operate near the Project site – Lines 200, 216, and 251. Line 200 travels between the Union City and Fremont BART stations, with a stop at the NewPark Mall every day and at the Silliman Recreation Center on weekends. Lines 216 and 251 both have a weekday western terminus at Ohlone College on Cherry Street and a weekend terminus at the Silliman Recreation Center on Mowry Avenue. Both lines connect to the Fremont BART station, while Line 216 also stops at the NewPark Mall and continues east to the Fremont and Union City BART Stations.

The closest stop to the Project site for Lines 200 and 216 is at the Mowry Avenue/Cherry Street intersection, and the closest stop for Line 251 is at the Cherry Street/Jasmine Avenue intersection. On weekends, the closest stop for Lines 216 and 251 is at the Silliman Recreation Center.

2.2.2. BART

BART provides regional rail service between San Francisco, northern San Mateo County, and the East Bay. Based on BART Monthly Ridership Reports, the average weekday ridership in 2018 was about 412,000 systemwide. The closest BART Station to the Project site is the Fremont Station.

Fremont Station is located about three miles north of the Project site. The station is served by the Richmond-Warm Springs/South Fremont and Daly City-Warm Springs/South Fremont lines and is the penultimate BART station to the south followed by Warm Springs/ South Fremont Station. Fremont Station is served by about eight trains per hour, per direction, during the peak periods. Based on BART Monthly Ridership Reports, in the first half of 2019, about 11,800 weekday daily passengers (entries plus exits) use the Fremont BART Station.

2.2.3. Altamont Commuter Express (ACE)

The San Joaquin Regional Rail Commission (SJRRC) operates Altamont Commuter Express (ACE) commuter rail service of over 85 miles between Stockton and San José. It operates a limited number of trains per day with four westbound trains in the morning from Stockton and four eastbound trains in the afternoon from San Jose. The nearest ACE station is in Fremont and is located on Fremont Boulevard near Peralta Boulevard.

2.2.4. Amtrak

Amtrak provides intercity rail service on the Capitol Corridor, connecting Auburn, Sacramento, Emeryville, Oakland, and San José. The service provides a limited number of daily round trips. The nearest Amtrak station is shared with the ACE station in Fremont on Fremont Boulevard near Peralta Boulevard.

Average ridership at Fremont Station was about 122 passengers per day in 2018, based on Amtrak State Fact Sheets.

2.3. Existing Pedestrian and Bicycle Facilities

This section describes existing and proposed bicycle and pedestrian facilities that serve the Project site.

2.3.1. Pedestrian Facilities

Currently, Mowry Avenue does not provide any sidewalks along the Project frontage. Mowry Avenue provides sidewalks to the east of the Union Pacific railroad tracks on the north side, and about 100 feet east of the railroad tracks on the south side.

2.3.2. Bicycle Facilities

The *City of Newark Pedestrian and Bicycle Master Plan* (2017) classifies the following five types of bicycle facilities:

- **Class I Bicycle Paths or Multi-Use Paths** provide a completely separate right-of-way and is designated for the exclusive use of bicyclists and pedestrians with minimal vehicle and pedestrian cross-flow. Bike paths are for non-motorized use only.
- **Class II Bicycle Lanes** provide a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally at least five feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted. Class II bicycle lanes are generally indicated on streets with speeds higher than 30 miles per hour.
- **Class III Bicycle Routes** provide a right-of-way designated for shared use with pedestrians or motor vehicles by signs or pavement markings. A Shared-Use Arrow (or "Sharrow") can be marked in the outside lane on a Class III route to show the suggested path of travel for bicyclists. A sign stating "Bicycles Allowed Full Use of Lane" citing the California Vehicle Code is often included.
- **Class III Bicycle Boulevards** are designed for shared bicycle use with motor vehicles, similar to bicycle routes. The key differentiator is that they are lower volume and lower speed roadways and typically include traffic calming.

- **Class IV Separated Bikeways** maximize protection for bicyclists in providing a physical separation between the bikeway and vehicular traffic. The separation may include, but is not limited to grade separation, inflexible physical barriers, or on-street parking. Separated bikeways, or cycle tracks, typically operate as one-way bikeway facilities in the same direction as vehicular traffic on the same side of the roadway.

Most arterials in the Project vicinity have an existing bicycle facility. Between I-880 and Cherry Street, Mowry Avenue is a Class III bike facility and Stevenson Boulevard is designated as a Class II. Both Mowry Avenue and Stevenson Boulevard provide both Class II bike lanes and a Class I bike path between Cherry Street and the railroad tracks. Central Avenue provides a mix of Class II lanes and Class III routes west of I-880. South of Central Avenue, Cherry Street and Cedar Avenue also provide a mix of Class II lanes and Class III routes.

The 2017 *Bicycle and Pedestrian Master Plan* proposes several bicycle facility upgrades near the Project site. The Class III segments of Mowry Avenue, Central Avenue, and Cedar Boulevards west of I-880 are proposed as Class II lanes, while the Class II segment of Stevenson Boulevard is proposed as a Class IV separated bikeway. On Cherry Street, a Class II bike lane is proposed between Thornton and Central Avenues, and Class IV separated bikeways south of Central Avenue.

3 PROJECT CHARACTERISTICS

This chapter provides an overview of the proposed Project components and addresses the Project's trip generation, distribution, and assignment characteristics, allowing for an evaluation of Project effects on the surrounding roadway network. The amount of traffic associated with the Project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the Project site was estimated.
2. **Trip Distribution** – The *direction* trips would use to approach and depart the site was projected.
3. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements.

3.1. Project Description

The proposed Project would be located south of Mowry Avenue, approximately 1,800 feet west of the Union Pacific at-grade railroad crossing. The site currently has a Pick-n-Pull used auto parts store that would be demolished and converted into 204 single-family detached homes, according to the Project site plan dated June 24, 2019..

Access to the site would be provided through two access points along the existing Mowry Avenue, with auto access to each unit's private garage provided by internal streets. Additionally, the Project would provide 170 on-street guest parking spaces.

3.2. Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the Project. Trip generation for the Project was estimated using the methods, formulas, and rates presented by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual, 10th Edition*. The trip generation for the existing Pick-n-Pull was determined using traffic counts collected in March 2019. **Table 4** summarizes the trip generation for the Project. The Project is estimated to generate about 1,110 daily, 136 AM peak hour, and 147 PM peak hour net new vehicle trips.

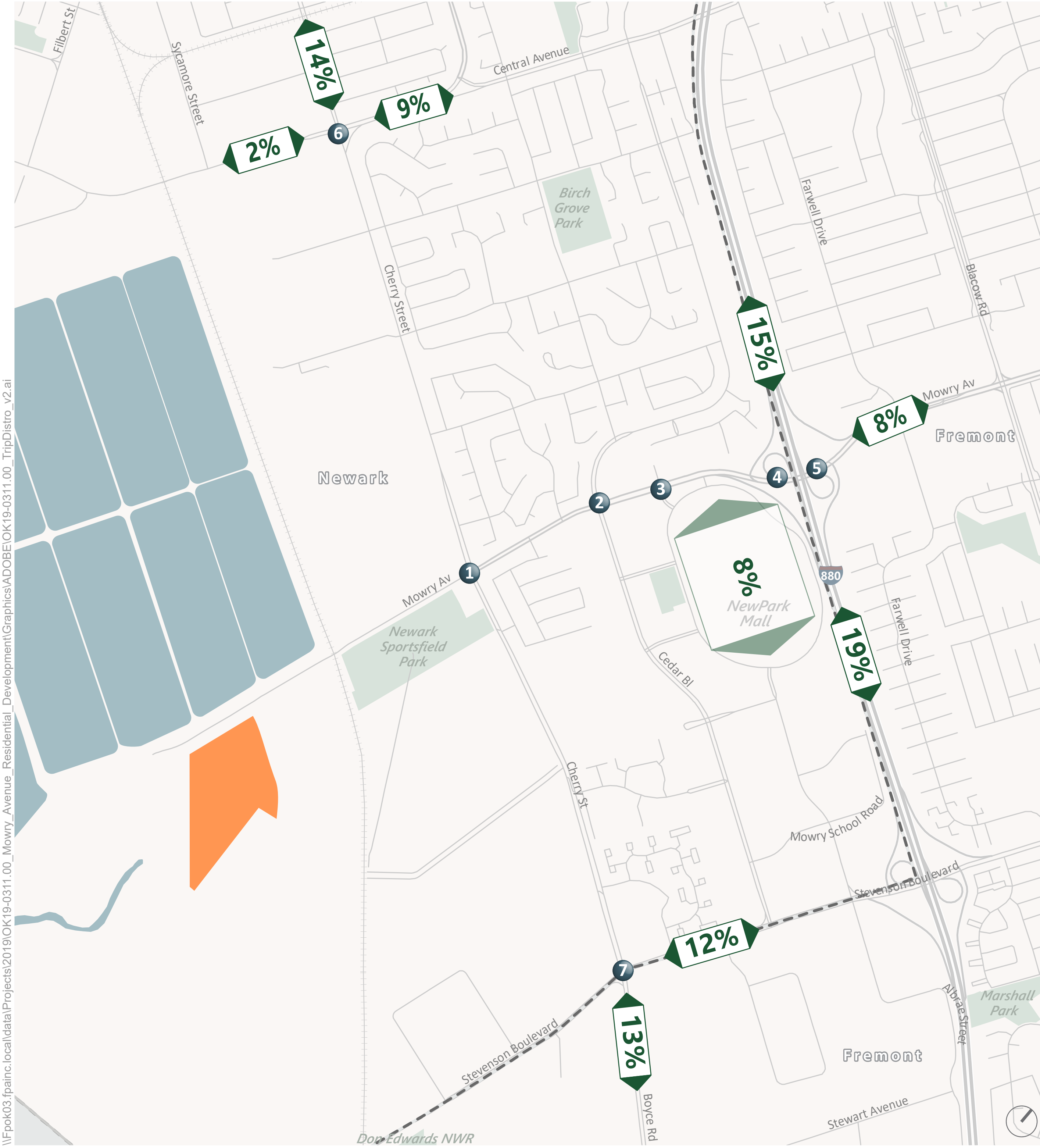
Table 4: Mowry Village Trip Generation Summary									
Land Use	Units[1]	ITE Code	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
New Uses									
Single-Family Detached Housing	204 DU	210[2]	2,000	37	113	150	127	74	201
Adjustments									
Existing Uses (Pick -n-Pull)[3]			-920	-11	-3	-14	-16	-38	-54
Net New Vehicle Trips			**1,080**	**26**	**110**	**136**	**111**	**36**	**147**

1. DU = Dwelling units.
2. ITE *Trip Generation (10th Edition)* land use category 210 (Single-Family Detached Housing):
   Daily: Ln(T) = 0.92 * Ln(X) + 2.71
   AM Peak Hour: T = 0.71 * (X) + 4.80 (25% in, 75% out)
   PM Peak Hour: Ln(T) = 0.96 * Ln(X) + 0.20 (63% in, 37% out)
3. Existing use trip generation based on counts collected in March 2019.

Sources: ITE *Trip Generation Manual*, 10th Edition; Fehr & Peers, 2021.

3.3. Trip Distribution and Assignment

Project trip distribution percentages were assigned as summarized on **Figure 3**. The trip distribution percentages are based on the trip distribution for residential uses presented in the SP REIR. The Project trips were then assigned to the roadway network based on the directions of approach and departure for the AM and PM peak hour, as presented on **Figure B-2**.



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Project Site

Study Intersections

City Boundary

XX% Project Trip Distribution

Figure 3

Project Trip Distribution

4 VMT ASSESSMENT

One performance measure used to quantify travel is vehicle miles traveled (VMT). This chapter presents the effects of the proposed Project on VMT.

4.1. California Senate Bill 743

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changed the way transportation impact analysis is conducted as part of CEQA compliance. These changes include elimination of automobile delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts under CEQA. According to SB 743, these changes are intended to "more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions."

In December 2018, the State Office of Planning and Research (OPR) completed an update to the CEQA Guidelines to implement the requirements of SB 743. The Guidelines state that VMT must be the metric used to determine significant transportation impacts. The Guidelines require all lead agencies in California to use VMT-based thresholds of significance in CEQA documents published after July 2020.

The OPR Guidelines recommend developing screening criteria for development projects that meet certain criteria that can readily lead to the conclusion that they would not cause a significant impact on VMT. The OPR Guidelines also recommend evaluating VMT impacts using an efficiency-based version of the metric, such as VMT per resident for residential developments and/or VMT per worker for office or other employment-based developments. Since City of Newark has not developed their screening criteria or thresholds of significance, this analysis uses the screening criteria and thresholds of significance recommended by the OPR Guidelines.

4.2. VMT Screening

According to the OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA,* screening thresholds can be used to quickly identify projects that can be expected to cause a less than significant impact without conducting a detailed study. OPR's recommended screening thresholds and their applicability to the proposed Project are described below.

- **Small Projects –** Projects that generate fewer than 110 trips per day generally may be assumed to cause a less than significant VMT impact. As shown in Table 4, the Project would generate more than 110 trips per day and would not meet this screening threshold.

- **Low-VMT Area –** Residential projects located in areas with low-VMT (i.e., 15 percent below the citywide average), that incorporate similar features (i.e., density, mix of uses, transit accessibility), are expected to exhibit similarly low VMT and cause a less than significant VMT impact. Based on the results of the Alameda CTC Model, the Project is not located in an area with VMT per capita below the threshold. Thus, the Project is not located in a low-VMT area and does not meet this screening threshold.

- **Near Transit Stations –** Projects located within 0.5-mile of an existing major transit stop[3] are expected to generate low VMT and cause a less than significant VMT impact. The Fremont BART Station is the nearest major transit stop to the Project site, and the Project is about three miles from the BART station. Since the Project site is more than 0.5 miles walking distance from the BART station, the Project is not located near transit stations and does not meet this screening threshold.

The project would not meet any of the OPR's applicable screening thresholds. Therefore, a more detailed evaluation of the Project's VMT impact is required and presented in the next subsection.

4.3. Detailed VMT Estimate

As previously discussed, OPR Guidelines recommend evaluating VMT impacts using an efficiency-based metric such as VMT per person. The OPR Guidelines also recommend setting significance thresholds as 15 percent below the citywide or regional average VMT

[3] According to the California Public Resources Code, § 21064.3, 'Major transit stop' is defined as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

per person. This analysis estimates the VMT per resident for the proposed Project and compares it to the citywide average VMT per resident, consistent with the OPR guidelines.

VMT is typically an output from travel demand models and is calculated based on the number of vehicles multiplied by the distance traveled by each vehicle. This analysis uses VMT per resident, as estimated by the Alameda CTC Countywide Travel Demand Model. VMT per resident is defined as the total VMT generated by residents with an origin within a geographic area and tracked throughout the regional network on a typical weekday divided by the number of residents in that geographic area.

The Alameda CTC Model, which covers the entire nine county Bay Area, is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes, transit ridership, and VMT using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and expected changes in the transportation network. This analysis uses the latest version of the Alameda CTC Model, which was released in May 2019. The Model is based on the Metropolitan Transportation Commission (MTC) Plan Bay Area 2040 (i.e., Sustainable Communities Strategy) transportation network and land uses for 2020 and 2040.

As a regional planning tool, the Alameda CTC Model was developed through an extensive model validation process and is intended to replicate existing vehicular travel behavior. Therefore, it can provide a reasonable estimate of the VMT generated in various geographic areas on a typical weekday, as well as estimate future VMT that reflects planned local and regional land use and transportation system changes. The Model was used to estimate VMT per resident generated by the Project, as well as average VMT per resident for the City of Newark under 2020 and 2040 conditions.

Table 5 summarizes the VMT estimates under 2020 and 2040 conditions. It is estimated that the Project residents would have an average VMT of 27.9 miles per resident per day in 2020 and 25.6 miles per resident per day in 2040.

Table 5: VMT Per Resident Summary[1]		
	2020	**2040**
Proposed Project (TAZ 940)	27.9	25.6
Average, City of Newark	22.8	20.5
Average, City of Newark minus 15% (i.e. threshold of significance)	19.4	17.4

Notes:
1. Based on the results of the Alameda CTC Countywide Travel Demand Model

Source: Fehr & Peers, 2021.

Under 2020 and 2040 conditions, the average VMT per resident for the Project would be 44 and 47 percent higher, respectively, than the citywide average minus 15 percent, which is the threshold of significance. Therefore, the Project has a significant and unavoidable impact on VMT.

Impact 1: The Project would cause a significant impact on VMT because it would exceed existing citywide household VMT per capita minus 15 percent.

Mitigation Measure 1: Implementation of a Transportation Demand Management (TDM) Plan would reduce the magnitude of the impact, but the impact is expected to remain *significant and unavoidable*.

Impacts on VMT can be mitigated through implementing a robust TDM program to reduce VMT through measures that discourage the use of single-occupant automobiles and encourage the use of other travel modes. The TDM Plan would reduce VMT, as well as automobile trip generation and parking demand. Due to the Project location, type of development, availability of transit service, and other area characteristics, limited TDM measures would be effective for the proposed Project. The TDM Plan could include the following strategies:

a. Explore the feasibility and if feasible, coordinate with other nearby developments and/or AC Transit to provide shuttle or bus service between the Project site and a BART station and/or other major destinations.
b. Offer to provide free parking spaces for at least two car share vehicles (Zipcar, etc.)
c. Offer to provide carpool matching to project residents

It is estimated that a TDM Plan would reduce the Project-generated VMT by less than one percent, which would not be adequate to reduce the Project VMT to be less than the threshold of significance. Therefore, the impact is significant and unavoidable.

5 TRAFFIC OPERATIONS, EXISTING WITH PROJECT CONDITIONS

As described in previous chapters, automobile delay, LOS, and other similar measures of vehicular capacity or traffic congestion can no longer be used to identify significant impacts under CEQA. Thus, this chapter presents the effects of the proposed Project on traffic operations at the selected study intersection for informational purposes. This chapter summarizes traffic operations at the study intersections under Existing with Project conditions and identifies substantial effects based on the City of Newark thresholds for traffic operations.

5.1. Thresholds for Traffic Operations

The City of Newark's *General Plan (December 2013, NGP)* level of service standard is to maintain LOS D or better at intersections. Based on this standard, a substantial effect is identified if the addition of Project generated traffic would:

- *Cause intersection LOS to degrade from LOS D or better to LOS E or F*
- *Cause intersection average delay to increase by four or more seconds at an intersection that operates at LOS E or F under without Project conditions*

5.2. Existing with Project Volumes and Geometry

The net-new Project trip assignment shown on **Figure B-2** was added to the Existing conditions peak hour traffic volumes shown on **Figure B-1** to estimate the Existing with Project peak hour traffic volumes, as shown on **Figure B-3**. The Project proposes no changes to the geometry of the road network. The Existing with Project conditions analysis assumes the same signal timings as Existing conditions at all study intersections.

5.3. Existing with Project Intersection Operations

Existing with Project traffic conditions were evaluated using the methods described in Chapter 1. The Existing with Project analysis results are presented in **Table 7**, based on the vehicle volumes presented on **Figure B-3**. Table 7 also includes the operations results for Existing conditions for reference. Detailed intersection LOS calculation worksheets are presented in Appendix C. As shown in Table 7, all study intersections are expected to continue to operate at LOS D or better during the AM and PM peak hours under Existing with Project conditions, with an average intersection delay increase of six seconds or less at all the study intersections.

Table 6: Existing with Project Intersection Peak Hour Levels of Service[1]							
Intersection	Control[2]	Peak Hour	Existing without Project Conditions		Existing with Project Conditions		Substantial Effect?
			Delay	LOS	Delay	LOS	
1. Mowry Avenue/Cherry Street	Signal	AM PM	24 25	C C	29 26	C C	No
2. Mowry Avenue/Cedar Boulevard	Signal	AM PM	30 32	C C	30 32	C C	No
3. Mowry Avenue/ Alpenrose Court	Signal	AM PM	11 18	B B	12 19	B B	No
4. Mowry Avenue/I-880 Southbound Ramps	Signal	AM PM	10 13	A B	11 13	B B	No
5. Mowry Avenue/I-880 Northbound Ramps	Signal	AM PM	8 18	A B	10 18	A B	No
6. Cherry Street/Central Avenue	Signal	AM PM	33 31	C C	33 32	C C	No
7. Cherry Street/ Stevenson Boulevard	Signal	AM PM	40 26	D C	40 26	D C	No

Notes:

1. Analysis results present delay (seconds per vehicle) and LOS based on delay thresholds published in the HCM (Transportation Research Board, 2010). Average delay is listed for signalized intersections.
2. Signal = signalized intersection.

Source: Fehr & Peers, 2021.

5.4. Existing with Project Effect Discussion

As shown in Table 7, the Project is expected to increase delay at some study intersections; however all intersections would continue to operate at LOS D or better during both AM and PM peak hour. Thus, based on the criteria presented in Chapter 1, the Project would not have a substantial effect at the study intersections.

6 TRAFFIC OPERATIONS, CUMULATIVE CONDITIONS

This chapter discusses Cumulative (year 2040) vehicle traffic conditions both without and with the Project. The future conditions analysis considers development within the City of Newark and adjacent areas, consistent with the transportation system and development assumptions in the Alameda CTC Countywide Travel Demand Model.

6.1. Cumulative Roadway Assumptions

Year 2040 intersection lane configurations and traffic controls are assumed to remain the same as Existing conditions for all study intersections. The Cumulative without and with Project conditions analyses assume that signal timing parameters that do not require upgrades to the signal equipment, such as amount of green time assigned to each intersection approach, would be optimized at all the study intersections.

6.2. Cumulative Forecasts

Cumulative (year 2040) intersection turning movement forecasts were developed using the Alameda CTC Countywide Travel Demand Model, existing intersection turning movement counts, and the SP REIR trip assignment. The main inputs to the 2040 forecasting process are the model outputs from the Alameda CTC Model and the existing traffic counts, which reflect past, present, and future developments expected by year 2040.

The Alameda CTC Model, as described in Chapter 4, was used for this analysis. The base year (2010) and cumulative year (2040) Alameda CTC Model AM and PM peak hour traffic volume outputs were reviewed to estimate volume growth in the Project area. Intersection AM and PM peak hour traffic volumes are estimated to increase by approximately 2.5 percent per year. This annual growth rate was applied to the 2019 intersection turning movement. The trips generated by the buildout of the Areas 3 and 4 Specific Plan, as presented in the SP REIR, were added on top of this annual growth rate to forecast the Cumulative without Project vehicle volumes, because the most recent version of the Alameda CTC model does not include the Specific Plan developments. The Cumulative without Project volumes are shown on **Figure B-4.**

The Project trip assignment (Figure B-2) was added to the Cumulative without Project volumes to generate the Cumulative with Project vehicles volumes, as shown on Figure B-5.

6.3. Cumulative Conditions Intersection Operations

Cumulative without and with Project Conditions were evaluated using the same methods described in Chapter 1. The intersection analysis results are presented in **Table 8**, based on the vehicle volumes presented on Figures B-4 and B-5. Detailed intersection LOS calculation worksheets are presented in **Appendix C**.

Table 7: Cumulative Conditions Intersection Peak Hour Levels of Service[1]

Intersection	Control[2]	Peak Hour	Cumulative without Project Conditions		Cumulative with Project Conditions		Substantial Effect?
			Delay	LOS	Delay	LOS	
1. Mowry Avenue/ Cherry Street	Signal	AM PM	**145** **118**	**F** **F**	**155** **120**	**F** **F**	Yes
2. Mowry Avenue/ Cedar Boulevard	Signal	AM PM	**73** **96**	**E** **F**	**74** **97**	**E** **F**	No
3. Mowry Avenue/ Alpenrose Court	Signal	AM PM	16 44	B D	16 46	B D	No
4. Mowry Avenue/I-880 Southbound Ramps	Signal	AM PM	17 17	B B	17 18	B B	No
5. Mowry Avenue/I-880 Northbound Ramps	Signal	AM PM	10 45	A D	10 45	A D	No
6. Cherry Street/Central Avenue	Signal	AM PM	**135** **100**	**F** **F**	**136** **103**	**F** **F**	No
7. Cherry Street/ Stevenson Boulevard	Signal	AM PM	**156** **121**	**F** **F**	**157** **123**	**F** **F**	No

Notes: **Bold** text indicates deficient LOS E or F operations.

1. Analysis results present delay (seconds per vehicle) and LOS based on delay thresholds published in the HCM (Transportation Research Board, 2010). Average delay is listed for signalized intersections.
2. Signal = signalized intersection.

Source: Fehr & Peers, 2021.

6.4. Cumulative with Project Effect Discussion

As shown in Table 8, four intersections are forecast to operate at LOS E or F during both AM and PM peak hours under both Cumulative without Project conditions and Cumulative with Project conditions:

- Mowry Avenue/Cherry Street (#1)
- Mowry Avenue/Cedar Boulevard (#2)
- Cherry Avenue/Central Avenue (#6)
- Cherry Street/Stevenson Boulevard (#7)

The Project would not cause a substantial effect at three of the four intersections that would operate at LOS E or F under Cumulative conditions because it would not increase intersection average delay by four or more seconds during either AM or PM peak hours.

Since traffic generated by the Project would exacerbate LOS E or F operations and increase the average intersection delay by four or more second under Cumulative with Project conditions, the Project would have a substantial effect at the following intersection:

- Mowry Avenue/Cherry Street (#1)

Implementation of Improvement Measure 1 would reduce the effect at this intersection to less-than-substantial.

Substantial Effect 1: The Project would cause a substantial effect at the signalized Mowry Avenue/Cherry Street intersection (#1) because during the AM peak hour it would increase the average intersection delay by more than four seconds at an intersection that would operate at LOS E or F in under Cumulative Conditions regardless of the Project.

> **Improvement Measure 1**: Implementation of the following at the Mowry Avenue/ Cherry Street intersection would reduce the substantial effect to less than substantial:
>
> - Add a second left-turn lane on the westbound Mowry Avenue approach and modify the existing signal timing.
>
> The SP REIR identified this as a mitigation measure at the Mowry Avenue/Cherry Street intersection and determined that it is feasible and can be accommodated within the available right-of-way.

Table 9 summarizes the weekday AM and PM peak hour LOS at the effected study intersection for the Project under 2040 conditions with the improvement measure.

Table 8: Cumulative with Improvement Conditions Intersection Peak Hour Levels of Service[1]

Intersection	Control[2]	Peak Hour	Cumulative with Project Conditions		Cumulative with Project with Improvement Conditions		Effect Reduced?
			Delay	LOS	Delay	LOS	
1. Mowry Avenue/ Cherry Street	Signal	AM PM	**155** **120**	**F** **F**	**105** **105**	**F** **F**	Yes

Notes: **Bold** text indicates deficient LOS F operations.

1. Analysis results present delay (seconds per vehicle) and LOS based on delay thresholds published in the HCM (Transportation Research Board, 2010). Average delay is listed for signalized intersections.
2. Signal = signalized intersection.

Source: Fehr & Peers, 2021.

7 SITE PLAN REVIEW

This section evaluates access and circulation for all travel modes within the proposed site, based on the site plan dated June 24, 2019.

7.1. Automobile Access and On-Site Circulation

Motorist would access the Project site via two access point located on Mowry Avenue, the only current public access to the Project. These access points connect to the internal street network, which would be private. The internal streets would have a 46-foot right-of-way, with a 36-foot curb-to-curb width, accommodating two-way automobile travel and parallel on-street parking on both sides of the street.

Adjacent to the Project, Mowry Avenue does not have sidewalks or bicycle facilities and the pavement is in generally poor condition. The Project site plan includes improvements on Mowry Avenue, along the Project north frontage. These improvements include widening the current street to 48 feet to accommodate two 12-foot vehicle lanes and two six-foot bike lanes in each direction of travel and a 12-foot wide left turn lane to access the Project.

Section 16.12.101 of the City of Newark Municipal code establishes a minimum of 56 feet right-of-way and a minimum of 36 feet curb face to curb face for minor streets. Both the proposed design for Mowry Avenue and the Project’s private streets meet the City’s standard.

The Project also has one 125-foot long cul-de-sac with a circular end. Section 16.12.020 of the Municipal Code establishes a maximum cul-de-sac length of 600 feet, with a circular end, a minimum property line radius of 50 feet and a minimum curb radius of 45 feet. The proposed Project’s site plan shows a 45-foot curb radius and 50-foot right-of-way for the cul-de-sac. Therefore, the cul-de-sac dimensions are consistent with the Code.

The site plan also includes two courts at the northwest and southeast corners of the site, which are 134-foot and 116-foot long respectively. These courts provide a 10.5-foot vehicle lanes in each direction and a five-foot sidewalk on one side only, and provide access to the adjacent parcels only

The Project would include several three-way and four-way intersections. The Project’s site plan does not identify any controls at the internal Project intersections.

Recommendation 1: Develop internal intersection control guidelines and determine where stop signs may be appropriate.

Recommendation 2: Install stop signs at the two Project access points on Mowry Avenue.

The internal intersections within the Project would include corner curb extensions, which would reduce the effective width of the street at the intersection approach to 20 feet for approaches with curb extension on both sides of the street and to 28 feet for approaches with curb extensions on only one side of the street. The site plan also shows mid-block curb extensions, which would reduce the street width to 30 feet.

Assuming a prevailing automobiles speed of 25 mph, all internal Project streets would provide adequate sight distance between vehicles traveling in conflicting directions and between vehicles and pedestrians. In addition, the bulb-outs at mid-block and intersection locations proposed through the site would reduce the effective width of the streets and result in lower travel speeds for automobiles.

7.2. Bicycle Parking, Access and On-Site Circulation

Bicycle users would access the Project site via two access point located on Mowry Avenue, using the Class II bike lanes on Mowry Avenue proposed by the Project. No short or long-term bicycle parking is shown on the site plan and the Municipal Code does not require any bicycle parking for single-family housing units. Bicyclists could use their own garage space to park their bikes. Bicyclists would share the streets with vehicles within the Project site, as no dedicated bicycle facilities are included in the Project site plan.

The City of Newark Pedestrian and Bicycle Master Plan (2017) (PBMP) includes a policy to ensure safe and convenient pedestrian and bicycle access to and through new public and private developments. It requires that new developments to provide secure, adequate and easily accessible bicycle parking. However, single-family dwelling units are exempted from this requirement. The PBMP also shows Mowry Avenue as an existing Class II bike lane between the Project site and the railroad crossing, although the bike lanes do not appear striped on the road.

The Transportation chapter of the NGP identifies Mowry Avenue as an arterial street and it emphasizes that design of arterial streets should adopt the Complete Streets concept, where local thoroughfares are transformed by incorporating sidewalks, crosswalks, space for bicycles and other amenities that consider the needs of all road users.

Currently, no sidewalks or bike lanes are provided on either side of Mowry Avenue between the Project site and the railroad crossing. The Project proposes six-foot bike lanes in each direction of Mowry Avenue. Thus, the Project would be consistent with the PBMP and the NGP.

> **Recommendation 3:** Explore the feasibility and if considered feasible, continue the proposed street, bike lane and sidewalk improvements on Mowry Avenue across the railroad tracks and connect to the existing bike lanes and sidewalk/path east of the railroad crossing (This recommendation should be coordinated with Recommendation 5).

7.3. Pedestrian Access and On-Site Circulation

Pedestrians would access the Project site via the two access point on Mowry Avenue, along a 10-foot wide sidewalk/path along the south side of Mowry Avenue. All internal streets within the Project would provide five-foot sidewalks on both sides of the streets, except for the courts that would provide a sidewalk only on one side. The site plan shows diagonal curb ramps at all internal Project intersections. Directional curb ramps would provide a more direct path for pedestrians to cross the street.

> **Recommendation 4:** Consider implementing directional curb ramps at every intersection within the Project site.

Currently, no sidewalks are provided on either side of Mowry Avenue between the Project site and the railroad tracks. The site plan proposes a 10-foot wide sidewalk/path on the south side of Mowry Avenue, along the Project's frontage. However, the sidewalk/path would not connect to the existing sidewalk east of the railroad tracks. Recommendation 3, discussed above, would connect the proposed sidewalk/path on Mowry Avenue with the existing sidewalk/path just east of the railroad tracks.

The Project site plan does not identify any marked crosswalks, either internally or adjacent to the Project site. The crosswalk guidelines in the PBMP specify that new controlled intersections, which includes intersections with stop signs, should include marked crosswalks on all legs of the intersection that serve a key desire line, and advanced stop bars in advance of each crosswalk. The crosswalk guidelines provide treatment options for uncontrolled crossing locations with 20 or more pedestrians per hour. However, the internal Project intersections are not expected to have any locations with 20 or more pedestrians per hour.

Recommendation 5: Provide marked crosswalks and advance stop bars across the two Project access points and any Project intersections with stop signs, consistent with Recommendations 1 and 2.

7.4. Emergency Vehicles Access and On-Site Circulation

There is not a separate access point for emergency vehicles, based on the information provided on the site plan. Emergency vehicles would access the Project site through the same two vehicular access points and use the internal street network.

According to the California Fire Code (2016), fire apparatus access roads need to be no less than 20 feet wide and shall always be unobstructed, which the internal Project streets meet. Based on the Project site plan, the internal streets and intersection, including the Project cul-de-sacs, would accommodate a fire truck.

7.5. Transit Access

AC Transit is the bus service provider for Alameda-Contra Costa counties, including the City of Newark. The nearest bus stops to the Project site, as of 2019, are:

- About 0.5 miles east of the Project site, south of Mowry Avenue, in front of the Silliman Activity and Family Aquatic Center, that serves both directions of travel. This stop serves AC Transit lines 200, 216 and 251 during the weekends only and do not provide any amenities, except for a sign.
- About 0.8 miles east of the Project site, on both sides of Cherry Street, just north of Mowry Street. These stops serve AC Transit lines 200, 216 and 629 and do not provide any amenities, except for a sign.
- About 0.8 miles east of the Project site on both sides of Mowry Avenue. These stops serve AC Transit lines 251 and 269. The westbound stop provides a trash can and a sign, while the eastbound stop provides only a sign.

Lines 200 and 216 provide service to both the Fremont and the Union City BART stations, while Line 251 provides service to the Fremont BART station. Line 629 is a school line that operates twice a day to and from Newark Memorial High School.

Pedestrians would travel between the Project site and the bus stops by using the sidewalk/path on the south side of Mowry Avenue.

7.6. Parking Requirements

Section 17.23.040 of the Newark Municipal Code establishes a parking minimum of two parking spaces per unit within a garage for single-unit dwellings and low-rise townhouses. The parking requirements for the proposed Project are summarized in **Table 10.** The Project would consist of 204 single-unit dwellings and provides two parking spaces per unit for a total of 408 off-street covered spaces, meeting code requirements. The Project would also provide about 182 on-street parking spaces.

Table 9: Mowry Village Required and Proposed Parking

Land Use	Units[1]	Resident Parking		Guest Parking	
		Parking Rate[2]	Required Parking	Parking Rate[3]	Required Parking
Single-Family Detached Housing	204 DU	2 spaces/unit	408	-	0
Total Parking Required			408	0	0
Total Parking Proposed			408	0	182
Surplus (Deficit)			0	0	182

1. DU = Dwelling units.
2. Parking rated based on Section 17.23.040 of the City of Newark's Municipal Code
3. No parking requirements are specified for guest parking

Sources: Fehr & Peers, 2021.

7.7. At-Grade Railroad Crossing Safety Evaluation

Union Pacific Railroad (UP) owns and operates the railroad crossing on Mowry Avenue to transport freight, while Amtrak uses the crossing for passenger transport. The crossing is a public, at-grade crossing with three tracks. Based on Federal Railroad Administration (FRA) data, about 24 trains use the tracks on a typical day, with a maximum speed of 60 mph.

Table 11 summarizes the at-grade railroad crossing characteristics as inventoried by the FRA. Other characteristics are noted below:

- The railroad crossing is identified as US DOT crossing inventory number 749946C and has gate controls for vehicular approaches in both directions. The crossing only has sidewalks on the north side of the tracks but provides an even surface for crossing. However, there are no truncated domes or other detectable warning surfaces for pedestrians.
- Based on the FRA accident/incident reports, no collisions have been reported at the at-grade railroad crossing in the past ten years.

The NGP includes a policy of replacing some of the at-grade railroad crossings with grade-separated rail overpasses, to enhance safety, reduce travel delays and improve emergency access. According to the NGP, grade separations are planned either at Mowry Avenue or Stevenson Avenue as part of the Southwest Newark Recreation and Residential project, which includes the proposed Project site. Although the NGP states that the at-grade crossings would be replaced with grade-separated rail overpasses, the Newark Areas 3 and 4 Specific Plan proposes an overpass at the Stevenson Boulevard railroad crossing and no improvements at the Mowry Avenue railroad crossing. According to the Specific Plan, advanced preliminary designs have been completed for the Stevenson Boulevard overpass.

The following recommendations are proposed to enhance safety at the Mowry Avenue at-grade railroad crossing near the Project site:

Recommendation 6: Consider the following as part of the final design for the Project:

- Improve the paving surface at the railroad crossing to provide a smooth travel path. Construct ADA compliant sidewalks with truncated domes to enhance safety. Ensure sidewalk widths are adequate and gate equipment does not impede travel path (This recommendation should be coordinated with Recommendation 3).
- Add pavement markings that include stopping line for cars and railroad crossing symbol on crossing vehicular approaches.
- Convert the two quadrant gates into four quadrant gates to prevent vehicles from crossing when gates are down.

Any proposed improvements must be coordinated with California Public Utility Commission (CPUC) and affected railroads and all necessary permits/approvals obtained, including a GO 88-B Request (Authorization to Alter Highway Rail Crossings).

Table 10: At-Grade Railroad Crossing Inventory									
Location	Train Crossing Speed (MPH)	# of Train Tracks	# of Traffic Lanes Crossing Railroad	Traffic Control Devices					
				Advance Warning	Pavement Markings	Train Signals	Bells	Gates	Overhead Warning Light
Mowry Avenue	35 to 60	3	2	W10-1	Stop Lines and Railroad Crossing Symbol	Yes	2	2 Quad	No

Source: Federal Railroad Administration Office of Safety Analysis, Crossing Inventory and Accidents Reports, accessed in August 2019.

Appendix A:
Intersection Count Data

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Cherry St
City: Newark
Control: Signalized

Project ID: 19-08160-001
Date: 3/26/2019

Total

NS/EW Streets:	Mowry Ave				Mowry Ave				Cherry St				Cherry St				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	1	1	0	1	1	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	5	5	0	49	16	101	0	84	220	3	0	1	52	7	3	548
7:15 AM	5	7	2	0	53	15	112	1	105	266	4	0	3	89	9	2	673
7:30 AM	3	4	2	0	78	15	134	0	117	301	5	0	5	107	15	2	788
7:45 AM	2	8	6	0	89	38	120	0	44	349	5	0	9	144	15	2	831
8:00 AM	2	6	2	0	71	32	77	0	59	349	8	1	6	104	11	2	730
8:15 AM	1	4	2	0	94	30	67	0	59	354	6	1	3	94	19	2	736
8:30 AM	6	11	2	0	101	21	81	0	63	311	9	0	10	63	14	1	693
8:45 AM	1	8	9	0	93	31	102	1	63	304	16	0	9	83	16	2	738
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	22	53	30	0	628	198	794	2	594	2454	56	2	46	736	106	16	5737
APPROACH %'s :	20.95%	50.48%	28.57%	0.00%	38.72%	12.21%	48.95%	0.12%	19.12%	79.01%	1.80%	0.06%	5.09%	81.42%	11.73%	1.77%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	8	22	12	0	332	115	398	0	279	1353	24	2	23	449	60	8	3085
PEAK HR FACTOR :	0.667	0.688	0.500	0.000	0.883	0.757	0.743	0.000	0.596	0.956	0.750	0.500	0.639	0.780	0.789	1.000	0.928
	0.656				0.855				0.980				0.794				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	1	1	0	1	1	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	22	11	0	17	23	82	0	119	122	4	0	9	217	49	2	683
4:15 PM	13	13	9	0	19	37	73	0	107	119	16	0	6	223	48	0	683
4:30 PM	14	41	8	0	21	20	83	0	122	180	21	1	8	259	70	0	848
4:45 PM	4	25	8	0	22	18	75	0	126	179	5	1	6	302	44	1	816
5:00 PM	23	38	5	0	19	13	87	0	139	178	10	1	4	261	66	1	845
5:15 PM	10	34	9	0	32	29	87	0	127	157	20	0	11	266	88	0	870
5:30 PM	22	40	12	0	18	20	85	0	111	147	11	1	3	296	54	0	820
5:45 PM	9	34	16	0	21	20	83	1	126	158	12	1	7	278	80	1	847
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	101	247	78	0	169	180	655	1	977	1240	99	5	54	2102	499	5	6412
APPROACH %'s :	23.71%	57.98%	18.31%	0.00%	16.82%	17.91%	65.17%	0.10%	42.09%	53.43%	4.27%	0.22%	2.03%	79.02%	18.76%	0.19%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	64	146	42	0	90	82	342	1	503	640	53	3	25	1101	288	2	3382
PEAK HR FACTOR :	0.696	0.913	0.656	0.000	0.703	0.707	0.983	0.250	0.905	0.899	0.663	0.750	0.568	0.930	0.818	0.500	0.972
	0.851				0.870				0.914				0.967				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Cherry St
City: Newark
Control: Signalized

Project ID: 19-08160-001
Date: 3/26/2019

Bikes

NS/EW Streets:	Mowry Ave				Mowry Ave				Cherry St				Cherry St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	1	0	0	0	1	3	0	0	0	0	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	1	0	1	10	0	0	0	2	2	0	17
APPROACH %'s :					50.00%	0.00%	50.00%	0.00%	9.09%	90.91%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	6	0	0	0	2	2	0	10
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.500	0.250	0.000	0.500
									0.375				0.333				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	1	1	0	1	1	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	3
5:45 PM	0	0	1	0	0	0	0	0	0	1	1	0	0	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	2	0	0	4	1	0	0	7	0	0	15
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	80.00%	20.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	2	0	0	3	1	0	0	5	0	0	12
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.375	0.250	0.000	0.000	0.625	0.000	0.000	0.750
	0.250				0.250				0.500				0.625				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Cherry St
City: Newark

Project ID: 19-08160-001
Date: 3/26/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Mowry Ave		Mowry Ave		Cherry St		Cherry St						
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	0	0	1	0	1	0	0	0	0	0	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	1	0	1	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	0	0	1	1	1	1	1	0	0	1	0	8
APPROACH %'s :	100.00%	0.00%	0.00%	100.00%	50.00%	50.00%	50.00%	50.00%			100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM												TOTAL
PEAK HR VOL :	2	0	0	0	1	0	1	0	0	0	0	0	4
PEAK HR FACTOR :	0.250				0.250		0.250						0.250
	0.250				0.250		0.250						

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
PM	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
4:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	0	0	0	0	0	0	0	0	1	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	1	0	0	0	0	1	0	1	0	3
5:30 PM	1	0	0	0	4	1	0	0	4	0	0	1	11
5:45 PM	0	0	0	0	2	0	0	1	2	0	1	0	6
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	0	0	1	6	1	0	1	7	0	4	1	24
APPROACH %'s :	100.00%	0.00%	0.00%	100.00%	85.71%	14.29%	0.00%	100.00%	100.00%	0.00%	80.00%	20.00%	
PEAK HR :	05:00 PM - 06:00 PM												TOTAL
PEAK HR VOL :	1	0	0	1	6	1	0	1	7	0	2	1	20
PEAK HR FACTOR :	0.250			0.250	0.375	0.250		0.250	0.438		0.500	0.250	0.455
	0.250		0.250		0.350		0.250		0.438		0.750		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Cedar Blvd
City: Newark
Control: Signalized

Project ID: 19-08160-002
Date: 3/26/2019

Total

NS/EW Streets:	Mowry Ave				Mowry Ave				Cedar Blvd				Cedar Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	70	30	1	19	119	16	3	67	77	27	1	20	27	11	0	491
7:15 AM	5	71	76	0	39	130	14	0	69	176	29	2	27	66	15	1	720
7:30 AM	0	68	86	1	29	128	24	1	77	249	32	1	70	138	36	0	940
7:45 AM	10	69	20	0	25	153	26	3	104	126	32	0	44	96	28	1	737
8:00 AM	9	73	11	0	26	156	47	2	78	155	35	0	8	26	14	0	640
8:15 AM	3	72	22	0	40	130	22	3	109	182	32	0	10	27	18	0	670
8:30 AM	9	81	15	1	54	155	30	0	89	172	50	0	15	27	21	1	720
8:45 AM	4	89	17	1	32	144	21	0	84	157	40	1	22	35	26	0	673
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	43	593	277	4	264	1115	200	12	677	1294	277	5	216	442	169	3	5591
APPROACH %'s :	4.69%	64.67%	30.21%	0.44%	16.59%	70.08%	12.57%	0.75%	30.05%	57.43%	12.29%	0.22%	26.02%	53.25%	20.36%	0.36%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	24	281	193	1	119	567	111	6	328	706	128	3	149	326	93	2	3037
PEAK HR FACTOR :	0.600	0.962	0.561	0.250	0.763	0.909	0.590	0.500	0.788	0.709	0.914	0.375	0.532	0.591	0.646	0.500	0.808
	0.805				0.869				0.811				0.584				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	181	27	0	53	122	59	8	51	61	11	0	30	67	28	2	713
4:15 PM	20	130	27	1	53	116	55	2	50	78	15	0	37	79	32	3	698
4:30 PM	18	203	27	4	39	93	56	3	55	63	11	0	34	85	33	0	724
4:45 PM	25	171	38	1	59	95	60	3	52	71	11	0	29	88	33	0	736
5:00 PM	18	208	32	2	59	99	76	4	50	86	13	1	26	100	37	3	814
5:15 PM	22	193	42	3	64	119	83	2	48	107	17	0	40	115	47	1	903
5:30 PM	23	179	28	0	49	96	71	5	56	80	9	0	31	119	46	5	797
5:45 PM	22	188	46	1	74	105	79	10	50	78	9	2	40	98	43	3	848
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	161	1453	267	12	450	845	539	37	412	624	96	3	267	751	299	17	6233
APPROACH %'s :	8.51%	76.76%	14.10%	0.63%	24.05%	45.16%	28.81%	1.98%	36.30%	54.98%	8.46%	0.26%	20.01%	56.30%	22.41%	1.27%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	85	768	148	6	246	419	309	21	204	351	48	3	137	432	173	12	3362
PEAK HR FACTOR :	0.924	0.923	0.804	0.500	0.831	0.880	0.931	0.525	0.911	0.820	0.706	0.375	0.856	0.908	0.920	0.600	0.931
	0.968				0.928				0.881				0.929				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Cedar Blvd
City: Newark
Control: Signalized

Project ID: 19-08160-002
Date: 3/26/2019

Bikes

NS/EW Streets:	Mowry Ave				Mowry Ave				Cedar Blvd				Cedar Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	2	2	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
8:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	0	0	2	11	1	0	1	0	0	0	16
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%					14.29%	78.57%	7.14%	0.00%	100.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	8	1	0	1	0	0	0	10
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.250	0.000	0.000	0.000	0.625
(approach)									0.563				0.250				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	1	0	2	2	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	1	0	0	1	0	0	1	2	0	0	6
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	3
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	2	0	0	0	1	1	0	0	2	0	0	1	6	2	0	17
APPROACH %'s :	50.00%	50.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	11.11%	66.67%	22.22%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	0	1	0	0	0	2	2	0	7
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.250	0.000	0.583
(approach)	0.250				0.250				0.250				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Cedar Blvd **Project ID:** 19-08160-002
City: Newark **Date:** 3/26/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Mowry Ave		Mowry Ave		Cedar Blvd		Cedar Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	1	1	0	0	1	0	3
7:15 AM	0	0	3	1	0	0	0	0	4
7:30 AM	0	0	2	1	2	8	2	0	15
7:45 AM	0	0	2	1	0	0	0	0	3
8:00 AM	1	0	0	2	0	0	2	0	5
8:15 AM	0	0	2	0	0	0	0	0	2
8:30 AM	1	0	0	1	2	2	0	1	7
8:45 AM	1	0	0	0	0	2	0	0	3
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	0	10	7	4	12	5	1	42
APPROACH %'s :	100.00%	0.00%	58.82%	41.18%	25.00%	75.00%	83.33%	16.67%	
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	1	0	7	5	2	8	4	0	27
PEAK HR FACTOR :	0.250		0.583	0.625	0.250	0.250	0.500		0.450
	0.250		0.750		0.250		0.500		

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	2	1	1	2	3	1	0	10
4:15 PM	1	1	1	2	0	0	3	2	10
4:30 PM	0	0	2	0	1	0	3	0	6
4:45 PM	0	0	0	0	0	0	2	0	2
5:00 PM	1	1	1	4	2	0	1	1	11
5:15 PM	0	1	1	0	1	2	0	1	6
5:30 PM	1	1	0	0	1	0	1	0	4
5:45 PM	0	0	1	3	1	1	3	0	9
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	6	7	10	8	6	14	4	58
APPROACH %'s :	33.33%	66.67%	41.18%	58.82%	57.14%	42.86%	77.78%	22.22%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	2	3	3	7	5	3	5	2	30
PEAK HR FACTOR :	0.500	0.750	0.750	0.438	0.625	0.375	0.417	0.500	0.682
	0.625		0.500		0.667		0.583		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Alpenrose Ct
City: Newark
Control: Signalized

Project ID: 19-08160-003
Date: 3/26/2019

Total

NS/EW Streets:	Mowry Ave				Mowry Ave				Alpenrose Ct				Alpenrose Ct				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	2	3	0	0	1	0.5	0.5	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	126	7	1	32	157	14	11	5	0	0	0	12	0	14	0	385
7:15 AM	1	140	6	0	47	165	3	26	1	0	1	0	4	0	11	0	405
7:30 AM	4	179	9	0	72	180	1	28	4	1	2	0	7	1	19	0	507
7:45 AM	6	174	9	0	80	196	16	27	2	1	2	0	6	2	24	0	545
8:00 AM	8	142	10	0	61	212	8	32	6	1	5	0	11	2	9	0	507
8:15 AM	2	183	20	0	65	199	3	28	5	1	7	0	3	1	14	0	531
8:30 AM	7	170	6	0	59	220	4	41	3	1	1	0	5	1	18	0	536
8:45 AM	8	164	14	1	79	193	9	14	8	1	3	0	9	4	12	0	519
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	42	1278	81	2	495	1522	58	207	34	6	21	0	57	11	121	0	3935
APPROACH %'s :	2.99%	91.09%	5.77%	0.14%	21.69%	66.70%	2.54%	9.07%	55.74%	9.84%	34.43%	0.00%	30.16%	5.82%	64.02%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	23	669	45	0	265	827	31	128	16	4	15	0	25	6	65	0	2119
PEAK HR FACTOR :	0.719	0.914	0.563	0.000	0.828	0.940	0.484	0.780	0.667	1.000	0.536	0.000	0.568	0.750	0.677	0.000	0.972
	0.899				0.965				0.673				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	2	3	0	0	1	0.5	0.5	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	219	18	0	126	188	8	5	11	1	7	0	24	5	64	1	683
4:15 PM	7	200	20	4	124	192	9	8	7	6	8	0	17	2	47	0	651
4:30 PM	11	238	16	3	90	183	6	10	9	3	5	0	9	0	48	0	631
4:45 PM	11	244	18	1	111	167	1	13	10	2	8	0	18	3	53	0	660
5:00 PM	14	237	21	2	112	216	4	7	29	4	15	0	20	1	65	0	747
5:15 PM	7	284	19	4	110	237	6	2	40	5	14	0	18	2	67	0	815
5:30 PM	8	268	22	0	97	209	1	8	12	0	4	0	19	4	63	0	715
5:45 PM	5	234	22	3	109	248	2	3	7	3	2	0	20	5	56	1	720
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	69	1924	156	17	879	1640	37	56	125	24	63	0	145	22	463	2	5622
APPROACH %'s :	3.19%	88.83%	7.20%	0.78%	33.65%	62.79%	1.42%	2.14%	58.96%	11.32%	29.72%	0.00%	22.94%	3.48%	73.26%	0.32%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	34	1023	84	9	428	910	13	20	88	12	35	0	77	12	251	1	2997
PEAK HR FACTOR :	0.607	0.901	0.955	0.563	0.955	0.917	0.542	0.625	0.550	0.600	0.583	0.000	0.963	0.600	0.937	0.250	0.919
	0.916				0.947				0.572				0.980				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Alpenrose Ct
City: Newark
Control: Signalized

Project ID: 19-08160-003
Date: 3/26/2019

Bikes

NS/EW Streets: Mowry Ave (Northbound) | Mowry Ave (Southbound) | Alpenrose Ct (Eastbound) | Alpenrose Ct (Westbound)

AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	2	3	0	0	1	0.5	0.5	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%									0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.750
	0.500												0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	2	3	0	0	1	0.5	0.5	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	1	2	0	0	0	1	0	0	2	0	0	0	10
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	1	2	0	0	0	1	0	0	0	0	0	0	7
PEAK HR FACTOR :	0.00	0.375	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.583
	0.375				0.375				0.250								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & Alpenrose Ct **Project ID:** 19-08160-003
City: Newark **Date:** 3/26/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Mowry Ave		Mowry Ave		Alpenrose Ct		Alpenrose Ct		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	2	3
8:15 AM	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	1	0	0	0	0	0	2	4
APPROACH %'s :	50.00%	50.00%					0.00%	100.00%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	1	1	0	0	0	0	0	2	4
PEAK HR FACTOR :	0.250	0.250						0.250	0.333
	0.500						0.250		

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	1	1	1	0	0	0	1	0	4
4:15 PM	0	0	1	0	1	0	0	0	2
4:30 PM	0	0	2	3	0	0	0	0	5
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	3	1	3	0	1	0	9
5:15 PM	0	0	1	0	0	0	0	1	2
5:30 PM	0	0	0	1	1	0	0	0	2
5:45 PM	2	1	0	0	0	0	0	0	3
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	4	2	8	5	5	0	2	1	27
APPROACH %'s :	66.67%	33.33%	61.54%	38.46%	100.00%	0.00%	66.67%	33.33%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	3	1	4	2	4	0	1	1	16
PEAK HR FACTOR :	0.375	0.250	0.333	0.500	0.333		0.250	0.250	0.444
	0.333		0.375		0.333		0.500		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & I-880 SB Ramps
City: Newark
Control: Signalized

Project ID: 19-08160-004
Date: 3/26/2019

Total

NS/EW Streets:	Mowry Ave				Mowry Ave				I-880 SB Ramps				I-880 SB Ramps				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	3	1	0	0	3	1	0	2	0	2	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	76	90	0	0	167	149	0	31	0	44	0	0	0	0	0	557
7:15 AM	0	85	96	0	0	196	152	0	37	0	51	0	0	0	0	0	617
7:30 AM	0	121	94	0	0	234	149	0	62	0	59	0	0	0	0	0	719
7:45 AM	0	164	101	0	0	266	176	0	62	0	55	0	0	0	0	0	824
8:00 AM	0	97	90	0	0	267	166	0	74	0	42	0	0	0	0	0	736
8:15 AM	0	148	90	0	0	252	193	1	57	0	40	0	0	0	0	0	781
8:30 AM	0	134	98	0	0	298	190	1	54	0	38	0	0	0	0	0	813
8:45 AM	0	156	75	0	0	241	157	0	69	0	59	0	0	0	0	0	757
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	981	734	0	0	1921	1332	2	446	0	388	0	0	0	0	0	5804
APPROACH %'s :	0.00%	57.20%	42.80%	0.00%	0.00%	59.02%	40.92%	0.06%	53.48%	0.00%	46.52%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	543	379	0	0	1083	725	2	247	0	175	0	0	0	0	0	3154
PEAK HR FACTOR :	0.000	0.828	0.938	0.000	0.000	0.909	0.939	0.500	0.834	0.000	0.795	0.000	0.000	0.000	0.000	0.000	0.957
	0.870				0.925				0.902								

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	3	1	0	0	3	1	0	2	0	2	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	265	95	0	0	241	132	0	165	0	99	0	0	0	0	0	997
4:15 PM	0	237	79	0	0	239	120	0	137	0	96	0	0	0	0	0	908
4:30 PM	0	276	86	0	0	222	115	0	146	0	63	0	0	0	0	0	908
4:45 PM	0	252	104	0	0	227	139	0	161	0	77	0	0	0	0	0	960
5:00 PM	0	316	94	0	0	264	122	0	154	0	94	0	0	0	0	0	1044
5:15 PM	0	323	115	0	0	256	153	0	132	0	91	0	0	0	0	0	1070
5:30 PM	0	306	81	0	0	242	138	0	128	0	76	0	0	0	0	0	971
5:45 PM	0	285	61	0	0	285	110	0	145	0	93	0	0	0	0	0	979
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2260	715	0	0	1976	1029	0	1168	0	689	0	0	0	0	0	7837
APPROACH %'s :	0.00%	75.97%	24.03%	0.00%	0.00%	65.76%	34.24%	0.00%	62.90%	0.00%	37.10%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1230	351	0	0	1047	523	0	559	0	354	0	0	0	0	0	4064
PEAK HR FACTOR :	0.000	0.952	0.763	0.000	0.000	0.918	0.855	0.000	0.907	0.000	0.941	0.000	0.000	0.000	0.000	0.000	0.950
	0.902				0.960				0.920								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & I-880 SB Ramps
City: Newark
Control: Signalized

Project ID: 19-08160-004
Date: 3/26/2019

Bikes

NS/EW Streets:	Mowry Ave				Mowry Ave				I-880 SB Ramps				I-880 SB Ramps				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	3	1	0	0	3	1	0	2	0	2	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375
	0.500				0.250												

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	3	1	0	0	3	1	0	2	0	2	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375
	0.250				0.750												

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & I-880 SB Ramps **Project ID:** 19-08160-004
City: Newark **Date:** 3/26/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Mowry Ave		Mowry Ave		I-880 SB Ramps		I-880 SB Ramps				
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	SB	NB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	0	1	0	2
7:45 AM	0	0	0	0	0	1	0	0	1	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	1	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	SB	NB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	3	0	0	3	0	6
APPROACH %'s :					0.00%	100.00%			100.00%		
PEAK HR :	07:45 AM - 08:45 AM										TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	1	0	2
PEAK HR FACTOR :						0.250			0.250		0.250
					0.250						

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	SB	NB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	1	0	2
4:30 PM	0	0	0	0	1	4	0	0	4	1	10
4:45 PM	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	1	0	0	1	1	4
5:15 PM	0	0	0	0	2	0	0	1	0	2	5
5:30 PM	0	0	0	0	1	1	0	0	1	1	4
5:45 PM	0	0	0	0	0	0	1	1	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	SB	NB	TOTAL
TOTAL VOLUMES :	0	0	0	0	5	7	1	2	7	5	27
APPROACH %'s :					41.67%	58.33%	33.33%	66.67%	100.00%	100.00%	
PEAK HR :	05:00 PM - 06:00 PM										TOTAL
PEAK HR VOL :	0	0	0	0	4	2	1	2	2	4	15
PEAK HR FACTOR :					0.500	0.500	0.250	0.500	0.500	0.500	0.750
					0.750		0.375			0.500	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & I-880 NB Ramps
City: Fremont
Control: Signalized

Project ID: 19-08160-005
Date: 3/26/2019

Total

NS/EW Streets:	Mowry Ave				Mowry Ave				I-880 NB Ramps				I-880 NB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	4	1	0	0	0	0	0	2	0	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	76	34	0	0	261	133	0	0	0	0	0	64	0	77	0	645
7:15 AM	0	89	30	0	0	279	131	0	0	0	0	0	85	0	50	0	664
7:30 AM	0	156	38	0	0	305	150	0	0	0	0	0	71	0	90	0	810
7:45 AM	0	169	54	0	0	359	168	0	0	0	0	0	92	0	109	0	951
8:00 AM	0	156	22	0	0	373	162	0	0	0	0	0	78	0	80	0	871
8:15 AM	0	175	35	0	0	369	208	0	0	0	0	0	85	0	116	0	988
8:30 AM	0	166	28	0	0	425	134	0	0	0	0	0	59	0	95	0	907
8:45 AM	0	184	44	0	0	333	163	0	0	0	0	0	66	0	106	0	896
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1171	285	0	0	2704	1249	0	0	0	0	0	600	0	723	0	6732
APPROACH %'s :	0.00%	80.43%	19.57%	0.00%	0.00%	68.40%	31.60%	0.00%					45.35%	0.00%	54.65%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	666	139	0	0	1526	672	0	0	0	0	0	314	0	400	0	3717
PEAK HR FACTOR :	0.000	0.951	0.644	0.000	0.000	0.898	0.808	0.000	0.000	0.000	0.000	0.000	0.853	0.000	0.862	0.000	0.941
	0.902				0.952								0.888				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	1	0	0	4	1	0	0	0	0	0	2	0	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	353	76	0	0	282	118	0	0	0	0	0	74	0	197	0	1100
4:15 PM	0	304	73	0	0	296	115	0	0	0	0	0	64	0	228	0	1080
4:30 PM	0	345	80	0	0	281	115	0	0	0	0	0	56	0	236	0	1113
4:45 PM	0	337	75	0	0	314	119	0	0	0	0	0	68	0	240	0	1153
5:00 PM	0	362	105	0	0	312	117	0	0	0	0	0	81	0	231	0	1208
5:15 PM	0	361	95	0	0	342	114	0	0	0	0	0	80	0	250	0	1242
5:30 PM	0	344	101	0	0	308	112	0	0	0	0	0	68	0	219	0	1152
5:45 PM	0	380	65	0	0	332	111	0	0	0	0	0	67	0	189	0	1144
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2786	670	0	0	2467	921	0	0	0	0	0	558	0	1790	0	9192
APPROACH %'s :	0.00%	80.61%	19.39%	0.00%	0.00%	72.82%	27.18%	0.00%					23.76%	0.00%	76.24%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1404	376	0	0	1276	462	0	0	0	0	0	297	0	940	0	4755
PEAK HR FACTOR :	0.000	0.970	0.895	0.000	0.000	0.933	0.971	0.000	0.000	0.000	0.000	0.000	0.917	0.000	0.940	0.000	0.957
	0.953				0.953								0.937				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & I-880 NB Ramps
City: Fremont
Control: Signalized

Project ID: 19-08160-005
Date: 3/26/2019

Bikes

NS/EW Streets:	Mowry Ave				Mowry Ave				I-880 NB Ramps				I-880 NB Ramps				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	3	1	0	0	4	1	0	0	0	0	0	2	0	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.250				0.250												

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	3	1	0	0	4	1	0	0	0	0	0	2	0	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250				0.250												

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mowry Ave & I-880 NB Ramps **Project ID:** 19-08160-005
City: Fremont **Date:** 3/26/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Mowry Ave		Mowry Ave		I-880 NB Ramps		I-880 NB Ramps		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	3	0	0	4
APPROACH %'s :					25.00%	75.00%			
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	1
PEAK HR FACTOR :					0.250				0.250
					0.250				

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	3	0	0	3
4:30 PM	0	0	0	0	0	4	0	0	4
4:45 PM	0	0	0	0	2	1	0	0	3
5:00 PM	0	0	0	0	2	2	0	0	4
5:15 PM	1	0	0	0	2	1	0	0	4
5:30 PM	0	0	0	0	1	0	0	0	1
5:45 PM	1	0	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	0	0	0	7	11	0	0	20
APPROACH %'s :	100.00%	0.00%			38.89%	61.11%			
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	1	0	0	0	7	4	0	0	12
PEAK HR FACTOR :	0.250				0.875	0.500			0.750
	0.250				0.688				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Central Ave & Cherry St
City: Newark
Control: Signalized

Project ID: 19-08160-006
Date: 3/26/2019

Total

NS/EW Streets:	Central Ave				Central Ave				Cherry St				Cherry St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	2	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	23	109	0	88	53	7	0	8	109	5	2	87	56	28	0	576
7:15 AM	5	25	144	0	89	64	13	0	11	164	3	0	93	54	24	0	689
7:30 AM	3	43	181	1	103	44	5	0	16	154	3	0	98	105	45	0	801
7:45 AM	5	41	128	0	108	55	12	0	27	148	9	0	101	92	63	0	789
8:00 AM	4	43	172	0	108	49	22	0	22	141	5	0	88	68	38	0	760
8:15 AM	3	53	198	1	118	47	15	0	17	150	5	0	58	56	32	0	753
8:30 AM	1	38	166	0	81	51	9	0	20	89	5	0	70	62	36	1	629
8:45 AM	1	36	138	0	106	33	13	0	21	122	4	1	74	73	22	0	644
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	23	302	1236	2	801	396	96	0	142	1077	39	3	669	566	288	1	5641
APPROACH %'s :	1.47%	19.32%	79.08%	0.13%	61.95%	30.63%	7.42%	0.00%	11.26%	85.41%	3.09%	0.24%	43.90%	37.14%	18.90%	0.07%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	15	180	679	2	437	195	54	0	82	593	22	0	345	321	178	0	3103
PEAK HR FACTOR :	0.750	0.849	0.857	0.500	0.926	0.886	0.614	0.000	0.759	0.963	0.611	0.000	0.854	0.764	0.706	0.000	0.968
	0.859				0.953				0.947				0.824				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	2	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	73	142	0	36	30	14	0	15	56	7	1	95	100	92	0	665
4:15 PM	4	51	132	1	42	26	12	0	14	88	7	0	85	120	94	0	676
4:30 PM	10	89	185	1	45	35	10	0	23	80	1	0	108	140	110	0	837
4:45 PM	1	81	144	0	46	29	21	0	26	107	3	0	97	131	129	0	815
5:00 PM	5	82	167	0	44	36	16	0	23	81	1	0	116	141	108	0	820
5:15 PM	2	79	152	0	51	27	14	0	16	85	5	0	121	166	116	0	834
5:30 PM	2	84	163	0	37	25	13	0	21	71	5	2	124	133	129	0	809
5:45 PM	3	74	140	0	53	22	17	0	17	96	3	1	108	143	94	0	771
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	31	613	1225	2	354	230	117	0	155	664	32	4	854	1074	872	0	6227
APPROACH %'s :	1.66%	32.76%	65.47%	0.11%	50.50%	32.81%	16.69%	0.00%	18.13%	77.66%	3.74%	0.47%	30.50%	38.36%	31.14%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	18	331	648	1	186	127	61	0	88	353	10	0	442	578	463	0	3306
PEAK HR FACTOR :	0.450	0.930	0.876	0.250	0.912	0.882	0.726	0.000	0.846	0.825	0.500	0.000	0.913	0.870	0.897	0.000	0.987
	0.875				0.974				0.829				0.920				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Central Ave & Cherry St
City: Newark
Control: Signalized

Project ID: 19-08160-006
Date: 3/26/2019

Bikes

NS/EW Streets:	Central Ave				Central Ave				Cherry St				Cherry St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	2	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	3	0	0	0	0	2	0	0	0	1	0	0	6
7:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	3
7:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
8:00 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
8:15 AM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	3	2	0	0	0	8	0	0	1	3	0	0	21
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	60.00%	40.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	4	0	0	0	1	0	0	0	5	0	0	1	1	0	0	12
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.625	0.000	0.000	0.250	0.250	0.000	0.000	0.750
	0.500				0.250				0.625				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	2	2	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
5:45 PM	0	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	2	0	0	2	0	0	1	3	0	0	0	3	0	0	16
APPROACH %'s :	14.29%	57.14%	28.57%	0.00%	0.00%	100.00%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	1	1	0	0	1	0	0	1	1	0	0	0	2	0	0	7
PEAK HR FACTOR :	0.00	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.350
	0.250				0.250				0.500				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Central Ave & Cherry St
City: Newark

Project ID: 19-08160-006
Date: 3/26/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Central Ave		Central Ave		Cherry St		Cherry St						
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	3	0	0	0	0	0	0	3	0	0	6
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	1	2	1	0	0	0	0	0	0	6
8:00 AM	0	2	2	0	1	0	0	1	2	0	0	1	9
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	2	7	1	3	2	0	1	2	3	0	1	23
APPROACH %'s :	33.33%	66.67%	87.50%	12.50%	60.00%	40.00%	0.00%	100.00%	40.00%	60.00%	0.00%	100.00%	
PEAK HR :	07:30 AM - 08:30 AM												TOTAL
PEAK HR VOL :	0	2	4	1	3	1	0	1	2	0	0	1	15
PEAK HR FACTOR :		0.250	0.500	0.250	0.375	0.250		0.250	0.250			0.250	0.417
	0.250		0.417		0.333		0.250		0.250		0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	2	0	1	0	0	1	0	0	0	1	0	5
4:45 PM	0	2	0	0	0	0	1	0	1	0	0	0	4
5:00 PM	0	0	0	1	0	0	0	0	0	0	1	1	3
5:15 PM	0	0	1	0	1	0	0	0	1	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	2
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	4	1	2	1	0	2	1	2	0	2	2	18
APPROACH %'s :	20.00%	80.00%	33.33%	66.67%	100.00%	0.00%	66.67%	33.33%	100.00%	0.00%	50.00%	50.00%	
PEAK HR :	04:30 PM - 05:30 PM												TOTAL
PEAK HR VOL :	0	4	1	2	1	0	2	0	2	0	2	1	15
PEAK HR FACTOR :		0.500	0.250	0.500	0.250		0.500		0.500		0.500	0.250	0.750
	0.500		0.750		0.250		0.500		0.500		0.375		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Stevenson Blvd & Cherry St
City: Fremont
Control: Signalized

Project ID: 19-08160-007
Date: 3/26/2019

Total

NS/EW Streets:	Stevenson Blvd				Stevenson Blvd				Cherry St				Cherry St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	12	13	0	48	66	24	1	23	214	19	0	17	39	14	0	492
7:15 AM	4	7	7	0	72	59	38	2	23	253	16	0	18	40	19	0	558
7:30 AM	3	11	11	0	94	71	35	1	27	256	18	2	20	32	24	0	605
7:45 AM	4	8	11	0	110	103	27	3	36	336	41	1	22	48	22	0	772
8:00 AM	1	14	24	0	98	102	33	2	38	334	24	1	19	32	27	0	749
8:15 AM	3	7	34	0	105	124	28	0	43	336	19	4	19	41	38	0	801
8:30 AM	8	14	41	0	102	115	28	0	35	352	34	5	18	43	25	0	820
8:45 AM	9	16	56	0	94	163	39	0	42	323	38	2	29	49	34	0	894
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	34	89	197	0	723	803	252	9	267	2404	209	15	162	324	203	0	5691
APPROACH %'s :	10.63%	27.81%	61.56%	0.00%	40.46%	44.94%	14.10%	0.50%	9.22%	83.04%	7.22%	0.52%	23.51%	47.02%	29.46%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	21	51	155	0	399	504	128	2	158	1345	115	12	85	165	124	0	3264
PEAK HR FACTOR :	0.583	0.797	0.692	0.000	0.950	0.773	0.821	0.250	0.919	0.955	0.757	0.600	0.733	0.842	0.816	0.000	0.913
	0.701				0.872				0.957				0.835				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	1	0	1	2	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	51	17	0	45	24	25	0	42	84	5	2	4	230	96	0	647
4:15 PM	17	46	9	0	36	13	33	0	31	108	3	1	3	257	70	0	627
4:30 PM	32	111	35	0	35	15	29	1	52	128	5	4	9	259	76	0	791
4:45 PM	18	69	22	0	33	19	41	0	62	107	10	5	9	260	112	0	767
5:00 PM	37	94	32	0	46	15	36	0	54	131	3	0	13	268	120	1	850
5:15 PM	36	86	30	0	41	15	45	2	52	115	3	2	6	309	88	0	830
5:30 PM	33	100	40	0	37	20	30	1	49	97	5	3	10	281	99	0	805
5:45 PM	13	76	32	0	35	20	41	1	59	139	2	1	8	308	109	0	844
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	208	633	217	0	308	141	280	5	401	909	36	18	62	2172	770	1	6161
APPROACH %'s :	19.66%	59.83%	20.51%	0.00%	41.96%	19.21%	38.15%	0.68%	29.40%	66.64%	2.64%	1.32%	2.06%	72.28%	25.62%	0.03%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	119	356	134	0	159	70	152	4	214	482	13	6	37	1166	416	1	3329
PEAK HR FACTOR :	0.804	0.890	0.838	0.000	0.864	0.875	0.844	0.500	0.907	0.867	0.650	0.500	0.712	0.943	0.867	0.250	0.979
	0.880				0.934				0.889				0.953				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Stevenson Blvd & Cherry St
City: Fremont
Control: Signalized

Project ID: 19-08160-007
Date: 3/26/2019

Bikes

NS/EW Streets:	Stevenson Blvd				Stevenson Blvd				Cherry St				Cherry St				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1	2	1	0	1	2	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	3	1	0	0	0	0	0	5
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	1	1	0	0	0	1	0	0	0	1	0	0	4
8:30 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	4
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	1	3	0	0	0	7	2	0	0	2	0	0	16
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	77.78%	22.22%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	0	1	0	1	2	0	0	0	3	1	0	0	2	0	0	10
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.250	0.500	0.000	0.000	0.000	0.750	0.250	0.000	0.000	0.500	0.000	0.000	0.625
	0.250				0.375				0.500				0.500				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	1	0	1	2	1	0	2	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
4:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4
5:00 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
5:15 PM	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	3	1	0	0	0	0	0	0	2	0	0	0	6	0	0	15
APPROACH %'s :	42.86%	42.86%	14.29%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	1	1	0	0	0	0	0	0	2	0	0	0	3	0	0	9
PEAK HR FACTOR :	0.25	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.563
	0.333								0.500				0.750				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Stevenson Blvd & Cherry St
City: Fremont

Project ID: 19-08160-007
Date: 3/26/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Stevenson Blvd		Stevenson Blvd		Cherry St		Cherry St						
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	2	0	0	0	0	1	0	1	0	1	5
8:30 AM	0	0	0	0	0	0	1	1	0	1	1	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	2	0	0	0	1	2	0	3	1	1	10
APPROACH %'s :			100.00%	0.00%			33.33%	66.67%	0.00%	100.00%	50.00%	50.00%	
PEAK HR :	08:00 AM - 09:00 AM												TOTAL
PEAK HR VOL :	0	0	2	0	0	0	1	2	0	3	1	1	10
PEAK HR FACTOR :			0.250				0.250	0.500		0.750	0.250	0.250	0.500
			0.250				0.375		0.750		0.500		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
4:00 PM	0	1	0	0	0	0	1	1	0	1	1	0	5
4:15 PM	0	1	0	1	0	0	1	0	1	0	1	0	5
4:30 PM	0	0	0	0	1	0	1	0	0	0	1	0	3
4:45 PM	0	0	0	0	0	0	2	0	0	0	2	0	4
5:00 PM	0	0	0	0	0	0	3	0	0	0	3	0	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	1	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	2	0	2	1	0	8	1	2	1	8	0	25
APPROACH %'s :	0.00%	100.00%	0.00%	100.00%	100.00%	0.00%	88.89%	11.11%	66.67%	33.33%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM												TOTAL
PEAK HR VOL :	0	0	0	1	0	0	3	0	1	0	3	0	8
PEAK HR FACTOR :				0.250			0.250		0.250		0.250		0.333
			0.250				0.250		0.250		0.250		

Prepared by NDS/ATD

VOLUME

Mowry Ave S/O RR Tracks

Day: Tuesday
Date: 3/26/2019

City: Newark
Project #: CA19_8161_001

DAILY TOTALS	NB	SB	EB	WB	Total
	457	467	0	0	924

AM Period	NB		SB		EB	WB	TOTAL	
00:00	0		0				0	
00:15	1		0				1	
00:30	0		0				0	
00:45	0	1	0				0	1
01:00	0		0				0	
01:15	0		2				2	
01:30	0		0				0	
01:45	1	1	0	2			1	3
02:00	1		1				2	
02:15	1		0				1	
02:30	0		0				0	
02:45	0	2	0	1			0	3
03:00	0		1				1	
03:15	1		0				1	
03:30	0		1				1	
03:45	1	2	0	2			1	4
04:00	0		0				0	
04:15	1		2				3	
04:30	0		2				2	
04:45	1	2	10	14			11	16
05:00	1		3				4	
05:15	0		2				2	
05:30	0		1				1	
05:45	0	1	2	8			2	9
06:00	0		1				1	
06:15	1		0				1	
06:30	2		2				4	
06:45	3	6	1	4			4	10
07:00	1		1				2	
07:15	0		3				3	
07:30	0		1				1	
07:45	1	2	5	10			6	12
08:00	1		3				4	
08:15	1		2				3	
08:30	2		3				5	
08:45	1	5	8	16			9	21
09:00	1		8				9	
09:15	3		3				6	
09:30	4		7				11	
09:45	5	13	11	29			16	42
10:00	1		10				11	
10:15	8		19				27	
10:30	11		12				23	
10:45	12	32	17	58			29	90
11:00	13		14				27	
11:15	9		17				26	
11:30	10		15				25	
11:45	14	46	16	62			30	108
TOTALS		113		206				**319**
SPLIT %		35.4%		64.6%				**34.5%**

PM Period	NB		SB		EB	WB	TOTAL	
12:00	16		11				27	
12:15	14		12				26	
12:30	13		12				25	
12:45	12	55	17	52			29	107
13:00	9		16				25	
13:15	10		12				22	
13:30	14		13				27	
13:45	18	51	10	51			28	102
14:00	20		11				31	
14:15	12		8				20	
14:30	13		14				27	
14:45	15	60	8	41			23	101
15:00	9		11				20	
15:15	15		14				29	
15:30	16		7				23	
15:45	12	52	9	41			21	93
16:00	18		9				27	
16:15	4		12				16	
16:30	8		7				15	
16:45	14	44	8	36			22	80
17:00	12		4				16	
17:15	12		4				16	
17:30	8		7				15	
17:45	6	38	1	16			7	54
18:00	13		4				17	
18:15	4		0				4	
18:30	2		1				3	
18:45	5	24	1	6			6	30
19:00	4		3				7	
19:15	1		0				1	
19:30	0		0				0	
19:45	1	6	1	4			2	10
20:00	0		0				0	
20:15	0		2				2	
20:30	0		0				0	
20:45	2	2	1	3			3	5
21:00	2		2				4	
21:15	0		1				1	
21:30	3		2				5	
21:45	0	5	0	5			0	10
22:00	0		0				0	
22:15	0		2				2	
22:30	3		1				4	
22:45	1	4	0	3			1	7
23:00	0		1				1	
23:15	2		2				4	
23:30	1		0				1	
23:45	0	3	0	3			0	6
TOTALS		344		261				**605**
SPLIT %		56.9%		43.1%				**65.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	457	467	0	0	924

	NB	SB	EB	WB	Total
AM Peak Hour	11:45	10:45			**11:00**
AM Pk Volume	57	63			**108**
Pk Hr Factor	0.891	0.926			**0.900**
7 - 9 Volume	7	26	0	0	**33**
7 - 9 Peak Hour	07:45	08:00			**08:00**
7 - 9 Pk Volume	5	16	0	0	**21**
Pk Hr Factor	0.625	0.500	0.000	0.000	**0.583**

	NB	SB	EB	WB	Total
PM Peak Hour	13:30	12:45			**13:15**
PM Pk Volume	64	58			**108**
Pk Hr Factor	0.800	0.853			**0.871**
4 - 6 Volume	82	52	0	0	**134**
4 - 6 Peak Hour	16:30	16:00			**16:00**
4 - 6 Pk Volume	46	36	0	0	**80**
Pk Hr Factor	0.821	0.750	0.000	0.000	**0.741**

Appendix B:
Lane Configuration and Volumes

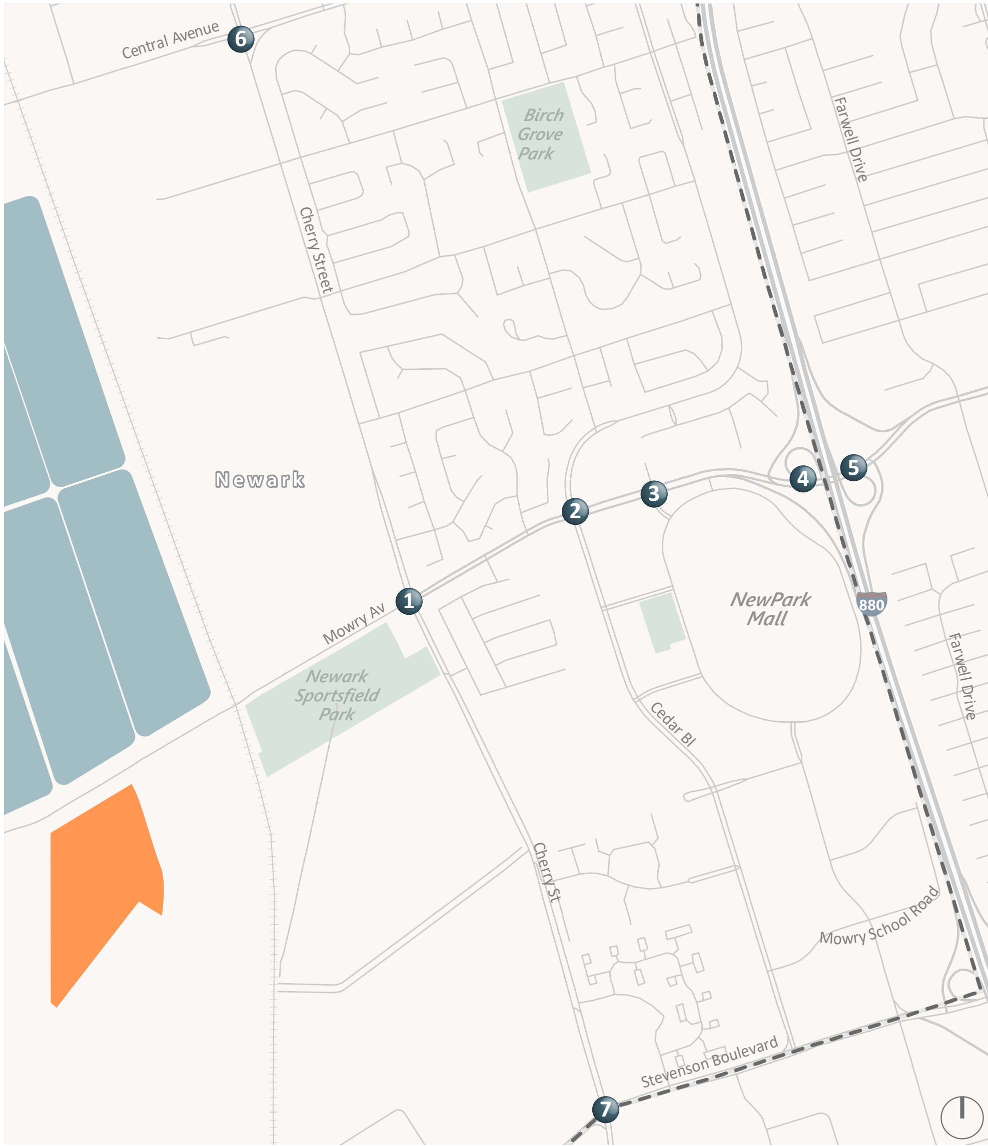
XX (YY) AM (PM) Peak Hour Traffic Volumes — Signalized Intersection

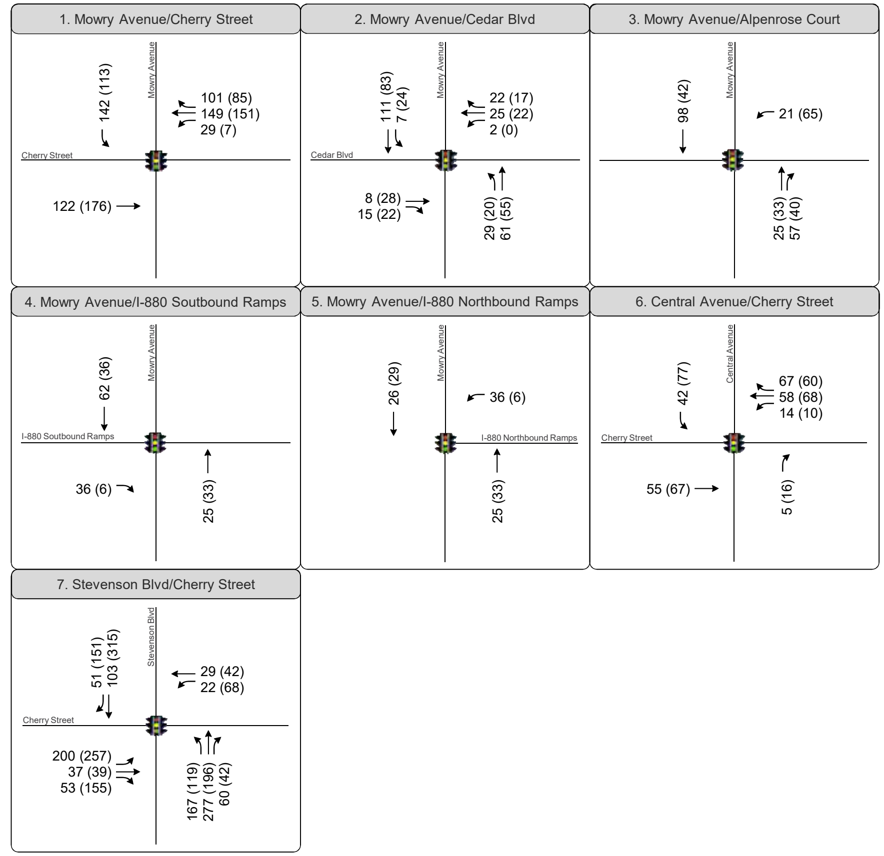
Project Site — Study Intersections — City Boundary

Figure B-1

Existing Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK19-0311.00_X_Volumes





XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Project Site

Study Intersections

City Boundary

Figure B-2

Peak Hour Project Trip Assignment

OK19-0311.00_X_Volumes

XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Project Site

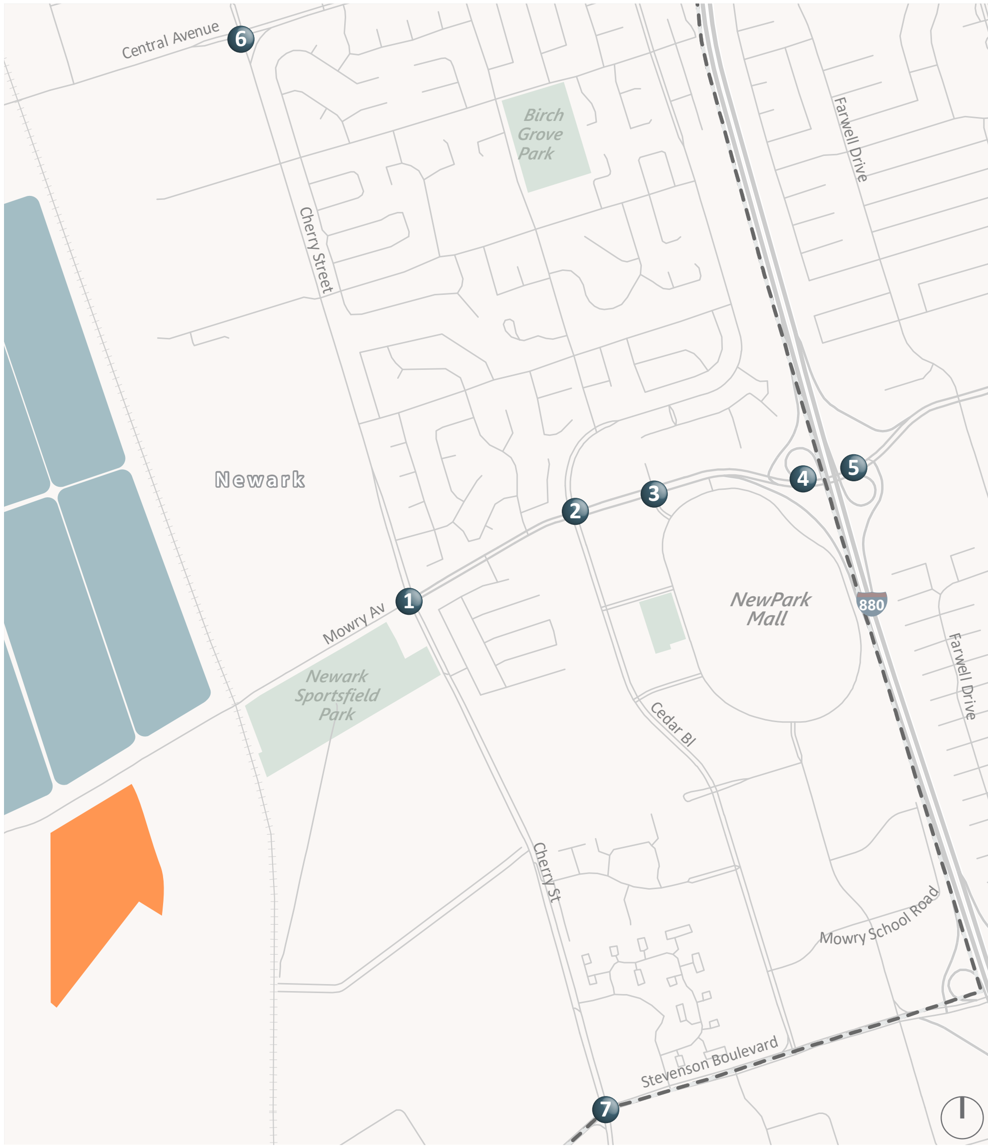
Study Intersections

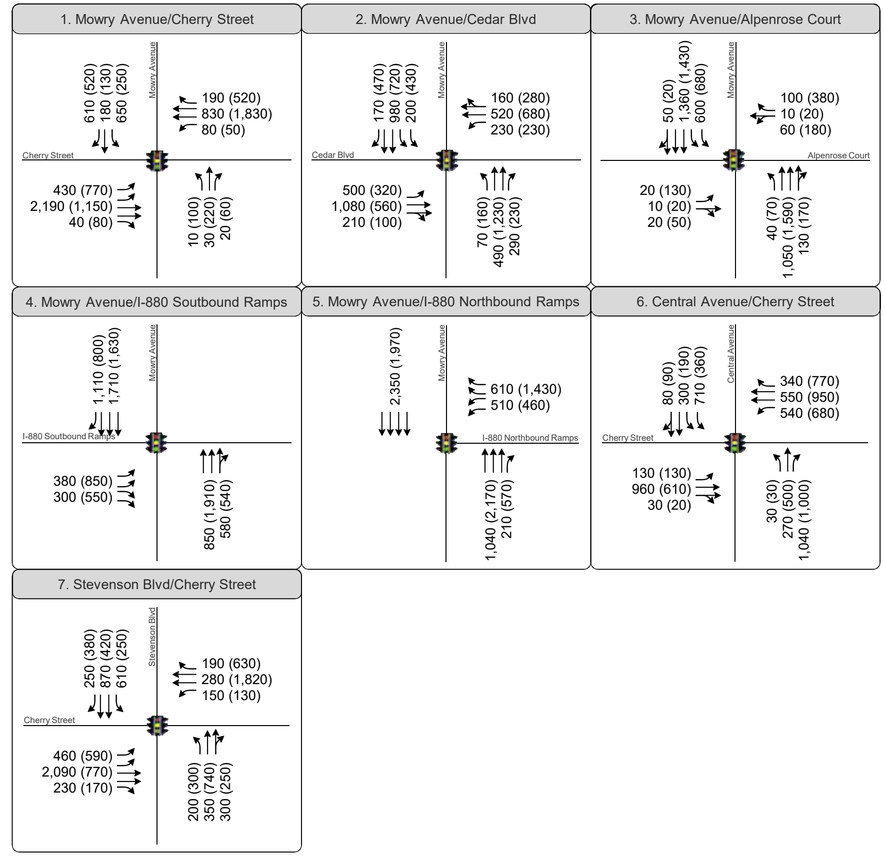
City Boundary

Figure B-3

Existing with Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK19-0311.00_X_Volumes





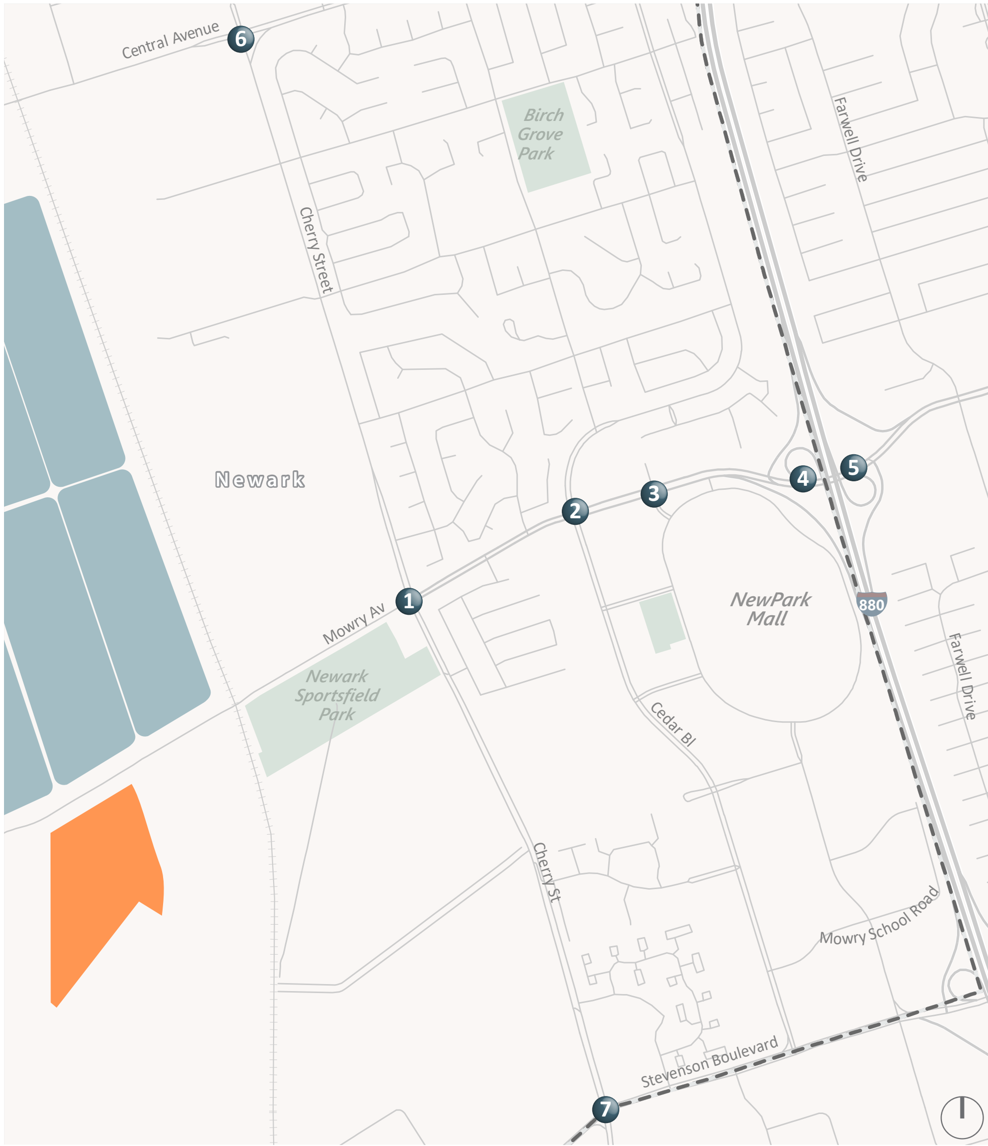
XX (YY) AM (PM) Peak Hour Traffic Volumes — Signalized Intersection

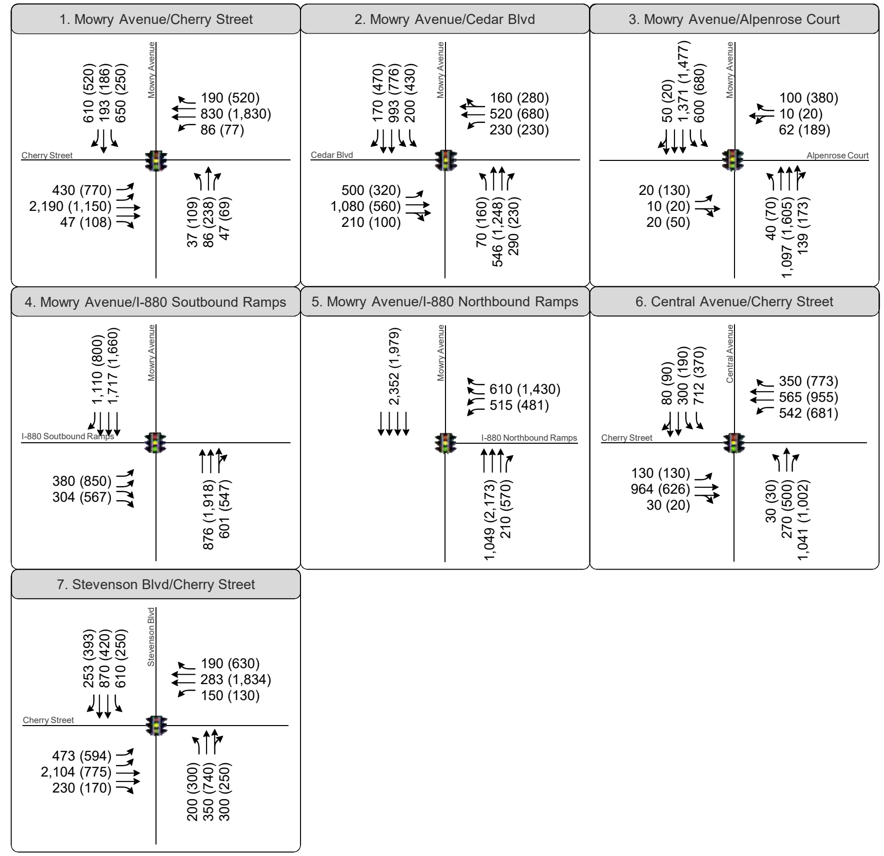
Project Site — # Study Intersections — City Boundary

Figure B-4

Cumulative without Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK19-0311.00_X_Volumes





XX (YY) AM (PM) Peak Hour Traffic Volumes
Signalized Intersection
Project Site
Study Intersections
City Boundary

Figure B-5

Cumulative with Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK19-0311.00_X_Volumes

Appendix C:
LOS Calculation Sheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	1353	24	31	449	60	8	22	12	332	115	398
Future Volume (veh/h)	281	1353	24	31	449	60	8	22	12	332	115	398
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	302	1455	11	33	483	19	9	24	0	357	124	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1656	721	40	1254	553	12	87	74	405	499	424
Arrive On Green	0.12	0.47	0.47	0.02	0.35	0.35	0.01	0.05	0.00	0.23	0.27	0.00
Sat Flow, veh/h	3442	3539	1541	1774	3539	1560	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	302	1455	11	33	483	19	9	24	0	357	124	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1541	1774	1770	1560	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	6.2	27.4	0.3	1.4	7.5	0.6	0.4	0.9	0.0	14.3	3.8	0.0
Cycle Q Clear(g_c), s	6.2	27.4	0.3	1.4	7.5	0.6	0.4	0.9	0.0	14.3	3.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	408	1656	721	40	1254	553	12	87	74	405	499	424
V/C Ratio(X)	0.74	0.88	0.02	0.82	0.39	0.03	0.74	0.28	0.00	0.88	0.25	0.00
Avail Cap(c_a), veh/h	1401	1921	836	722	1777	783	722	758	645	915	885	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.4	17.7	10.5	35.9	17.8	15.6	36.5	33.9	0.0	27.5	21.2	0.0
Incr Delay (d2), s/veh	1.0	4.1	0.0	14.2	0.1	0.0	27.5	0.6	0.0	2.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	14.3	0.1	0.8	3.6	0.3	0.3	0.5	0.0	7.2	2.0	0.0
LnGrp Delay(d),s/veh	32.4	21.8	10.5	50.1	17.9	15.6	64.0	34.6	0.0	30.0	21.2	0.0
LnGrp LOS	C	C	B	D	B	B	E	C		C	C	
Approach Vol, veh/h		1768			535			33			481	
Approach Delay, s/veh		23.5			19.8			42.6			27.8	
Approach LOS		C			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	39.8	4.0	24.7	13.5	31.4	20.3	8.4
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	37.0	38.0	30.0
Max Q Clear Time (g_c+I1), s	3.4	29.4	2.4	5.8	8.2	9.5	16.3	2.9
Green Ext Time (p_c), s	0.0	5.1	0.0	0.4	0.5	1.9	0.5	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		23.8
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	331	706	128	151	326	93	25	281	193	125	567	111
Future Volume (veh/h)	331	706	128	151	326	93	25	281	193	125	567	111
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	409	872	148	186	402	94	31	347	10	154	700	22
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	1093	186	231	664	154	44	793	350	244	956	423
Arrive On Green	0.26	0.36	0.36	0.13	0.23	0.23	0.02	0.22	0.22	0.07	0.27	0.27
Sat Flow, veh/h	1774	3014	512	1774	2845	659	1774	3539	1562	3442	3539	1566
Grp Volume(v), veh/h	409	512	508	186	248	248	31	347	10	154	700	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1756	1774	1770	1734	1774	1770	1562	1721	1770	1566
Q Serve(g_s), s	17.8	20.8	20.8	8.2	10.0	10.2	1.4	6.8	0.4	3.5	14.4	0.8
Cycle Q Clear(g_c), s	17.8	20.8	20.8	8.2	10.0	10.2	1.4	6.8	0.4	3.5	14.4	0.8
Prop In Lane	1.00		0.29	1.00		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	461	642	637	231	413	404	44	793	350	244	956	423
V/C Ratio(X)	0.89	0.80	0.80	0.80	0.60	0.61	0.70	0.44	0.03	0.63	0.73	0.05
Avail Cap(c_a), veh/h	730	893	886	663	893	875	531	2183	964	901	2051	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	22.9	22.9	33.9	27.4	27.5	38.8	26.8	24.3	36.3	26.6	21.7
Incr Delay (d2), s/veh	8.2	3.5	3.6	6.4	1.4	1.5	18.3	0.4	0.0	2.7	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	10.7	10.6	4.4	5.1	5.1	0.9	3.3	0.2	1.8	7.1	0.4
LnGrp Delay(d),s/veh	36.8	26.5	26.5	40.3	28.9	29.0	57.2	27.2	24.3	38.9	27.7	21.7
LnGrp LOS	D	C	C	D	C	C	E	C	C	D	C	C
Approach Vol, veh/h		1429			682			388			876	
Approach Delay, s/veh		29.4			32.0			29.5			29.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	22.5	14.5	33.6	6.0	26.2	24.9	23.2
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	21.0	49.5	30.0	40.5	24.0	46.5	33.0	40.5
Max Q Clear Time (g_c+I1), s	5.5	8.8	10.2	22.8	3.4	16.4	19.8	12.2
Green Ext Time (p_c), s	0.4	2.4	0.5	6.3	0.0	5.2	1.1	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	15	25	6	65	23	669	45	393	827	31
Future Volume (veh/h)	16	4	15	25	6	65	23	669	45	393	827	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	4	1	26	6	4	24	690	43	405	853	31
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	44	11	67	15	71	41	1464	91	659	2355	85
Arrive On Green	0.03	0.03	0.03	0.05	0.05	0.05	0.02	0.30	0.30	0.19	0.47	0.47
Sat Flow, veh/h	1774	1438	359	1454	336	1554	1774	4891	303	3442	5038	183
Grp Volume(v), veh/h	16	0	5	32	0	4	24	477	256	405	574	310
Grp Sat Flow(s),veh/h/ln	1774	0	1797	1790	0	1554	1774	1695	1804	1721	1695	1830
Q Serve(g_s), s	0.4	0.0	0.1	0.7	0.0	0.1	0.5	4.6	4.7	4.4	4.4	4.4
Cycle Q Clear(g_c), s	0.4	0.0	0.1	0.7	0.0	0.1	0.5	4.6	4.7	4.4	4.4	4.4
Prop In Lane	1.00		0.20	0.81		1.00	1.00		0.17	1.00		0.10
Lane Grp Cap(c), veh/h	55	0	55	82	0	71	41	1015	540	659	1585	856
V/C Ratio(X)	0.29	0.00	0.09	0.39	0.00	0.06	0.58	0.47	0.47	0.61	0.36	0.36
Avail Cap(c_a), veh/h	1732	0	1755	1748	0	1518	1140	4065	2163	3488	4316	2330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	19.1	18.8	0.0	18.5	19.6	11.6	11.6	15.0	6.9	6.9
Incr Delay (d2), s/veh	2.9	0.0	0.7	3.0	0.0	0.3	12.1	0.3	0.6	0.9	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	0.4	0.0	0.0	0.4	2.2	2.4	2.1	2.0	2.2
LnGrp Delay(d),s/veh	22.1	0.0	19.8	21.8	0.0	18.8	31.7	11.9	12.2	15.9	7.0	7.2
LnGrp LOS	C		B	C		B	C	B	B	B	A	A
Approach Vol, veh/h		21			36			757			1289	
Approach Delay, s/veh		21.5			21.4			12.6			9.9	
Approach LOS		C			C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	16.6		5.7	4.9	23.4		6.3
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5
Max Green Setting (Gmax), s	41.0	48.5		39.5	26.0	51.5		39.5
Max Q Clear Time (g_c+I1), s	6.4	6.7		2.4	2.5	6.4		2.7
Green Ext Time (p_c), s	1.5	5.3		0.0	0.0	6.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	0	175	0	0	0	0	543	379	0	1083	725
Future Volume (veh/h)	247	0	175	0	0	0	0	543	379	0	1083	725
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	257	0	141				0	566	0	0	1128	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	752	0	349				6	2553	0	0	2553	795
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.00	0.00	0.50	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	257	0	141				0	566	0	0	1128	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	2.0	0.0	4.5				0.0	2.0	0.0	0.0	4.6	0.0
Cycle Q Clear(g_c), s	2.0	0.0	4.5				0.0	2.0	0.0	0.0	4.6	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	752	0	349				6	2553	0	0	2553	795
V/C Ratio(X)	0.34	0.00	0.40				0.00	0.22	0.00	0.00	0.44	0.00
Avail Cap(c_a), veh/h	3313	0	2423				661	6317	0	0	6317	1967
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	67.5				0.0	4.5	0.0	0.0	5.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.3				0.0	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.3				0.0	0.9	0.0	0.0	2.1	0.0
LnGrp Delay(d),s/veh	10.7	0.0	67.7				0.0	4.5	0.0	0.0	5.2	0.0
LnGrp LOS	B		E					A			A	
Approach Vol, veh/h		398						566			1128	
Approach Delay, s/veh		30.9						4.5			5.2	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	21.2				21.2		11.0
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	12.0	40.0				40.0		31.0
Max Q Clear Time (g_c+I1), s	0.0	6.6				4.0		6.5
Green Ext Time (p_c), s	0.0	9.5				4.2		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	314	400	666	139	0	1526
Future Volume (vph)	314	400	666	139	0	1526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	4.5	4.5		4.5
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1549		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1549		6408
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	334	426	709	148	0	1623
RTOR Reduction (vph)	0	169	0	89	0	0
Lane Group Flow (vph)	334	257	709	59	0	1623
Confl. Peds. (#/hr)				1	1	
Confl. Bikes (#/hr)				1		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	9.7	17.8	17.3	17.3		25.9
Effective Green, g (s)	9.7	17.8	17.3	17.3		25.9
Actuated g/C Ratio	0.22	0.41	0.40	0.40		0.59
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	763	1137	2017	614		3806
v/s Ratio Prot	c0.10	0.09	0.14			c0.25
v/s Ratio Perm				0.04		
v/c Ratio	0.44	0.23	0.35	0.10		0.43
Uniform Delay, d1	14.6	8.4	9.2	8.2		4.8
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.1	0.0	0.1	0.1		0.1
Delay (s)	14.7	8.4	9.3	8.3		4.9
Level of Service	B	A	A	A		A
Approach Delay (s)	11.2		9.1			4.9
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	593	22	345	321	178	17	180	679	437	195	54
Future Volume (veh/h)	82	593	22	345	321	178	17	180	679	437	195	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	85	611	0	356	331	0	18	186	0	451	201	38
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	790	0	393	1356	607	22	270	230	547	867	161
Arrive On Green	0.06	0.22	0.00	0.22	0.38	0.00	0.01	0.15	0.00	0.16	0.29	0.29
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	2973	551
Grp Volume(v), veh/h	85	611	0	356	331	0	18	186	0	451	118	121
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1754
Q Serve(g_s), s	3.8	13.1	0.0	15.8	5.2	0.0	0.8	7.7	0.0	10.3	4.1	4.2
Cycle Q Clear(g_c), s	3.8	13.1	0.0	15.8	5.2	0.0	0.8	7.7	0.0	10.3	4.1	4.2
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	110	790	0	393	1356	607	22	270	230	547	516	512
V/C Ratio(X)	0.77	0.77	0.00	0.90	0.24	0.00	0.82	0.69	0.00	0.82	0.23	0.24
Avail Cap(c_a), veh/h	438	1268	0	438	1356	607	438	644	548	851	590	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	29.5	0.0	30.7	17.0	0.0	39.9	32.8	0.0	32.9	21.7	21.8
Incr Delay (d2), s/veh	4.3	0.6	0.0	19.5	0.0	0.0	23.6	1.2	0.0	2.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	6.4	0.0	9.8	2.5	0.0	0.5	4.0	0.0	5.0	2.0	2.1
LnGrp Delay(d),s/veh	41.7	30.1	0.0	50.2	17.0	0.0	63.5	34.0	0.0	35.0	21.8	21.9
LnGrp LOS	D	C		D	B		E	C		C	C	C
Approach Vol, veh/h		696			687			204			690	
Approach Delay, s/veh		31.5			34.2			36.6			30.4	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	36.3	17.9	16.8	22.9	23.4	6.0	28.6
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	20.0	* 25	20.0	28.0	20.0	29.0	20.0	27.0
Max Q Clear Time (g_c+I1), s	5.8	7.2	12.3	9.7	17.8	15.1	2.8	6.2
Green Ext Time (p_c), s	0.1	0.9	0.6	0.5	0.1	1.6	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1345	115	85	165	124	21	51	155	401	504	128
Future Volume (veh/h)	170	1345	115	85	165	124	21	51	155	401	504	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	187	1478	73	93	181	50	23	56	0	441	554	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	261	1616	712	119	1586	699	33	198	0	471	1074	480
Arrive On Green	0.08	0.46	0.46	0.07	0.45	0.45	0.02	0.06	0.00	0.27	0.30	0.00
Sat Flow, veh/h	3442	3539	1560	1774	3539	1561	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	187	1478	73	93	181	50	23	56	0	441	554	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1560	1774	1770	1561	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	5.8	42.9	2.9	5.7	3.3	2.0	1.4	1.7	0.0	26.7	14.2	0.0
Cycle Q Clear(g_c), s	5.8	42.9	2.9	5.7	3.3	2.0	1.4	1.7	0.0	26.7	14.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	1616	712	119	1586	699	33	198	0	471	1074	480
V/C Ratio(X)	0.72	0.91	0.10	0.78	0.11	0.07	0.71	0.28	0.00	0.94	0.52	0.00
Avail Cap(c_a), veh/h	813	1689	744	435	1689	745	258	1592	0	516	2043	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.7	27.9	17.0	50.5	17.7	17.3	53.7	49.8	0.0	39.5	31.7	0.0
Incr Delay (d2), s/veh	3.7	8.0	0.1	10.4	0.0	0.0	24.3	0.8	0.0	23.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	22.7	1.3	3.1	1.6	0.9	0.9	0.8	0.0	16.2	7.0	0.0
LnGrp Delay(d),s/veh	53.4	35.9	17.1	60.9	17.7	17.4	78.0	50.6	0.0	63.1	32.0	0.0
LnGrp LOS	D	D	B	E	B	B	E	D		E	C	
Approach Vol, veh/h		1738			324			79			995	
Approach Delay, s/veh		37.0			30.1			58.6			45.8	
Approach LOS		D			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.2	10.7	11.4	54.7	6.0	37.9	12.3	53.8
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	32.0	49.5	27.0	52.5	16.0	63.5	26.0	52.5
Max Q Clear Time (g_c+I1), s	28.7	3.7	7.7	44.9	3.4	16.2	7.8	5.3
Green Ext Time (p_c), s	0.5	0.3	0.2	5.3	0.0	4.3	0.5	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	39.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	506	640	53	27	1101	288	64	146	42	91	82	342
Future Volume (veh/h)	506	640	53	27	1101	288	64	146	42	91	82	342
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	522	660	29	28	1135	106	66	151	0	94	85	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	627	1952	853	34	1318	580	85	271	230	122	309	263
Arrive On Green	0.18	0.55	0.55	0.02	0.37	0.37	0.05	0.15	0.00	0.07	0.17	0.00
Sat Flow, veh/h	3442	3539	1547	1774	3539	1558	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	522	660	29	28	1135	106	66	151	0	94	85	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1547	1774	1770	1558	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	11.7	8.3	0.7	1.3	23.8	3.7	3.0	6.1	0.0	4.2	3.2	0.0
Cycle Q Clear(g_c), s	11.7	8.3	0.7	1.3	23.8	3.7	3.0	6.1	0.0	4.2	3.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	627	1952	853	34	1318	580	85	271	230	122	309	263
V/C Ratio(X)	0.83	0.34	0.03	0.83	0.86	0.18	0.77	0.56	0.00	0.77	0.28	0.00
Avail Cap(c_a), veh/h	1285	1952	853	662	1630	718	662	696	591	839	812	690
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.7	9.9	8.2	39.3	23.3	17.0	37.8	31.9	0.0	36.8	29.3	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	17.2	3.5	0.1	5.4	0.7	0.0	3.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	4.0	0.3	0.8	12.2	1.6	1.6	3.2	0.0	2.2	1.7	0.0
LnGrp Delay(d),s/veh	32.8	10.0	8.2	56.5	26.8	17.0	43.2	32.6	0.0	40.6	29.5	0.0
LnGrp LOS	C	A	A	E	C	B	D	C		D	C	
Approach Vol, veh/h		1211			1269			217			179	
Approach Delay, s/veh		19.8			26.7			35.8			35.3	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	49.6	7.4	18.3	19.4	35.2	9.0	16.7
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	37.0	38.0	30.0
Max Q Clear Time (g_c+I1), s	3.3	10.3	5.0	5.2	13.7	25.8	6.2	8.1
Green Ext Time (p_c), s	0.0	2.8	0.1	0.2	0.9	4.1	0.1	0.5

Intersection Summary		
HCM 2010 Ctrl Delay		25.0
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	351	48	149	432	173	91	768	148	267	419	309
Future Volume (veh/h)	207	351	48	149	432	173	91	768	148	267	419	309
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	223	377	46	160	465	158	98	826	108	287	451	94
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	869	105	200	610	205	128	1094	479	385	1235	542
Arrive On Green	0.15	0.27	0.27	0.11	0.24	0.24	0.07	0.31	0.31	0.11	0.35	0.35
Sat Flow, veh/h	1774	3170	384	1774	2582	870	1774	3539	1551	3442	3539	1553
Grp Volume(v), veh/h	223	209	214	160	317	306	98	826	108	287	451	94
Grp Sat Flow(s),veh/h/ln	1774	1770	1784	1774	1770	1682	1774	1770	1551	1721	1770	1553
Q Serve(g_s), s	10.8	8.6	8.7	7.8	14.8	15.0	4.8	18.6	4.6	7.1	8.4	3.7
Cycle Q Clear(g_c), s	10.8	8.6	8.7	7.8	14.8	15.0	4.8	18.6	4.6	7.1	8.4	3.7
Prop In Lane	1.00		0.22	1.00		0.52	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	485	489	200	418	397	128	1094	479	385	1235	542
V/C Ratio(X)	0.83	0.43	0.44	0.80	0.76	0.77	0.77	0.76	0.23	0.75	0.37	0.17
Avail Cap(c_a), veh/h	662	811	817	602	811	770	482	1982	869	818	1862	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	26.4	26.5	38.2	31.4	31.5	40.3	27.5	22.7	38.0	21.5	19.9
Incr Delay (d2), s/veh	6.7	0.6	0.6	7.2	2.9	3.2	9.3	1.1	0.2	2.9	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	4.3	4.4	4.2	7.6	7.3	2.7	9.2	2.0	3.5	4.1	1.6
LnGrp Delay(d),s/veh	43.2	27.0	27.1	45.5	34.3	34.7	49.6	28.6	22.9	40.9	21.7	20.1
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		646			783			1032			832	
Approach Delay, s/veh		32.6			36.7			30.0			28.1	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	31.8	14.0	28.7	10.4	35.3	17.3	25.4
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	21.0	49.5	30.0	40.5	24.0	46.5	33.0	40.5
Max Q Clear Time (g_c+I1), s	9.1	20.6	9.8	10.7	6.8	10.4	12.8	17.0
Green Ext Time (p_c), s	0.8	6.7	0.4	2.5	0.2	3.5	0.6	3.9

Intersection Summary		
HCM 2010 Ctrl Delay		31.6
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	12	35	78	12	251	43	1023	84	448	910	13
Future Volume (veh/h)	88	12	35	78	12	251	43	1023	84	448	910	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	96	13	2	85	13	12	47	1112	87	487	989	14
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	136	21	140	21	141	62	1767	138	656	2704	38
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.03	0.37	0.37	0.19	0.52	0.52
Sat Flow, veh/h	1774	1569	241	1548	237	1552	1774	4804	375	3442	5166	73
Grp Volume(v), veh/h	96	0	15	98	0	12	47	785	414	487	649	354
Grp Sat Flow(s),veh/h/ln	1774	0	1810	1785	0	1552	1774	1695	1789	1721	1695	1849
Q Serve(g_s), s	3.5	0.0	0.5	3.5	0.0	0.5	1.7	12.6	12.6	8.8	7.5	7.5
Cycle Q Clear(g_c), s	3.5	0.0	0.5	3.5	0.0	0.5	1.7	12.6	12.6	8.8	7.5	7.5
Prop In Lane	1.00		0.13	0.87		1.00	1.00		0.21	1.00		0.04
Lane Grp Cap(c), veh/h	154	0	157	162	0	141	62	1247	658	656	1775	968
V/C Ratio(X)	0.62	0.00	0.10	0.61	0.00	0.09	0.76	0.63	0.63	0.74	0.37	0.37
Avail Cap(c_a), veh/h	1057	0	1079	1064	0	925	696	2481	1309	2129	2635	1437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	27.9	29.0	0.0	27.6	31.7	17.2	17.2	25.3	9.3	9.3
Incr Delay (d2), s/veh	4.1	0.0	0.3	3.6	0.0	0.3	17.0	0.5	1.0	1.7	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.3	1.9	0.0	0.2	1.1	6.0	6.4	4.3	3.5	3.8
LnGrp Delay(d),s/veh	33.3	0.0	28.1	32.6	0.0	27.9	48.7	17.8	18.2	27.0	9.4	9.5
LnGrp LOS	C		C	C		C	D	B	B	C	A	A
Approach Vol, veh/h		111			110			1246			1490	
Approach Delay, s/veh		32.6			32.1			19.1			15.2	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.6	28.9		10.3	6.3	39.2		10.5
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5
Max Green Setting (Gmax), s	41.0	48.5		39.5	26.0	51.5		39.5
Max Q Clear Time (g_c+I1), s	10.8	14.6		5.5	3.7	9.5		5.5
Green Ext Time (p_c), s	1.8	9.7		0.3	0.1	7.9		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	559	0	354	0	0	0	0	1230	351	0	1047	523
Future Volume (veh/h)	559	0	354	0	0	0	0	1230	351	0	1047	523
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	588	0	353				0	1295	0	0	1102	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	724	0	482				2	3443	0	0	3443	1072
Arrive On Green	0.21	0.00	0.21				0.00	0.68	0.00	0.00	1.00	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	588	0	353				0	1295	0	0	1102	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	13.0	0.0	12.6				0.0	8.8	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.0	0.0	12.6				0.0	8.8	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	724	0	482				2	3443	0	0	3443	1072
V/C Ratio(X)	0.81	0.00	0.73				0.00	0.38	0.00	0.00	0.32	0.00
Avail Cap(c_a), veh/h	1334	0	975				222	3443	0	0	3443	1072
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.73	0.00	0.00	0.94	0.00
Uniform Delay (d), s/veh	30.1	0.0	51.3				0.0	5.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.8				0.0	0.2	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	4.9				0.0	4.1	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	30.9	0.0	52.1				0.0	5.8	0.0	0.0	0.2	0.0
LnGrp LOS	C		D					A			A	
Approach Vol, veh/h		941						1295			1102	
Approach Delay, s/veh		38.9						5.8			0.2	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	59.2				59.2		20.8
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	10.0	27.0				40.0		31.0
Max Q Clear Time (g_c+I1), s	0.0	2.0				10.8		15.0
Green Ext Time (p_c), s	0.0	8.5				11.0		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	297	940	1404	376	0	1276
Future Volume (vph)	297	940	1404	376	0	1276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	4.5	4.5		4.5
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.96		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1519		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1519		6408
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	309	979	1462	392	0	1329
RTOR Reduction (vph)	0	1	0	239	0	0
Lane Group Flow (vph)	309	978	1463	153	0	1329
Confl. Peds. (#/hr)		1		11	11	
Confl. Bikes (#/hr)				3		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	30.7	40.2	31.3	31.3		41.3
Effective Green, g (s)	30.7	40.2	31.3	31.3		41.3
Actuated g/C Ratio	0.38	0.50	0.39	0.39		0.52
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1317	1400	1989	594		3308
v/s Ratio Prot	0.09	c0.35	c0.29			0.21
v/s Ratio Perm				0.10		
v/c Ratio	0.23	0.70	0.74	0.26		0.40
Uniform Delay, d1	16.7	15.3	20.8	16.5		11.8
Progression Factor	1.00	1.00	0.96	1.20		1.00
Incremental Delay, d2	0.0	1.2	2.2	0.9		0.4
Delay (s)	16.7	16.5	22.2	20.7		12.2
Level of Service	B	B	C	C		B
Approach Delay (s)	16.6		21.9			12.2
Approach LOS	B		C			B

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	353	10	442	578	463	19	331	648	186	127	61
Future Volume (veh/h)	88	353	10	442	578	463	19	331	648	186	127	61
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	89	357	0	446	584	0	19	334	0	188	128	22
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	550	0	480	1278	572	23	405	345	282	866	146
Arrive On Green	0.06	0.16	0.00	0.27	0.36	0.00	0.01	0.22	0.00	0.08	0.29	0.29
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	3025	508
Grp Volume(v), veh/h	89	357	0	446	584	0	19	334	0	188	74	76
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1764
Q Serve(g_s), s	3.7	7.0	0.0	18.1	9.3	0.0	0.8	12.6	0.0	3.9	2.3	2.4
Cycle Q Clear(g_c), s	3.7	7.0	0.0	18.1	9.3	0.0	0.8	12.6	0.0	3.9	2.3	2.4
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	115	550	0	480	1278	572	23	405	345	282	507	505
V/C Ratio(X)	0.77	0.65	0.00	0.93	0.46	0.00	0.82	0.82	0.00	0.67	0.15	0.15
Avail Cap(c_a), veh/h	480	1388	0	480	1278	572	480	705	600	931	646	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	29.3	0.0	26.3	18.1	0.0	36.4	27.6	0.0	33.0	19.6	19.7
Incr Delay (d2), s/veh	4.1	0.5	0.0	24.4	0.1	0.0	21.9	1.6	0.0	1.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.5	0.0	12.0	4.6	0.0	0.5	6.7	0.0	1.9	1.1	1.2
LnGrp Delay(d),s/veh	38.1	29.8	0.0	50.6	18.2	0.0	58.3	29.2	0.0	34.0	19.7	19.7
LnGrp LOS	D	C		D	B		E	C		C	B	B
Approach Vol, veh/h		446			1030			353			338	
Approach Delay, s/veh		31.5			32.2			30.8			27.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	32.0	11.1	21.1	25.0	16.8	6.0	26.2
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	20.0	* 25	20.0	28.0	20.0	29.0	20.0	27.0
Max Q Clear Time (g_c+I1), s	5.7	11.3	5.9	14.6	20.1	9.0	2.8	4.4
Green Ext Time (p_c), s	0.1	1.5	0.3	0.9	0.0	1.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	31.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	482	13	38	1166	416	119	356	134	163	70	152
Future Volume (veh/h)	220	482	13	38	1166	416	119	356	134	163	70	152
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	224	492	6	39	1190	321	121	363	0	166	71	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	323	1767	780	50	1536	677	154	549	0	208	656	294
Arrive On Green	0.09	0.50	0.50	0.03	0.43	0.43	0.09	0.16	0.00	0.12	0.19	0.00
Sat Flow, veh/h	3442	3539	1562	1774	3539	1561	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	224	492	6	39	1190	321	121	363	0	166	71	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1770	1561	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	5.4	6.9	0.2	1.9	24.4	12.5	5.7	8.2	0.0	7.8	1.4	0.0
Cycle Q Clear(g_c), s	5.4	6.9	0.2	1.9	24.4	12.5	5.7	8.2	0.0	7.8	1.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	1767	780	50	1536	677	154	549	0	208	656	294
V/C Ratio(X)	0.69	0.28	0.01	0.78	0.77	0.47	0.78	0.66	0.00	0.80	0.11	0.00
Avail Cap(c_a), veh/h	1052	2184	964	563	2184	963	334	2060	0	667	2642	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.4	12.4	10.7	41.1	20.5	17.2	38.0	33.8	0.0	36.6	28.8	0.0
Incr Delay (d2), s/veh	2.7	0.1	0.0	22.1	1.1	0.5	8.4	1.4	0.0	6.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.4	0.1	1.2	12.1	5.5	3.2	4.1	0.0	4.2	0.7	0.0
LnGrp Delay(d),s/veh	40.0	12.5	10.7	63.1	21.7	17.7	46.5	35.2	0.0	43.4	28.9	0.0
LnGrp LOS	D	B	B	E	C	B	D	D		D	C	
Approach Vol, veh/h		722			1550			484			237	
Approach Delay, s/veh		21.0			21.9			38.0			39.0	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	17.7	6.4	47.0	11.4	20.3	12.0	41.4
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	32.0	49.5	27.0	52.5	16.0	63.5	26.0	52.5
Max Q Clear Time (g_c+I1), s	9.8	10.2	3.9	8.9	7.7	3.4	7.4	26.4
Green Ext Time (p_c), s	0.4	2.6	0.1	3.3	0.2	0.5	0.7	10.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	1353	31	37	449	60	35	78	39	332	128	398
Future Volume (veh/h)	281	1353	31	37	449	60	35	78	39	332	128	398
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	290	1395	13	38	463	19	36	80	0	342	132	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	1547	676	47	1192	525	45	207	176	384	564	479
Arrive On Green	0.11	0.44	0.44	0.03	0.34	0.34	0.03	0.11	0.00	0.22	0.30	0.00
Sat Flow, veh/h	3442	3539	1546	1774	3539	1558	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	290	1395	13	38	463	19	36	80	0	342	132	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1546	1774	1770	1558	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	6.8	30.4	0.4	1.8	8.3	0.7	1.7	3.3	0.0	15.5	4.4	0.0
Cycle Q Clear(g_c), s	6.8	30.4	0.4	1.8	8.3	0.7	1.7	3.3	0.0	15.5	4.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	384	1547	676	47	1192	525	45	207	176	384	564	479
V/C Ratio(X)	0.76	0.90	0.02	0.80	0.39	0.04	0.81	0.39	0.00	0.89	0.23	0.00
Avail Cap(c_a), veh/h	1243	1704	744	641	1576	694	641	673	572	812	785	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.8	21.7	13.3	40.2	21.0	18.5	40.3	34.3	0.0	31.6	21.7	0.0
Incr Delay (d2), s/veh	1.2	6.2	0.0	11.0	0.1	0.0	11.8	0.4	0.0	2.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	16.1	0.2	1.0	4.1	0.3	1.0	1.7	0.0	7.9	2.3	0.0
LnGrp Delay(d),s/veh	37.0	27.9	13.3	51.2	21.1	18.5	52.1	34.7	0.0	34.4	21.8	0.0
LnGrp LOS	D	C	B	D	C	B	D	C		C	C	
Approach Vol, veh/h		1698			520			116			474	
Approach Delay, s/veh		29.4			23.2			40.1			30.9	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	41.6	5.6	30.1	14.1	33.3	21.5	14.2
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	37.0	38.0	30.0
Max Q Clear Time (g_c+I1), s	3.8	32.4	3.7	6.4	8.8	10.3	17.5	5.3
Green Ext Time (p_c), s	0.0	3.9	0.0	0.4	0.5	1.8	0.5	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	331	706	128	151	326	93	25	337	193	125	580	111
Future Volume (veh/h)	331	706	128	151	326	93	25	337	193	125	580	111
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	356	759	129	162	351	82	27	362	38	134	624	27
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	397	989	168	186	593	137	15	695	315	180	849	383
Arrive On Green	0.22	0.33	0.33	0.10	0.21	0.22	0.01	0.20	0.20	0.05	0.24	0.25
Sat Flow, veh/h	1774	3016	512	1774	2841	654	1774	3539	1544	3442	3539	1548
Grp Volume(v), veh/h	356	445	443	162	217	216	27	362	38	134	624	27
Grp Sat Flow(s),veh/h/ln	1774	1770	1759	1774	1770	1726	1774	1770	1544	1721	1770	1548
Q Serve(g_s), s	13.1	15.2	15.3	6.1	7.5	7.6	0.6	6.2	1.4	2.6	11.0	0.9
Cycle Q Clear(g_c), s	13.1	15.2	15.3	6.1	7.5	7.6	0.6	6.2	1.4	2.6	11.0	0.9
Prop In Lane	1.00		0.29	1.00		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	397	580	577	186	369	360	15	695	315	180	849	383
V/C Ratio(X)	0.90	0.77	0.77	0.87	0.59	0.60	1.74	0.52	0.12	0.74	0.73	0.07
Avail Cap(c_a), veh/h	841	1036	1030	762	1036	1010	605	2517	1110	1020	2360	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	20.4	20.4	29.8	24.1	24.0	33.4	24.3	21.9	31.5	23.7	19.5
Incr Delay (d2), s/veh	7.3	2.2	2.2	11.8	1.5	1.6	386.1	0.6	0.2	6.0	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	7.8	7.7	3.6	3.8	3.8	1.9	3.1	0.6	1.4	5.5	0.4
LnGrp Delay(d),s/veh	32.7	22.5	22.6	41.5	25.6	25.6	419.6	24.9	22.1	37.5	24.9	19.5
LnGrp LOS	C	C	C	D	C	C	F	C	C	D	C	B
Approach Vol, veh/h		1244			595			427			785	
Approach Delay, s/veh		25.4			29.9			49.6			26.9	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	19.3	12.1	27.6	5.6	22.2	20.1	19.6
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	21.0	49.5	30.0	40.5	24.0	46.5	33.0	40.5
Max Q Clear Time (g_c+I1), s	4.6	8.2	8.1	17.3	2.6	13.0	15.1	9.6
Green Ext Time (p_c), s	0.3	2.6	0.4	5.9	0.0	4.7	1.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	15	27	6	65	23	716	54	393	838	31
Future Volume (veh/h)	16	4	15	27	6	65	23	716	54	393	838	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	17	4	0	29	7	0	25	778	55	427	911	33
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	74	0	78	19	85	42	1548	109	665	2462	89
Arrive On Green	0.04	0.04	0.00	0.05	0.05	0.00	0.02	0.32	0.32	0.19	0.49	0.49
Sat Flow, veh/h	1774	1863	0	1442	348	1583	1774	4845	341	3442	5035	182
Grp Volume(v), veh/h	17	4	0	36	0	0	25	543	290	427	613	331
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1791	0	1583	1774	1695	1795	1721	1695	1827
Q Serve(g_s), s	0.4	0.1	0.0	0.9	0.0	0.0	0.6	5.8	5.8	5.1	5.0	5.0
Cycle Q Clear(g_c), s	0.4	0.1	0.0	0.9	0.0	0.0	0.6	5.8	5.8	5.1	5.0	5.0
Prop In Lane	1.00		0.00	0.81		1.00	1.00		0.19	1.00		0.10
Lane Grp Cap(c), veh/h	71	74	0	96	0	85	42	1083	574	665	1657	893
V/C Ratio(X)	0.24	0.05	0.00	0.37	0.00	0.00	0.59	0.50	0.50	0.64	0.37	0.37
Avail Cap(c_a), veh/h	1576	1655	0	1591	0	1407	1037	3698	1958	3173	3927	2116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	20.5	0.0	20.3	0.0	0.0	21.5	12.3	12.3	16.5	7.1	7.1
Incr Delay (d2), s/veh	1.7	0.3	0.0	2.4	0.0	0.0	12.4	0.4	0.7	1.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	0.5	0.0	0.0	0.4	2.7	2.9	2.5	2.3	2.5
LnGrp Delay(d),s/veh	22.4	20.8	0.0	22.7	0.0	0.0	33.8	12.6	13.0	17.6	7.2	7.3
LnGrp LOS	C	C		C			C	B	B	B	A	A
Approach Vol, veh/h		21			36			858			1371	
Approach Delay, s/veh		22.1			22.7			13.4			10.5	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	18.7		6.3	5.1	26.2		6.9				
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5				
Max Green Setting (Gmax), s	41.0	48.5		39.5	26.0	51.5		39.5				
Max Q Clear Time (g_c+I1), s	7.1	7.8		2.4	2.6	7.0		2.9				
Green Ext Time (p_c), s	1.6	6.2		0.0	0.0	7.3		0.2				

Intersection Summary		
HCM 2010 Ctrl Delay		11.9
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	0	179	0	0	0	0	569	400	0	1090	725
Future Volume (veh/h)	247	0	179	0	0	0	0	569	400	0	1090	725
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	260	0	165				0	599	0	0	1147	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	445	0	256				2	3855	0	0	3855	1200
Arrive On Green	0.13	0.00	0.13				0.00	0.76	0.00	0.00	1.00	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	260	0	165				0	599	0	0	1147	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	5.7	0.0	7.6				0.0	2.6	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	7.6				0.0	2.6	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	445	0	256				2	3855	0	0	3855	1200
V/C Ratio(X)	0.58	0.00	0.64				0.00	0.16	0.00	0.00	0.30	0.00
Avail Cap(c_a), veh/h	1334	0	975				222	3855	0	0	3855	1200
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.88	0.00	0.00	0.93	0.00
Uniform Delay (d), s/veh	32.8	0.0	82.0				0.0	2.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	1.0				0.0	0.1	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	4.6				0.0	1.2	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	33.2	0.0	83.0				0.0	2.7	0.0	0.0	0.2	0.0
LnGrp LOS	C		F					A			A	
Approach Vol, veh/h		425						599			1147	
Approach Delay, s/veh		52.6						2.7			0.2	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	65.6				65.6		14.4
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	10.0	27.0				40.0		31.0
Max Q Clear Time (g_c+I1), s	0.0	2.0				4.6		9.6
Green Ext Time (p_c), s	0.0	8.9				4.4		0.8

Intersection Summary		
HCM 2010 Ctrl Delay		11.1
HCM 2010 LOS		B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	400	675	139	0	1528
Future Volume (vph)	319	400	675	139	0	1528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	4.5	4.5		4.5
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.96		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1520		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1520		6408
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	332	417	703	145	0	1592
RTOR Reduction (vph)	0	67	0	54	0	0
Lane Group Flow (vph)	332	350	703	91	0	1592
Confl. Peds. (#/hr)		1		11	11	
Confl. Bikes (#/hr)				3		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	12.9	21.2	50.3	50.3		59.1
Effective Green, g (s)	12.9	21.2	50.3	50.3		59.1
Actuated g/C Ratio	0.16	0.26	0.63	0.63		0.74
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	553	738	3197	955		4733
v/s Ratio Prot	c0.10	c0.13	0.14			c0.25
v/s Ratio Perm				0.06		
v/c Ratio	0.60	0.47	0.22	0.10		0.34
Uniform Delay, d1	31.2	24.7	6.4	5.9		3.6
Progression Factor	1.00	1.00	0.81	0.70		1.00
Incremental Delay, d2	1.3	0.2	0.2	0.2		0.2
Delay (s)	32.4	24.9	5.3	4.3		3.8
Level of Service	C	C	A	A		A
Approach Delay (s)	28.2		5.2			3.8
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	597	22	347	336	188	17	180	680	439	195	54
Future Volume (veh/h)	82	597	22	347	336	188	17	180	680	439	195	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	83	603	0	351	339	0	17	182	0	443	197	38
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	743	0	372	1315	588	21	253	215	543	835	158
Arrive On Green	0.05	0.21	0.00	0.21	0.37	0.00	0.01	0.14	0.00	0.16	0.28	0.28
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	2963	560
Grp Volume(v), veh/h	83	603	0	351	339	0	17	182	0	443	116	119
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1754
Q Serve(g_s), s	3.6	12.6	0.0	15.2	5.2	0.0	0.7	7.3	0.0	9.7	3.9	4.1
Cycle Q Clear(g_c), s	3.6	12.6	0.0	15.2	5.2	0.0	0.7	7.3	0.0	9.7	3.9	4.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	86	743	0	372	1315	588	21	253	215	543	499	494
V/C Ratio(X)	0.97	0.81	0.00	0.94	0.26	0.00	0.81	0.72	0.00	0.82	0.23	0.24
Avail Cap(c_a), veh/h	433	1274	0	433	1315	588	456	670	570	885	614	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	29.3	0.0	30.3	17.0	0.0	38.4	32.2	0.0	31.7	21.5	21.5
Incr Delay (d2), s/veh	21.2	0.8	0.0	25.9	0.0	0.0	22.9	1.4	0.0	1.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.2	0.0	10.1	2.5	0.0	0.5	3.8	0.0	4.7	1.9	2.0
LnGrp Delay(d),s/veh	58.2	30.1	0.0	56.2	17.0	0.0	61.2	33.6	0.0	32.8	21.6	21.6
LnGrp LOS	E	C		E	B		E	C		C	C	C
Approach Vol, veh/h		686			690			199			678	
Approach Delay, s/veh		33.5			36.9			36.0			28.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	35.2	17.3	15.6	22.3	22.6	5.9	26.9
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	20.0	* 25	20.0	28.0	20.0	29.0	20.0	27.0
Max Q Clear Time (g_c+I1), s	5.6	7.2	11.7	9.3	17.2	14.6	2.7	6.1
Green Ext Time (p_c), s	0.1	0.9	0.6	0.5	0.2	1.6	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	33.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	1359	115	85	168	124	21	51	155	401	504	131
Future Volume (veh/h)	183	1359	115	85	168	124	21	51	155	401	504	131
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	187	1387	68	87	171	53	21	52	0	409	514	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	1563	690	88	1514	668	14	176	0	433	1012	453
Arrive On Green	0.06	0.44	0.44	0.05	0.43	0.43	0.01	0.05	0.00	0.24	0.29	0.00
Sat Flow, veh/h	3442	3539	1562	1774	3539	1561	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	187	1387	68	87	171	53	21	52	0	409	514	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1770	1561	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	5.5	36.8	2.6	5.0	3.0	2.1	0.8	1.4	0.0	23.2	12.4	0.0
Cycle Q Clear(g_c), s	5.5	36.8	2.6	5.0	3.0	2.1	0.8	1.4	0.0	23.2	12.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	1563	690	88	1514	668	14	176	0	433	1012	453
V/C Ratio(X)	0.86	0.89	0.10	0.99	0.11	0.08	1.52	0.30	0.00	0.94	0.51	0.00
Avail Cap(c_a), veh/h	824	1765	779	442	1765	778	260	1678	0	538	2162	967
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.4	26.2	16.7	48.6	17.6	17.3	50.7	46.9	0.0	38.0	30.5	0.0
Incr Delay (d2), s/veh	9.3	5.4	0.1	41.7	0.0	0.1	297.7	0.9	0.0	23.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	12.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	19.1	1.1	3.5	1.5	0.9	1.5	0.7	0.0	14.1	6.1	0.0
LnGrp Delay(d),s/veh	56.8	31.7	16.7	90.3	17.6	17.4	360.7	47.8	0.0	61.1	30.9	0.0
LnGrp LOS	E	C	B	F	B	B	F	D		E	C	
Approach Vol, veh/h		1642			311			73			923	
Approach Delay, s/veh		33.9			37.9			137.8			44.3	
Approach LOS		C			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.0	10.6	10.6	51.2	5.8	34.7	12.0	49.8
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	32.0	49.5	27.0	52.5	16.0	63.5	26.0	52.5
Max Q Clear Time (g_c+I1), s	25.2	3.4	7.0	38.8	2.8	14.4	7.5	5.0
Green Ext Time (p_c), s	0.8	0.3	0.2	7.9	0.0	4.0	0.5	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	506	640	81	54	1101	288	73	164	51	91	138	342
Future Volume (veh/h)	506	640	81	54	1101	288	73	164	51	91	138	342
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	522	660	42	56	1135	104	75	169	0	94	142	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	625	1865	815	72	1310	577	97	285	242	122	310	264
Arrive On Green	0.18	0.53	0.53	0.04	0.37	0.37	0.05	0.15	0.00	0.07	0.17	0.00
Sat Flow, veh/h	3442	3539	1547	1774	3539	1558	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	522	660	42	56	1135	104	75	169	0	94	142	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1547	1774	1770	1558	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	12.0	8.9	1.1	2.6	24.4	3.7	3.4	6.9	0.0	4.3	5.6	0.0
Cycle Q Clear(g_c), s	12.0	8.9	1.1	2.6	24.4	3.7	3.4	6.9	0.0	4.3	5.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	625	1865	815	72	1310	577	97	285	242	122	310	264
V/C Ratio(X)	0.84	0.35	0.05	0.78	0.87	0.18	0.77	0.59	0.00	0.77	0.46	0.00
Avail Cap(c_a), veh/h	1259	1865	815	649	1596	703	649	681	579	822	795	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.4	11.3	9.4	39.0	23.9	17.4	38.3	32.4	0.0	37.6	30.8	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	6.6	3.9	0.1	4.7	0.7	0.0	3.8	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	4.3	0.5	1.4	12.5	1.6	1.8	3.6	0.0	2.2	2.9	0.0
LnGrp Delay(d),s/veh	33.6	11.3	9.4	45.6	27.9	17.5	43.0	33.1	0.0	41.4	31.2	0.0
LnGrp LOS	C	B	A	D	C	B	D	C		D	C	
Approach Vol, veh/h		1224			1295			244			236	
Approach Delay, s/veh		20.7			27.8			36.2			35.3	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	48.5	8.0	18.7	19.7	35.7	9.1	17.5
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	37.0	38.0	30.0
Max Q Clear Time (g_c+I1), s	4.6	10.9	5.4	7.6	14.0	26.4	6.3	8.9
Green Ext Time (p_c), s	0.1	2.8	0.1	0.5	0.9	4.0	0.1	0.5

Intersection Summary			
HCM 2010 Ctrl Delay			26.2
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	351	48	149	432	173	91	786	148	267	475	309
Future Volume (veh/h)	207	351	48	149	432	173	91	786	148	267	475	309
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	223	377	46	160	465	158	98	845	110	287	511	95
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	865	105	200	607	205	127	1111	487	383	1251	549
Arrive On Green	0.15	0.27	0.27	0.11	0.24	0.24	0.07	0.31	0.31	0.11	0.35	0.35
Sat Flow, veh/h	1774	3170	384	1774	2582	870	1774	3539	1551	3442	3539	1553
Grp Volume(v), veh/h	223	209	214	160	317	306	98	845	110	287	511	95
Grp Sat Flow(s),veh/h/ln	1774	1770	1784	1774	1770	1682	1774	1770	1551	1721	1770	1553
Q Serve(g_s), s	11.0	8.8	8.9	7.9	15.0	15.3	4.9	19.3	4.7	7.3	9.8	3.8
Cycle Q Clear(g_c), s	11.0	8.8	8.9	7.9	15.0	15.3	4.9	19.3	4.7	7.3	9.8	3.8
Prop In Lane	1.00		0.22	1.00		0.52	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	483	487	200	416	395	127	1111	487	383	1251	549
V/C Ratio(X)	0.84	0.43	0.44	0.80	0.76	0.77	0.77	0.76	0.23	0.75	0.41	0.17
Avail Cap(c_a), veh/h	652	798	804	592	798	758	474	1950	855	804	1832	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	26.9	27.0	38.9	32.0	32.1	41.0	27.8	22.8	38.7	21.9	20.0
Incr Delay (d2), s/veh	6.8	0.6	0.6	7.3	2.9	3.2	9.3	1.1	0.2	2.9	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	4.4	4.5	4.3	7.7	7.4	2.7	9.6	2.0	3.6	4.8	1.6
LnGrp Delay(d),s/veh	43.9	27.5	27.6	46.2	34.9	35.4	50.3	28.9	23.0	41.6	22.2	20.2
LnGrp LOS	D	C	C	D	C	D	D	C	C	D	C	C
Approach Vol, veh/h		646			783			1053			893	
Approach Delay, s/veh		33.2			37.4			30.3			28.2	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	32.7	14.1	29.0	10.5	36.3	17.5	25.6
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	21.0	49.5	30.0	40.5	24.0	46.5	33.0	40.5
Max Q Clear Time (g_c+I1), s	9.3	21.3	9.9	10.9	6.9	11.8	13.0	17.3
Green Ext Time (p_c), s	0.8	6.9	0.4	2.5	0.2	4.0	0.6	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	12	35	87	12	251	43	1038	87	448	957	13
Future Volume (veh/h)	88	12	35	87	12	251	43	1038	87	448	957	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	96	13	1	95	13	13	47	1128	91	487	1040	14
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	147	11	153	21	152	61	1770	143	651	2710	36
Arrive On Green	0.09	0.09	0.09	0.10	0.10	0.10	0.03	0.37	0.37	0.19	0.52	0.52
Sat Flow, veh/h	1774	1703	131	1569	215	1554	1774	4791	386	3442	5170	70
Grp Volume(v), veh/h	96	0	14	108	0	13	47	798	421	487	682	372
Grp Sat Flow(s),veh/h/ln	1774	0	1834	1784	0	1554	1774	1695	1787	1721	1695	1849
Q Serve(g_s), s	3.6	0.0	0.5	4.0	0.0	0.5	1.8	13.2	13.2	9.1	8.2	8.2
Cycle Q Clear(g_c), s	3.6	0.0	0.5	4.0	0.0	0.5	1.8	13.2	13.2	9.1	8.2	8.2
Prop In Lane	1.00		0.07	0.88		1.00	1.00		0.22	1.00		0.04
Lane Grp Cap(c), veh/h	153	0	158	174	0	152	61	1253	660	651	1777	969
V/C Ratio(X)	0.63	0.00	0.09	0.62	0.00	0.09	0.77	0.64	0.64	0.75	0.38	0.38
Avail Cap(c_a), veh/h	1030	0	1065	1036	0	902	678	2416	1273	2074	2566	1400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	28.6	29.5	0.0	27.9	32.6	17.7	17.7	26.0	9.6	9.6
Incr Delay (d2), s/veh	4.2	0.0	0.2	3.6	0.0	0.2	17.7	0.5	1.0	1.7	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.3	2.1	0.0	0.2	1.2	6.2	6.6	4.5	3.8	4.2
LnGrp Delay(d),s/veh	34.2	0.0	28.9	33.1	0.0	28.2	50.3	18.2	18.7	27.8	9.8	9.9
LnGrp LOS	C		C	C		C	D	B	B	C	A	A
Approach Vol, veh/h		110			121			1266			1541	
Approach Delay, s/veh		33.5			32.5			19.6			15.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.9	29.6		10.4	6.4	40.2		11.1
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5
Max Green Setting (Gmax), s	41.0	48.5		39.5	26.0	51.5		39.5
Max Q Clear Time (g_c+I1), s	11.1	15.2		5.6	3.8	10.2		6.0
Green Ext Time (p_c), s	1.8	9.9		0.3	0.1	8.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	559	0	371	0	0	0	0	1238	358	0	1077	523
Future Volume (veh/h)	559	0	371	0	0	0	0	1238	358	0	1077	523
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	588	0	371				0	1303	0	0	1134	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	731	0	488				2	3433	0	0	3433	1069
Arrive On Green	0.21	0.00	0.21				0.00	0.68	0.00	0.00	1.00	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	588	0	371				0	1303	0	0	1134	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	13.0	0.0	13.1				0.0	9.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.0	0.0	13.1				0.0	9.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	731	0	488				2	3433	0	0	3433	1069
V/C Ratio(X)	0.80	0.00	0.76				0.00	0.38	0.00	0.00	0.33	0.00
Avail Cap(c_a), veh/h	1334	0	975				222	3433	0	0	3433	1069
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.72	0.00	0.00	0.93	0.00
Uniform Delay (d), s/veh	29.9	0.0	50.4				0.0	5.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.9				0.0	0.2	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	5.1				0.0	4.2	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	30.7	0.0	51.3				0.0	5.9	0.0	0.0	0.2	0.0
LnGrp LOS	C		D					A			A	
Approach Vol, veh/h		959						1303			1134	
Approach Delay, s/veh		38.7						5.9			0.2	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	59.0				59.0		21.0
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	10.0	27.0				40.0		31.0
Max Q Clear Time (g_c+I1), s	0.0	2.0				11.0		15.1
Green Ext Time (p_c), s	0.0	8.8				11.0		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	318	940	1407	376	0	1285
Future Volume (vph)	318	940	1407	376	0	1285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0	5.0		5.0
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.96		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1519		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1519		6408
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	331	979	1466	392	0	1339
RTOR Reduction (vph)	0	1	0	243	0	0
Lane Group Flow (vph)	331	978	1466	149	0	1339
Confl. Peds. (#/hr)		1		11	11	
Confl. Bikes (#/hr)				3		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	30.8	40.6	30.9	30.9		41.2
Effective Green, g (s)	30.3	40.1	30.4	30.4		40.7
Actuated g/C Ratio	0.38	0.50	0.38	0.38		0.51
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1300	1396	1932	577		3260
v/s Ratio Prot	0.10	c0.35	c0.29			0.21
v/s Ratio Perm				0.10		
v/c Ratio	0.25	0.70	0.76	0.26		0.41
Uniform Delay, d1	17.1	15.3	21.6	17.0		12.2
Progression Factor	1.00	1.00	0.95	1.16		1.00
Incremental Delay, d2	0.0	1.3	2.5	1.0		0.4
Delay (s)	17.1	16.6	23.1	20.8		12.6
Level of Service	B	B	C	C		B
Approach Delay (s)	16.8		22.6			12.6
Approach LOS	B		C			B

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	369	10	443	583	466	19	331	650	196	127	61
Future Volume (veh/h)	88	369	10	443	583	466	19	331	650	196	127	61
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	89	373	0	447	589	0	19	334	0	198	128	22
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	564	0	474	1280	573	23	405	344	292	874	147
Arrive On Green	0.06	0.16	0.00	0.27	0.36	0.00	0.01	0.22	0.00	0.08	0.29	0.29
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	3025	508
Grp Volume(v), veh/h	89	373	0	447	589	0	19	334	0	198	74	76
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1764
Q Serve(g_s), s	3.7	7.4	0.0	18.5	9.5	0.0	0.8	12.8	0.0	4.2	2.3	2.4
Cycle Q Clear(g_c), s	3.7	7.4	0.0	18.5	9.5	0.0	0.8	12.8	0.0	4.2	2.3	2.4
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	115	564	0	474	1280	573	23	405	344	292	511	510
V/C Ratio(X)	0.77	0.66	0.00	0.94	0.46	0.00	0.82	0.83	0.00	0.68	0.14	0.15
Avail Cap(c_a), veh/h	474	1372	0	474	1280	573	474	697	592	920	639	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	29.6	0.0	26.9	18.3	0.0	36.8	27.9	0.0	33.2	19.7	19.8
Incr Delay (d2), s/veh	4.1	0.5	0.0	27.2	0.1	0.0	22.1	1.7	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.7	0.0	12.6	4.7	0.0	0.5	6.8	0.0	2.0	1.1	1.2
LnGrp Delay(d),s/veh	38.5	30.0	0.0	54.0	18.4	0.0	59.0	29.6	0.0	34.3	19.8	19.8
LnGrp LOS	D	C		D	B		E	C		C	B	B
Approach Vol, veh/h		462			1036			353			348	
Approach Delay, s/veh		31.7			33.8			31.2			28.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	32.4	11.3	21.2	25.0	17.2	6.0	26.6
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	20.0	* 25	20.0	28.0	20.0	29.0	20.0	27.0
Max Q Clear Time (g_c+I1), s	5.7	11.5	6.2	14.8	20.5	9.4	2.8	4.4
Green Ext Time (p_c), s	0.1	1.5	0.3	0.9	0.0	1.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	487	13	38	1180	416	119	356	134	163	70	165
Future Volume (veh/h)	224	487	13	38	1180	416	119	356	134	163	70	165
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	229	497	6	39	1204	322	121	363	0	166	71	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	1781	786	50	1544	681	154	547	0	208	653	292
Arrive On Green	0.10	0.50	0.50	0.03	0.44	0.44	0.09	0.15	0.00	0.12	0.18	0.00
Sat Flow, veh/h	3442	3539	1562	1774	3539	1561	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	229	497	6	39	1204	322	121	363	0	166	71	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1770	1561	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	5.6	7.0	0.2	1.9	25.1	12.6	5.8	8.3	0.0	7.9	1.4	0.0
Cycle Q Clear(g_c), s	5.6	7.0	0.2	1.9	25.1	12.6	5.8	8.3	0.0	7.9	1.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	1781	786	50	1544	681	154	547	0	208	653	292
V/C Ratio(X)	0.70	0.28	0.01	0.78	0.78	0.47	0.78	0.66	0.00	0.80	0.11	0.00
Avail Cap(c_a), veh/h	1038	2155	951	556	2155	951	329	2032	0	659	2607	1166
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.8	12.4	10.7	41.6	20.8	17.3	38.6	34.3	0.0	37.1	29.2	0.0
Incr Delay (d2), s/veh	2.7	0.1	0.0	22.5	1.3	0.5	8.5	1.4	0.0	6.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.4	0.1	1.2	12.5	5.5	3.2	4.2	0.0	4.2	0.7	0.0
LnGrp Delay(d),s/veh	40.5	12.5	10.7	64.2	22.0	17.8	47.0	35.7	0.0	44.0	29.3	0.0
LnGrp LOS	D	B	B	E	C	B	D	D		D	C	
Approach Vol, veh/h		732			1565			484			237	
Approach Delay, s/veh		21.2			22.2			38.6			39.6	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	17.8	6.4	47.9	11.5	20.4	12.2	42.1
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	32.0	49.5	27.0	52.5	16.0	63.5	26.0	52.5
Max Q Clear Time (g_c+I1), s	9.9	10.3	3.9	9.0	7.8	3.4	7.6	27.1
Green Ext Time (p_c), s	0.4	2.6	0.1	3.3	0.2	0.5	0.7	10.5

Intersection Summary	
HCM 2010 Ctrl Delay	26.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	430	2190	40	80	830	190	10	30	20	650	180	610
Future Volume (veh/h)	430	2190	40	80	830	190	10	30	20	650	180	610
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	443	2258	19	82	856	69	10	31	0	670	186	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	502	1721	752	89	1348	594	12	143	122	447	600	510
Arrive On Green	0.15	0.49	0.49	0.05	0.38	0.38	0.01	0.08	0.00	0.25	0.32	0.00
Sat Flow, veh/h	3442	3539	1546	1774	3539	1558	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	443	2258	19	82	856	69	10	31	0	670	186	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1546	1774	1770	1558	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	16.3	62.7	0.8	5.9	25.5	3.7	0.7	2.0	0.0	32.5	9.7	0.0
Cycle Q Clear(g_c), s	16.3	62.7	0.8	5.9	25.5	3.7	0.7	2.0	0.0	32.5	9.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	502	1721	752	89	1348	594	12	143	122	447	600	510
V/C Ratio(X)	0.88	1.31	0.03	0.92	0.63	0.12	0.80	0.22	0.00	1.50	0.31	0.00
Avail Cap(c_a), veh/h	667	1721	752	89	1348	594	110	448	381	447	802	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.0	33.1	17.2	60.9	32.6	25.9	63.9	55.9	0.0	48.2	32.9	0.0
Incr Delay (d2), s/veh	8.8	144.6	0.0	67.2	0.8	0.0	34.4	0.3	0.0	235.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	65.2	0.4	4.6	12.6	1.6	0.5	1.0	0.0	45.2	5.0	0.0
LnGrp Delay(d),s/veh	62.8	177.7	17.2	128.1	33.4	25.9	98.3	56.1	0.0	283.9	33.0	0.0
LnGrp LOS	E	F	B	F	C	C	F	E		F	C	
Approach Vol, veh/h		2720			1007			41			856	
Approach Delay, s/veh		157.9			40.6			66.4			229.4	
Approach LOS		F			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	68.0	4.4	46.5	23.6	54.4	36.0	14.9
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	6.5	62.7	8.0	55.5	25.0	42.9	32.5	31.0
Max Q Clear Time (g_c+I1), s	7.9	64.7	2.7	11.7	18.3	27.5	34.5	4.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.5	3.4	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	144.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	500	1080	210	230	520	160	70	490	290	200	980	170
Future Volume (veh/h)	500	1080	210	230	520	160	70	490	290	200	980	170
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	538	1161	211	247	559	146	75	527	102	215	1054	66
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	1132	204	237	610	159	74	945	413	272	1077	472
Arrive On Green	0.29	0.38	0.38	0.13	0.22	0.22	0.04	0.27	0.27	0.08	0.30	0.30
Sat Flow, veh/h	1774	2985	539	1774	2763	719	1774	3539	1549	3442	3539	1551
Grp Volume(v), veh/h	538	686	686	247	357	348	75	527	102	215	1054	66
Grp Sat Flow(s),veh/h/ln	1774	1770	1754	1774	1770	1712	1774	1770	1549	1721	1770	1551
Q Serve(g_s), s	35.0	45.5	45.5	16.0	23.6	23.8	5.0	15.4	6.2	7.4	35.4	3.7
Cycle Q Clear(g_c), s	35.0	45.5	45.5	16.0	23.6	23.8	5.0	15.4	6.2	7.4	35.4	3.7
Prop In Lane	1.00		0.31	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	517	671	665	237	391	378	74	945	413	272	1077	472
V/C Ratio(X)	1.04	1.02	1.03	1.04	0.91	0.92	1.01	0.56	0.25	0.79	0.98	0.14
Avail Cap(c_a), veh/h	517	671	665	237	391	378	74	945	413	315	1077	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	37.3	37.3	52.0	45.6	45.7	57.5	37.9	34.5	54.3	41.4	30.3
Incr Delay (d2), s/veh	50.3	40.4	43.3	70.6	25.5	27.2	108.8	0.7	0.3	11.2	22.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.3	29.7	30.0	12.5	14.3	14.2	4.7	7.6	2.7	3.9	20.6	1.6
LnGrp Delay(d),s/veh	92.8	77.6	80.6	122.6	71.2	72.9	166.4	38.6	34.8	65.5	63.8	30.5
LnGrp LOS	F	F	F	F	E	E	F	D	C	E	E	C
Approach Vol, veh/h		1910			952			704			1335	
Approach Delay, s/veh		82.9			85.1			51.7			62.4	
Approach LOS		F			F			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	36.5	20.0	50.0	9.0	41.0	39.0	31.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	30.5	16.0	45.5	5.0	36.5	35.0	26.5
Max Q Clear Time (g_c+I1), s	9.4	17.4	18.0	47.5	7.0	37.4	37.0	25.8
Green Ext Time (p_c), s	0.1	3.1	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	73.3
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	20	60	10	100	40	1050	130	600	1360	50
Future Volume (veh/h)	20	10	20	60	10	100	40	1050	130	600	1360	50
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	11	0	65	11	1	43	1141	127	652	1478	51
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	90	0	110	19	111	60	1643	183	810	2803	97
Arrive On Green	0.05	0.05	0.00	0.07	0.07	0.07	0.03	0.35	0.35	0.24	0.56	0.56
Sat Flow, veh/h	1774	1863	0	1528	259	1549	1774	4636	516	3442	5045	174
Grp Volume(v), veh/h	22	11	0	76	0	1	43	834	434	652	993	536
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1786	0	1549	1774	1695	1761	1721	1695	1829
Q Serve(g_s), s	0.7	0.3	0.0	2.5	0.0	0.0	1.4	12.7	12.7	10.8	11.1	11.1
Cycle Q Clear(g_c), s	0.7	0.3	0.0	2.5	0.0	0.0	1.4	12.7	12.7	10.8	11.1	11.1
Prop In Lane	1.00		0.00	0.86		1.00	1.00		0.29	1.00		0.10
Lane Grp Cap(c), veh/h	86	90	0	129	0	111	60	1201	624	810	1884	1016
V/C Ratio(X)	0.26	0.12	0.00	0.59	0.00	0.01	0.71	0.69	0.70	0.81	0.53	0.53
Avail Cap(c_a), veh/h	529	556	0	533	0	462	147	1545	802	1084	2331	1258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	27.5	0.0	27.1	0.0	26.0	28.9	16.7	16.7	21.8	8.4	8.4
Incr Delay (d2), s/veh	1.6	0.6	0.0	4.3	0.0	0.0	14.3	0.9	1.8	3.3	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.0	1.4	0.0	0.0	0.9	6.1	6.5	5.4	5.2	5.6
LnGrp Delay(d),s/veh	29.2	28.1	0.0	31.4	0.0	26.0	43.2	17.6	18.5	25.1	8.7	8.9
LnGrp LOS	C	C		C		C	D	B	B	C	A	A
Approach Vol, veh/h		33			77			1311			2181	
Approach Delay, s/veh		28.8			31.3			18.8			13.6	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.2	25.9		7.4	6.1	38.0		8.8
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5
Max Green Setting (Gmax), s	19.0	27.5		18.0	5.0	41.5		18.0
Max Q Clear Time (g_c+I1), s	12.8	14.7		2.7	3.4	13.1		4.5
Green Ext Time (p_c), s	1.4	6.7		0.0	0.0	12.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	0	300	0	0	0	0	850	580	0	1710	1110
Future Volume (veh/h)	380	0	300	0	0	0	0	850	580	0	1710	1110
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	400	0	285				0	895	0	0	1800	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	516	0	279				3	3560	0	0	3560	1108
Arrive On Green	0.15	0.00	0.15				0.00	0.70	0.00	0.00	0.70	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	400	0	285				0	895	0	0	1800	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	6.7	0.0	9.0				0.0	3.8	0.0	0.0	9.9	0.0
Cycle Q Clear(g_c), s	6.7	0.0	9.0				0.0	3.8	0.0	0.0	9.9	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	516	0	279				3	3560	0	0	3560	1108
V/C Ratio(X)	0.77	0.00	1.02				0.00	0.25	0.00	0.00	0.51	0.00
Avail Cap(c_a), veh/h	516	0	279				89	3560	0	0	3560	1108
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.70	0.00	0.00	0.74	0.00
Uniform Delay (d), s/veh	24.5	0.0	54.7				0.0	3.3	0.0	0.0	4.2	0.0
Incr Delay (d2), s/veh	6.6	0.0	59.9				0.0	0.1	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.1				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	7.7				0.0	1.8	0.0	0.0	4.6	0.0
LnGrp Delay(d),s/veh	31.1	0.0	114.6				0.0	3.4	0.0	0.0	4.6	0.0
LnGrp LOS	C		F					A			A	
Approach Vol, veh/h		685						895			1800	
Approach Delay, s/veh		65.9						3.4			4.6	
Approach LOS		E						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	47.0				47.0		13.0
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	3.0	36.0				42.0		9.0
Max Q Clear Time (g_c+I1), s	0.0	11.9				5.8		11.0
Green Ext Time (p_c), s	0.0	14.8				7.2		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			16.7
HCM 2010 LOS			B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	510	610	1040	210	0	2350
Future Volume (vph)	510	610	1040	210	0	2350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	4.5	4.5		4.5
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1530		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1530		6408
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	531	635	1083	219	0	2448
RTOR Reduction (vph)	0	61	0	112	0	0
Lane Group Flow (vph)	531	574	1083	107	0	2448
Confl. Peds. (#/hr)		1		11	11	
Confl. Bikes (#/hr)				3		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	9.4	17.0	24.5	24.5		32.6
Effective Green, g (s)	9.4	17.0	24.5	24.5		32.6
Actuated g/C Ratio	0.19	0.34	0.49	0.49		0.65
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	645	947	2491	749		4178
v/s Ratio Prot	c0.15	c0.21	0.21			c0.38
v/s Ratio Perm				0.07		
v/c Ratio	0.82	0.61	0.43	0.14		0.59
Uniform Delay, d1	19.5	13.7	8.3	7.0		4.9
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	8.0	0.8	0.6	0.4		0.6
Delay (s)	27.5	14.5	8.8	7.4		5.5
Level of Service	C	B	A	A		A
Approach Delay (s)	20.4		8.6			5.5
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	960	30	540	550	340	30	270	1040	710	300	80
Future Volume (veh/h)	130	960	30	540	550	340	30	270	1040	710	300	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	131	970	0	545	556	0	30	273	0	717	303	65
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1071	0	256	1262	565	37	327	278	628	978	207
Arrive On Green	0.09	0.30	0.00	0.14	0.36	0.00	0.02	0.18	0.00	0.18	0.34	0.34
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	2901	613
Grp Volume(v), veh/h	131	970	0	545	556	0	30	273	0	717	183	185
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1744
Q Serve(g_s), s	7.5	27.4	0.0	15.0	12.5	0.0	1.8	14.7	0.0	19.0	8.0	8.2
Cycle Q Clear(g_c), s	7.5	27.4	0.0	15.0	12.5	0.0	1.8	14.7	0.0	19.0	8.0	8.2
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	160	1071	0	256	1262	565	37	327	278	628	597	588
V/C Ratio(X)	0.82	0.91	0.00	2.13	0.44	0.00	0.81	0.84	0.00	1.14	0.31	0.31
Avail Cap(c_a), veh/h	239	1248	0	256	1292	578	102	967	822	628	1139	1123
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	34.9	0.0	44.5	25.6	0.0	50.7	41.4	0.0	42.5	25.5	25.6
Incr Delay (d2), s/veh	7.9	8.0	0.0	522.0	0.1	0.0	14.1	2.2	0.0	81.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	14.5	0.0	44.4	6.1	0.0	1.0	7.8	0.0	16.1	3.9	4.0
LnGrp Delay(d),s/veh	54.4	42.8	0.0	566.6	25.6	0.0	64.8	43.6	0.0	124.1	25.6	25.7
LnGrp LOS	D	D		F	C		E	D		F	C	C
Approach Vol, veh/h		1101			1101			303			1085	
Approach Delay, s/veh		44.2			293.4			45.7			90.7	
Approach LOS		D			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	42.4	24.0	23.3	20.0	36.8	7.2	40.1
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	14.0	* 38	19.0	54.0	15.0	36.7	6.0	67.0
Max Q Clear Time (g_c+I1), s	9.5	14.5	21.0	16.7	17.0	29.4	3.8	10.2
Green Ext Time (p_c), s	0.1	1.6	0.0	0.9	0.0	2.1	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	134.8
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	460	2090	230	150	280	190	200	350	300	610	870	250
Future Volume (veh/h)	460	2090	230	150	280	190	200	350	300	610	870	250
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	469	2133	178	153	286	60	204	357	0	622	888	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	530	1544	681	108	1214	535	204	512	0	432	966	432
Arrive On Green	0.15	0.44	0.44	0.06	0.34	0.34	0.11	0.14	0.00	0.24	0.27	0.00
Sat Flow, veh/h	3442	3539	1562	1774	3539	1560	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	469	2133	178	153	286	60	204	357	0	622	888	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1770	1560	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	19.7	64.5	10.7	9.0	8.5	3.9	17.0	14.2	0.0	36.0	36.0	0.0
Cycle Q Clear(g_c), s	19.7	64.5	10.7	9.0	8.5	3.9	17.0	14.2	0.0	36.0	36.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	530	1544	681	108	1214	535	204	512	0	432	966	432
V/C Ratio(X)	0.89	1.38	0.26	1.42	0.24	0.11	1.00	0.70	0.00	1.44	0.92	0.00
Avail Cap(c_a), veh/h	675	1544	681	108	1214	535	204	562	0	432	1017	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	61.3	41.7	26.5	69.4	34.7	33.2	65.4	60.2	0.0	55.9	52.2	0.0
Incr Delay (d2), s/veh	11.2	175.9	0.2	233.2	0.1	0.1	63.1	3.4	0.0	210.9	12.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	69.0	4.7	11.4	4.2	1.7	11.8	7.2	0.0	42.8	19.3	0.0
LnGrp Delay(d),s/veh	72.5	217.6	26.7	302.7	34.8	33.3	128.5	63.6	0.0	266.8	64.7	0.0
LnGrp LOS	E	F	C	F	C	C	F	E		F	E	
Approach Vol, veh/h		2780			499			561			1510	
Approach Delay, s/veh		180.9			116.8			87.2			148.0	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.0	25.9	13.0	69.0	21.0	44.9	26.8	55.2
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	36.0	23.5	9.0	64.5	17.0	42.5	29.0	44.5
Max Q Clear Time (g_c+I1), s	38.0	16.2	11.0	66.5	19.0	38.0	21.7	10.5
Green Ext Time (p_c), s	0.0	1.3	0.0	0.0	0.0	2.4	1.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	155.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	770	1150	80	50	1830	520	100	220	60	250	130	520
Future Volume (veh/h)	770	1150	80	50	1830	520	100	220	60	250	130	520
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	794	1186	43	52	1887	345	103	227	0	258	134	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	563	2042	893	67	1564	689	125	287	244	194	360	306
Arrive On Green	0.16	0.58	0.58	0.04	0.44	0.44	0.07	0.15	0.00	0.11	0.19	0.00
Sat Flow, veh/h	3442	3539	1547	1774	3539	1559	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	794	1186	43	52	1887	345	103	227	0	258	134	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1547	1774	1770	1559	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	23.2	30.2	1.7	4.1	62.7	22.5	8.1	16.7	0.0	15.5	8.9	0.0
Cycle Q Clear(g_c), s	23.2	30.2	1.7	4.1	62.7	22.5	8.1	16.7	0.0	15.5	8.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	563	2042	893	67	1564	689	125	287	244	194	360	306
V/C Ratio(X)	1.41	0.58	0.05	0.78	1.21	0.50	0.83	0.79	0.00	1.33	0.37	0.00
Avail Cap(c_a), veh/h	563	2042	893	165	1564	689	131	394	335	194	460	391
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.3	19.1	13.1	67.7	39.6	28.4	65.1	57.8	0.0	63.2	49.8	0.0
Incr Delay (d2), s/veh	195.2	0.3	0.0	7.0	99.1	0.2	30.1	5.0	0.0	179.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.2	14.7	0.7	2.2	52.0	9.7	5.0	9.0	0.0	17.2	4.6	0.0
LnGrp Delay(d),s/veh	254.5	19.4	13.1	74.7	138.7	28.6	95.2	62.8	0.0	243.1	50.0	0.0
LnGrp LOS	F	B	B	E	F	C	F	E		F	D	
Approach Vol, veh/h		2023			2284			330			392	
Approach Delay, s/veh		111.5			120.6			72.9			177.1	
Approach LOS		F			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	87.1	13.5	32.4	28.0	68.0	19.0	26.9
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	13.2	74.0	10.5	35.0	23.2	62.7	15.5	30.0
Max Q Clear Time (g_c+I1), s	6.1	32.2	10.1	10.9	25.2	64.7	17.5	18.7
Green Ext Time (p_c), s	0.0	6.1	0.0	0.4	0.0	0.0	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	118.2
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	560	100	230	680	280	160	1230	230	430	720	470
Future Volume (veh/h)	320	560	100	230	680	280	160	1230	230	430	720	470
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	344	602	97	247	731	267	172	1323	190	462	774	232
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	807	130	271	639	233	195	1226	538	393	1241	544
Arrive On Green	0.16	0.27	0.27	0.15	0.25	0.25	0.11	0.35	0.35	0.11	0.35	0.35
Sat Flow, veh/h	1774	3043	489	1774	2521	921	1774	3539	1553	3442	3539	1553
Grp Volume(v), veh/h	344	349	350	247	513	485	172	1323	190	462	774	232
Grp Sat Flow(s),veh/h/ln	1774	1770	1762	1774	1770	1672	1774	1770	1553	1721	1770	1553
Q Serve(g_s), s	23.0	25.3	25.5	19.2	35.5	35.5	13.4	48.5	12.8	16.0	25.5	16.0
Cycle Q Clear(g_c), s	23.0	25.3	25.5	19.2	35.5	35.5	13.4	48.5	12.8	16.0	25.5	16.0
Prop In Lane	1.00		0.28	1.00		0.55	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	469	467	271	449	424	195	1226	538	393	1241	544
V/C Ratio(X)	1.18	0.74	0.75	0.91	1.14	1.14	0.88	1.08	0.35	1.17	0.62	0.43
Avail Cap(c_a), veh/h	291	469	467	304	449	424	215	1226	538	393	1241	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	47.1	47.2	58.4	52.3	52.3	61.4	45.7	34.1	62.0	37.8	34.7
Incr Delay (d2), s/veh	110.8	6.4	6.5	28.3	88.0	89.1	29.8	49.9	0.4	102.2	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.2	13.2	13.3	11.5	28.3	26.9	8.2	32.2	5.5	13.2	12.6	6.9
LnGrp Delay(d),s/veh	169.3	53.5	53.7	86.6	140.3	141.4	91.1	95.6	34.5	164.2	38.8	35.2
LnGrp LOS	F	D	D	F	F	F	F	F	C	F	D	D
Approach Vol, veh/h		1043			1245			1685			1468	
Approach Delay, s/veh		91.7			130.1			88.3			77.7	
Approach LOS		F			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	53.0	25.4	41.6	19.4	53.6	27.0	40.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	48.5	24.0	34.5	17.0	47.5	23.0	35.5
Max Q Clear Time (g_c+I1), s	18.0	50.5	21.2	27.5	15.4	27.5	25.0	37.5
Green Ext Time (p_c), s	0.0	0.0	0.2	2.4	0.1	6.1	0.0	0.0

Intersection Summary			
HCM 2010 Ctrl Delay			95.6
HCM 2010 LOS			F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	20	50	180	20	380	70	1590	170	680	1430	20
Future Volume (veh/h)	130	20	50	180	20	380	70	1590	170	680	1430	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	141	22	2	196	22	99	76	1728	175	739	1554	21
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	166	15	219	25	213	96	1909	193	777	2992	40
Arrive On Green	0.10	0.10	0.10	0.14	0.14	0.14	0.05	0.41	0.41	0.23	0.58	0.58
Sat Flow, veh/h	1774	1677	152	1603	180	1562	1774	4687	473	3442	5170	70
Grp Volume(v), veh/h	141	0	24	218	0	99	76	1248	655	739	1019	556
Grp Sat Flow(s),veh/h/ln	1774	0	1830	1783	0	1562	1774	1695	1770	1721	1695	1849
Q Serve(g_s), s	10.3	0.0	1.6	16.0	0.0	7.8	5.6	45.9	46.2	28.1	24.1	24.1
Cycle Q Clear(g_c), s	10.3	0.0	1.6	16.0	0.0	7.8	5.6	45.9	46.2	28.1	24.1	24.1
Prop In Lane	1.00		0.08	0.90		1.00	1.00		0.27	1.00		0.04
Lane Grp Cap(c), veh/h	175	0	181	243	0	213	96	1381	721	777	1962	1070
V/C Ratio(X)	0.80	0.00	0.13	0.90	0.00	0.46	0.79	0.90	0.91	0.95	0.52	0.52
Avail Cap(c_a), veh/h	242	0	249	254	0	222	160	1416	739	777	1962	1070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	0.0	54.7	56.4	0.0	52.9	62.1	36.9	37.0	50.7	16.9	16.9
Incr Delay (d2), s/veh	12.8	0.0	0.3	30.2	0.0	1.6	13.3	8.4	14.9	21.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	0.8	9.9	0.0	3.4	3.1	23.1	25.5	15.6	11.2	12.3
LnGrp Delay(d),s/veh	71.5	0.0	55.0	86.6	0.0	54.5	75.4	45.3	51.9	71.9	17.1	17.3
LnGrp LOS	E		E	F		D	E	D	D	E	B	B
Approach Vol, veh/h		165			317			1979			2314	
Approach Delay, s/veh		69.1			76.6			48.7			34.7	
Approach LOS		E			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	34.0	58.6		17.6	11.2	81.4		22.6
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5
Max Green Setting (Gmax), s	30.0	55.5		18.1	12.0	73.5		18.9
Max Q Clear Time (g_c+I1), s	30.1	48.2		12.3	7.6	26.1		18.0
Green Ext Time (p_c), s	0.0	5.9		0.2	0.0	15.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	44.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	850	0	550	0	0	0	0	1910	540	0	1630	800
Future Volume (veh/h)	850	0	550	0	0	0	0	1910	540	0	1630	800
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	895	0	554				0	2011	0	0	1716	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	975	0	650				3	2882	0	0	2882	897
Arrive On Green	0.28	0.00	0.28				0.00	0.57	0.00	0.00	0.57	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	895	0	554				0	2011	0	0	1716	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	15.1	0.0	14.4				0.0	17.0	0.0	0.0	13.2	0.0
Cycle Q Clear(g_c), s	15.1	0.0	14.4				0.0	17.0	0.0	0.0	13.2	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	975	0	650				3	2882	0	0	2882	897
V/C Ratio(X)	0.92	0.00	0.85				0.00	0.70	0.00	0.00	0.60	0.00
Avail Cap(c_a), veh/h	975	0	650				89	2882	0	0	2882	897
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.30	0.00	0.00	0.80	0.00
Uniform Delay (d), s/veh	20.8	0.0	33.9				0.0	9.3	0.0	0.0	8.5	0.0
Incr Delay (d2), s/veh	13.0	0.0	10.1				0.0	0.4	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	9.9				0.0	7.9	0.0	0.0	6.2	0.0
LnGrp Delay(d),s/veh	33.8	0.0	44.0				0.0	9.7	0.0	0.0	9.2	0.0
LnGrp LOS	C		D					A			A	
Approach Vol, veh/h		1449						2011			1716	
Approach Delay, s/veh		37.7						9.7			9.2	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	39.0				39.0		21.0
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	3.0	28.0				34.0		17.0
Max Q Clear Time (g_c+I1), s	0.0	15.2				19.0		17.1
Green Ext Time (p_c), s	0.0	9.0				11.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	460	1430	2170	570	0	1970
Future Volume (vph)	460	1430	2170	570	0	1970
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	4.5	4.5		4.5
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.96		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1512		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1512		6408
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	479	1490	2260	594	0	2052
RTOR Reduction (vph)	0	1	0	336	0	0
Lane Group Flow (vph)	479	1489	2260	258	0	2052
Confl. Peds. (#/hr)		1		11	11	
Confl. Bikes (#/hr)				3		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	40.5	48.0	43.5	43.5		51.5
Effective Green, g (s)	40.5	48.0	43.5	43.5		51.5
Actuated g/C Ratio	0.40	0.48	0.44	0.44		0.52
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1390	1337	2211	657		3300
v/s Ratio Prot	0.14	c0.53	c0.44			0.32
v/s Ratio Perm				0.17		
v/c Ratio	0.34	1.11	1.02	0.39		0.62
Uniform Delay, d1	20.6	26.0	28.2	19.3		17.3
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.1	62.2	25.0	1.8		0.9
Delay (s)	20.6	88.2	53.2	21.0		18.2
Level of Service	C	F	D	C		B
Approach Delay (s)	71.7		46.5			18.2
Approach LOS	E		D			B

Intersection Summary			
HCM 2000 Control Delay	45.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	610	20	680	950	770	30	500	1000	360	190	90
Future Volume (veh/h)	130	610	20	680	950	770	30	500	1000	360	190	90
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	131	616	0	687	960	0	30	505	0	364	192	54
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	683	0	527	1459	653	38	525	446	292	945	258
Arrive On Green	0.08	0.19	0.00	0.30	0.41	0.00	0.02	0.28	0.00	0.08	0.35	0.35
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	2739	749
Grp Volume(v), veh/h	131	616	0	687	960	0	30	505	0	364	122	124
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1718
Q Serve(g_s), s	10.4	24.1	0.0	42.0	30.9	0.0	2.4	37.8	0.0	12.0	6.9	7.2
Cycle Q Clear(g_c), s	10.4	24.1	0.0	42.0	30.9	0.0	2.4	37.8	0.0	12.0	6.9	7.2
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	138	683	0	527	1459	653	38	525	446	292	611	593
V/C Ratio(X)	0.95	0.90	0.00	1.30	0.66	0.00	0.79	0.96	0.00	1.25	0.20	0.21
Avail Cap(c_a), veh/h	138	768	0	527	1552	694	75	527	448	292	611	593
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.9	55.8	0.0	49.7	33.5	0.0	68.9	50.1	0.0	64.7	32.6	32.7
Incr Delay (d2), s/veh	60.6	12.1	0.0	150.1	0.7	0.0	12.5	29.5	0.0	136.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	13.0	0.0	42.5	15.2	0.0	1.3	23.8	0.0	11.2	3.4	3.4
LnGrp Delay(d),s/veh	125.5	67.9	0.0	199.8	34.2	0.0	81.4	79.6	0.0	200.9	32.6	32.7
LnGrp LOS	F	E		F	C		F	E		F	C	C
Approach Vol, veh/h		747			1647			535			610	
Approach Delay, s/veh		78.0			103.3			79.7			133.1	
Approach LOS		E			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	63.6	17.0	44.8	47.0	32.6	8.0	53.8
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	11.0	* 62	12.0	40.0	42.0	30.7	6.0	46.0
Max Q Clear Time (g_c+I1), s	12.4	32.9	14.0	39.8	44.0	26.1	4.4	9.2
Green Ext Time (p_c), s	0.0	3.2	0.0	0.1	0.0	0.9	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	99.5
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	770	170	130	1820	630	300	740	250	250	420	380
Future Volume (veh/h)	590	770	170	130	1820	630	300	740	250	250	420	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	602	786	115	133	1857	498	306	755	0	255	429	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	444	1599	706	156	1454	641	313	835	0	193	594	266
Arrive On Green	0.13	0.45	0.45	0.09	0.41	0.41	0.18	0.24	0.00	0.11	0.17	0.00
Sat Flow, veh/h	3442	3539	1562	1774	3539	1561	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	602	786	115	133	1857	498	306	755	0	255	429	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1770	1561	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	19.0	23.0	6.4	10.9	60.5	40.6	25.3	30.5	0.0	16.0	16.9	0.0
Cycle Q Clear(g_c), s	19.0	23.0	6.4	10.9	60.5	40.6	25.3	30.5	0.0	16.0	16.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	444	1599	706	156	1454	641	313	835	0	193	594	266
V/C Ratio(X)	1.36	0.49	0.16	0.85	1.28	0.78	0.98	0.90	0.00	1.32	0.72	0.00
Avail Cap(c_a), veh/h	444	1599	706	241	1454	641	313	901	0	193	661	296
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.1	28.4	23.9	66.2	43.4	37.5	60.3	54.6	0.0	65.6	58.0	0.0
Incr Delay (d2), s/veh	174.1	0.2	0.1	15.7	130.0	6.0	44.4	11.9	0.0	176.6	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.7	11.3	2.8	6.0	55.8	18.6	16.3	16.3	0.0	17.3	8.6	0.0
LnGrp Delay(d),s/veh	238.2	28.7	24.0	81.9	173.4	43.5	104.7	66.6	0.0	242.2	61.4	0.0
LnGrp LOS	F	C	C	F	F	D	F	E		F	E	
Approach Vol, veh/h		1503			2488			1061			684	
Approach Delay, s/veh		112.2			142.5			77.5			128.8	
Approach LOS		F			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	39.2	17.0	71.0	30.0	29.2	23.0	65.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	37.5	20.0	59.5	26.0	27.5	19.0	60.5
Max Q Clear Time (g_c+I1), s	18.0	32.5	12.9	25.0	27.3	18.9	21.0	62.5
Green Ext Time (p_c), s	0.0	2.2	0.2	6.0	0.0	1.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	120.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	430	2190	47	86	830	190	37	86	47	650	193	610
Future Volume (veh/h)	430	2190	47	86	830	190	37	86	47	650	193	610
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	443	2258	22	89	856	65	38	89	0	670	199	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	500	1678	733	87	1303	574	49	186	158	436	593	504
Arrive On Green	0.15	0.47	0.47	0.05	0.37	0.37	0.03	0.10	0.00	0.25	0.32	0.00
Sat Flow, veh/h	3442	3539	1546	1774	3539	1558	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	443	2258	22	89	856	65	38	89	0	670	199	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1546	1774	1770	1558	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	16.7	62.7	1.0	6.5	26.7	3.6	2.8	6.0	0.0	32.5	10.8	0.0
Cycle Q Clear(g_c), s	16.7	62.7	1.0	6.5	26.7	3.6	2.8	6.0	0.0	32.5	10.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	500	1678	733	87	1303	574	49	186	158	436	593	504
V/C Ratio(X)	0.89	1.35	0.03	1.02	0.66	0.11	0.78	0.48	0.00	1.54	0.34	0.00
Avail Cap(c_a), veh/h	651	1678	733	87	1303	574	107	437	371	436	782	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.4	34.8	18.5	62.9	34.8	27.5	63.9	56.2	0.0	49.9	34.4	0.0
Incr Delay (d2), s/veh	9.7	159.6	0.0	102.1	1.0	0.0	9.6	0.7	0.0	252.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	67.7	0.4	5.6	13.1	1.6	1.5	3.1	0.0	46.5	5.5	0.0
LnGrp Delay(d),s/veh	65.2	194.3	18.6	165.2	35.8	27.6	73.5	56.9	0.0	302.6	34.5	0.0
LnGrp LOS	E	F	B	F	D	C	E	E		F	C	
Approach Vol, veh/h		2723			1010			127			869	
Approach Delay, s/veh		171.9			46.7			61.9			241.2	
Approach LOS		F			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	68.0	7.1	47.1	24.0	54.0	36.0	18.2
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	6.5	62.7	8.0	55.5	25.0	42.9	32.5	31.0
Max Q Clear Time (g_c+I1), s	8.5	64.7	4.8	12.8	18.7	28.7	34.5	8.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.5	3.3	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	154.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	500	1080	210	230	520	160	70	546	290	200	993	170
Future Volume (veh/h)	500	1080	210	230	520	160	70	546	290	200	993	170
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	538	1161	211	247	559	146	75	587	124	215	1068	68
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	1132	204	237	610	159	74	945	413	272	1077	472
Arrive On Green	0.29	0.38	0.38	0.13	0.22	0.22	0.04	0.27	0.27	0.08	0.30	0.30
Sat Flow, veh/h	1774	2985	539	1774	2763	719	1774	3539	1549	3442	3539	1551
Grp Volume(v), veh/h	538	686	686	247	357	348	75	587	124	215	1068	68
Grp Sat Flow(s),veh/h/ln	1774	1770	1754	1774	1770	1712	1774	1770	1549	1721	1770	1551
Q Serve(g_s), s	35.0	45.5	45.5	16.0	23.6	23.8	5.0	17.5	7.7	7.4	36.1	3.8
Cycle Q Clear(g_c), s	35.0	45.5	45.5	16.0	23.6	23.8	5.0	17.5	7.7	7.4	36.1	3.8
Prop In Lane	1.00		0.31	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	517	671	665	237	391	378	74	945	413	272	1077	472
V/C Ratio(X)	1.04	1.02	1.03	1.04	0.91	0.92	1.01	0.62	0.30	0.79	0.99	0.14
Avail Cap(c_a), veh/h	517	671	665	237	391	378	74	945	413	315	1077	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	37.3	37.3	52.0	45.6	45.7	57.5	38.7	35.1	54.3	41.6	30.4
Incr Delay (d2), s/veh	50.3	40.4	43.3	70.6	25.5	27.2	108.8	1.3	0.4	11.2	25.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.3	29.7	30.0	12.5	14.3	14.2	4.7	8.7	3.3	3.9	21.5	1.7
LnGrp Delay(d),s/veh	92.8	77.6	80.6	122.6	71.2	72.9	166.4	39.9	35.5	65.5	67.0	30.5
LnGrp LOS	F	F	F	F	E	E	F	D	D	E	E	C
Approach Vol, veh/h		1910			952			786			1351	
Approach Delay, s/veh		82.9			85.1			51.3			65.0	
Approach LOS		F			F			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	36.5	20.0	50.0	9.0	41.0	39.0	31.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	11.0	30.5	16.0	45.5	5.0	36.5	35.0	26.5
Max Q Clear Time (g_c+I1), s	9.4	19.5	18.0	47.5	7.0	38.1	37.0	25.8
Green Ext Time (p_c), s	0.1	3.2	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	73.5
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	20	62	10	100	40	1097	139	600	1371	50
Future Volume (veh/h)	20	10	20	62	10	100	40	1097	139	600	1371	50
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	11	0	67	11	1	43	1192	136	652	1490	52
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	90	0	110	18	111	60	1672	191	805	2833	99
Arrive On Green	0.05	0.05	0.00	0.07	0.07	0.07	0.03	0.36	0.36	0.23	0.56	0.56
Sat Flow, veh/h	1774	1863	0	1534	252	1548	1774	4622	527	3442	5043	176
Grp Volume(v), veh/h	22	11	0	78	0	1	43	874	454	652	1002	540
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1786	0	1548	1774	1695	1759	1721	1695	1829
Q Serve(g_s), s	0.7	0.3	0.0	2.6	0.0	0.0	1.5	13.7	13.7	11.0	11.3	11.3
Cycle Q Clear(g_c), s	0.7	0.3	0.0	2.6	0.0	0.0	1.5	13.7	13.7	11.0	11.3	11.3
Prop In Lane	1.00		0.00	0.86		1.00	1.00		0.30	1.00		0.10
Lane Grp Cap(c), veh/h	85	90	0	129	0	111	60	1226	636	805	1905	1027
V/C Ratio(X)	0.26	0.12	0.00	0.61	0.00	0.01	0.72	0.71	0.71	0.81	0.53	0.53
Avail Cap(c_a), veh/h	519	544	0	522	0	453	144	1514	785	1062	2285	1232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	28.1	0.0	27.7	0.0	26.5	29.5	16.9	16.9	22.3	8.4	8.4
Incr Delay (d2), s/veh	1.6	0.6	0.0	4.5	0.0	0.0	14.7	1.2	2.3	3.6	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.0	1.4	0.0	0.0	1.0	6.5	7.0	5.6	5.2	5.7
LnGrp Delay(d),s/veh	29.8	28.7	0.0	32.3	0.0	26.6	44.2	18.1	19.2	25.9	8.6	8.8
LnGrp LOS	C	C		C		C	D	B	B	C	A	A
Approach Vol, veh/h		33			79			1371			2194	
Approach Delay, s/veh		29.4			32.2			19.3			13.8	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.4	26.8		7.5	6.1	39.1		8.9
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5
Max Green Setting (Gmax), s	19.0	27.5		18.0	5.0	41.5		18.0
Max Q Clear Time (g_c+I1), s	13.0	15.7		2.7	3.5	13.3		4.6
Green Ext Time (p_c), s	1.4	6.6		0.0	0.0	12.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	0	304	0	0	0	0	876	601	0	1717	1110
Future Volume (veh/h)	380	0	304	0	0	0	0	876	601	0	1717	1110
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	400	0	289				0	922	0	0	1807	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	516	0	279				3	3560	0	0	3560	1108
Arrive On Green	0.15	0.00	0.15				0.00	0.70	0.00	0.00	0.70	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	400	0	289				0	922	0	0	1807	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	6.7	0.0	9.0				0.0	4.0	0.0	0.0	9.9	0.0
Cycle Q Clear(g_c), s	6.7	0.0	9.0				0.0	4.0	0.0	0.0	9.9	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	516	0	279				3	3560	0	0	3560	1108
V/C Ratio(X)	0.77	0.00	1.04				0.00	0.26	0.00	0.00	0.51	0.00
Avail Cap(c_a), veh/h	516	0	279				89	3560	0	0	3560	1108
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.68	0.00	0.00	0.74	0.00
Uniform Delay (d), s/veh	24.5	0.0	54.7				0.0	3.3	0.0	0.0	4.2	0.0
Incr Delay (d2), s/veh	6.6	0.0	63.9				0.0	0.1	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	7.9				0.0	1.8	0.0	0.0	4.6	0.0
LnGrp Delay(d),s/veh	31.1	0.0	118.6				0.0	3.4	0.0	0.0	4.6	0.0
LnGrp LOS	C		F					A			A	
Approach Vol, veh/h		689						922			1807	
Approach Delay, s/veh		67.8						3.4			4.6	
Approach LOS		E						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	47.0				47.0		13.0
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	3.0	36.0				42.0		9.0
Max Q Clear Time (g_c+I1), s	0.0	11.9				6.0		11.0
Green Ext Time (p_c), s	0.0	14.9				7.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	515	610	1049	210	0	2352
Future Volume (vph)	515	610	1049	210	0	2352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	4.5	4.5		4.5
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1530		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1530		6408
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	536	635	1093	219	0	2450
RTOR Reduction (vph)	0	60	0	112	0	0
Lane Group Flow (vph)	536	575	1093	107	0	2450
Confl. Peds. (#/hr)		1		11	11	
Confl. Bikes (#/hr)				3		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	9.4	17.0	24.5	24.5		32.6
Effective Green, g (s)	9.4	17.0	24.5	24.5		32.6
Actuated g/C Ratio	0.19	0.34	0.49	0.49		0.65
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	645	947	2491	749		4178
v/s Ratio Prot	c0.16	c0.21	0.21			c0.38
v/s Ratio Perm				0.07		
v/c Ratio	0.83	0.61	0.44	0.14		0.59
Uniform Delay, d1	19.5	13.7	8.3	7.0		4.9
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	8.6	0.8	0.6	0.4		0.6
Delay (s)	28.1	14.5	8.8	7.4		5.5
Level of Service	C	B	A	A		A
Approach Delay (s)	20.7		8.6			5.5
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	964	30	542	565	350	30	270	1041	712	300	80
Future Volume (veh/h)	130	964	30	542	565	350	30	270	1041	712	300	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	131	974	0	547	571	0	30	273	0	719	303	65
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1075	0	255	1265	566	37	327	278	627	977	206
Arrive On Green	0.09	0.30	0.00	0.14	0.36	0.00	0.02	0.18	0.00	0.18	0.34	0.34
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	2901	613
Grp Volume(v), veh/h	131	974	0	547	571	0	30	273	0	719	183	185
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1744
Q Serve(g_s), s	7.6	27.6	0.0	15.0	12.9	0.0	1.8	14.8	0.0	19.0	8.0	8.2
Cycle Q Clear(g_c), s	7.6	27.6	0.0	15.0	12.9	0.0	1.8	14.8	0.0	19.0	8.0	8.2
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	160	1075	0	255	1265	566	37	327	278	627	596	587
V/C Ratio(X)	0.82	0.91	0.00	2.14	0.45	0.00	0.81	0.84	0.00	1.15	0.31	0.31
Avail Cap(c_a), veh/h	238	1246	0	255	1290	577	102	965	820	627	1137	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	34.9	0.0	44.6	25.7	0.0	50.8	41.5	0.0	42.6	25.6	25.6
Incr Delay (d2), s/veh	8.0	8.1	0.0	527.1	0.1	0.0	14.1	2.2	0.0	83.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	14.6	0.0	44.7	6.3	0.0	1.0	7.8	0.0	16.2	3.9	4.0
LnGrp Delay(d),s/veh	54.5	43.0	0.0	571.7	25.8	0.0	64.9	43.7	0.0	126.1	25.7	25.8
LnGrp LOS	D	D		F	C		E	D		F	C	C
Approach Vol, veh/h		1105			1118			303			1087	
Approach Delay, s/veh		44.4			292.9			45.8			92.1	
Approach LOS		D			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	42.5	24.0	23.3	20.0	36.9	7.2	40.1
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	14.0	* 38	19.0	54.0	15.0	36.7	6.0	67.0
Max Q Clear Time (g_c+I1), s	9.6	14.9	21.0	16.8	17.0	29.6	3.8	10.2
Green Ext Time (p_c), s	0.1	1.7	0.0	0.9	0.0	2.1	0.0	1.3

Intersection Summary		
HCM 2010 Ctrl Delay		135.8
HCM 2010 LOS		F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	473	2104	230	150	283	190	200	350	300	610	870	253
Future Volume (veh/h)	473	2104	230	150	283	190	200	350	300	610	870	253
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	483	2147	178	153	289	59	204	357	0	622	888	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	543	1544	681	108	1201	529	204	512	0	432	966	432
Arrive On Green	0.16	0.44	0.44	0.06	0.34	0.34	0.11	0.14	0.00	0.24	0.27	0.00
Sat Flow, veh/h	3442	3539	1562	1774	3539	1560	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	483	2147	178	153	289	59	204	357	0	622	888	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1770	1560	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	20.3	64.5	10.7	9.0	8.7	3.8	17.0	14.2	0.0	36.0	36.0	0.0
Cycle Q Clear(g_c), s	20.3	64.5	10.7	9.0	8.7	3.8	17.0	14.2	0.0	36.0	36.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	543	1544	681	108	1201	529	204	512	0	432	966	432
V/C Ratio(X)	0.89	1.39	0.26	1.42	0.24	0.11	1.00	0.70	0.00	1.44	0.92	0.00
Avail Cap(c_a), veh/h	675	1544	681	108	1201	529	204	562	0	432	1017	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	61.0	41.7	26.5	69.4	35.2	33.6	65.4	60.2	0.0	55.9	52.2	0.0
Incr Delay (d2), s/veh	11.9	179.9	0.2	233.2	0.1	0.1	63.1	3.4	0.0	210.9	12.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	69.9	4.7	11.4	4.3	1.7	11.8	7.2	0.0	42.8	19.3	0.0
LnGrp Delay(d),s/veh	72.9	221.6	26.7	302.7	35.3	33.6	128.5	63.6	0.0	266.8	64.7	0.0
LnGrp LOS	E	F	C	F	D	C	F	E		F	E	
Approach Vol, veh/h		2808			501			561			1510	
Approach Delay, s/veh		183.7			116.7			87.2			148.0	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.0	25.9	13.0	69.0	21.0	44.9	27.3	54.7
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	36.0	23.5	9.0	64.5	17.0	42.5	29.0	44.5
Max Q Clear Time (g_c+I1), s	38.0	16.2	11.0	66.5	19.0	38.0	22.3	10.7
Green Ext Time (p_c), s	0.0	1.3	0.0	0.0	0.0	2.4	1.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	157.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	770	1150	108	77	1830	520	109	238	69	250	186	520
Future Volume (veh/h)	770	1150	108	77	1830	520	109	238	69	250	186	520
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	794	1186	66	79	1887	351	112	245	0	258	192	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	558	1961	857	99	1551	684	130	300	255	192	365	310
Arrive On Green	0.16	0.55	0.55	0.06	0.44	0.44	0.07	0.16	0.00	0.11	0.20	0.00
Sat Flow, veh/h	3442	3539	1547	1774	3539	1559	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	794	1186	66	79	1887	351	112	245	0	258	192	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1547	1774	1770	1559	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	23.2	32.2	2.8	6.3	62.7	23.3	8.9	18.2	0.0	15.5	13.2	0.0
Cycle Q Clear(g_c), s	23.2	32.2	2.8	6.3	62.7	23.3	8.9	18.2	0.0	15.5	13.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	558	1961	857	99	1551	684	130	300	255	192	365	310
V/C Ratio(X)	1.42	0.60	0.08	0.80	1.22	0.51	0.86	0.82	0.00	1.34	0.53	0.00
Avail Cap(c_a), veh/h	558	1961	857	164	1551	684	130	391	332	192	456	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.9	21.4	14.9	66.7	40.2	29.1	65.5	58.0	0.0	63.8	51.5	0.0
Incr Delay (d2), s/veh	200.4	0.4	0.0	5.5	103.5	0.3	39.0	7.7	0.0	184.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.5	15.8	1.2	3.2	52.9	10.1	5.8	10.0	0.0	17.4	6.9	0.0
LnGrp Delay(d),s/veh	260.3	21.8	14.9	72.3	143.6	29.4	104.5	65.6	0.0	248.3	52.0	0.0
LnGrp LOS	F	C	B	E	F	C	F	E		F	D	
Approach Vol, veh/h		2046			2317			357			450	
Approach Delay, s/veh		114.1			123.9			77.8			164.6	
Approach LOS		F			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	84.5	14.0	33.0	28.0	68.0	19.0	28.0
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	13.2	74.0	10.5	35.0	23.2	62.7	15.5	30.0
Max Q Clear Time (g_c+I1), s	8.3	34.2	10.9	15.2	25.2	64.7	17.5	20.2
Green Ext Time (p_c), s	0.0	6.1	0.0	0.6	0.0	0.0	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	120.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	560	100	230	680	280	160	1248	230	430	776	470
Future Volume (veh/h)	320	560	100	230	680	280	160	1248	230	430	776	470
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	344	602	97	247	731	267	172	1342	191	462	834	232
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	807	130	271	639	233	195	1226	538	393	1241	544
Arrive On Green	0.16	0.27	0.27	0.15	0.25	0.25	0.11	0.35	0.35	0.11	0.35	0.35
Sat Flow, veh/h	1774	3043	489	1774	2521	921	1774	3539	1553	3442	3539	1553
Grp Volume(v), veh/h	344	349	350	247	513	485	172	1342	191	462	834	232
Grp Sat Flow(s),veh/h/ln	1774	1770	1762	1774	1770	1672	1774	1770	1553	1721	1770	1553
Q Serve(g_s), s	23.0	25.3	25.5	19.2	35.5	35.5	13.4	48.5	12.8	16.0	28.0	16.0
Cycle Q Clear(g_c), s	23.0	25.3	25.5	19.2	35.5	35.5	13.4	48.5	12.8	16.0	28.0	16.0
Prop In Lane	1.00		0.28	1.00		0.55	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	469	467	271	449	424	195	1226	538	393	1241	544
V/C Ratio(X)	1.18	0.74	0.75	0.91	1.14	1.14	0.88	1.09	0.36	1.17	0.67	0.43
Avail Cap(c_a), veh/h	291	469	467	304	449	424	215	1226	538	393	1241	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	47.1	47.2	58.4	52.3	52.3	61.4	45.7	34.1	62.0	38.6	34.7
Incr Delay (d2), s/veh	110.8	6.4	6.5	28.3	88.0	89.1	29.8	55.6	0.4	102.2	1.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.2	13.2	13.3	11.5	28.3	26.9	8.2	33.1	5.6	13.2	13.9	6.9
LnGrp Delay(d),s/veh	169.3	53.5	53.7	86.6	140.3	141.4	91.1	101.3	34.5	164.2	40.1	35.2
LnGrp LOS	F	D	D	F	F	F	F	F	C	F	D	D
Approach Vol, veh/h		1043			1245			1705			1528	
Approach Delay, s/veh		91.7			130.1			92.8			76.9	
Approach LOS		F			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	53.0	25.4	41.6	19.4	53.6	27.0	40.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	48.5	24.0	34.5	17.0	47.5	23.0	35.5
Max Q Clear Time (g_c+I1), s	18.0	50.5	21.2	27.5	15.4	30.0	25.0	37.5
Green Ext Time (p_c), s	0.0	0.0	0.2	2.4	0.1	6.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	96.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	20	50	189	20	380	70	1605	173	680	1477	20
Future Volume (veh/h)	130	20	50	189	20	380	70	1605	173	680	1477	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	141	22	2	205	22	100	76	1745	178	739	1605	21
Adj No. of Lanes	1	1	0	0	1	1	1	3	0	2	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	165	15	226	24	220	96	1904	194	770	2980	39
Arrive On Green	0.10	0.10	0.10	0.14	0.14	0.14	0.05	0.41	0.41	0.22	0.58	0.58
Sat Flow, veh/h	1774	1677	152	1610	173	1563	1774	4684	476	3442	5172	68
Grp Volume(v), veh/h	141	0	24	227	0	100	76	1261	662	739	1052	574
Grp Sat Flow(s),veh/h/ln	1774	0	1830	1782	0	1563	1774	1695	1769	1721	1695	1850
Q Serve(g_s), s	10.4	0.0	1.6	16.8	0.0	7.9	5.7	47.1	47.5	28.4	25.6	25.6
Cycle Q Clear(g_c), s	10.4	0.0	1.6	16.8	0.0	7.9	5.7	47.1	47.5	28.4	25.6	25.6
Prop In Lane	1.00		0.08	0.90		1.00	1.00		0.27	1.00		0.04
Lane Grp Cap(c), veh/h	175	0	180	250	0	220	96	1378	719	770	1953	1066
V/C Ratio(X)	0.81	0.00	0.13	0.91	0.00	0.46	0.79	0.92	0.92	0.96	0.54	0.54
Avail Cap(c_a), veh/h	240	0	247	251	0	220	159	1404	733	770	1953	1066
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.2	0.0	55.2	56.7	0.0	52.9	62.6	37.6	37.7	51.4	17.5	17.5
Incr Delay (d2), s/veh	13.2	0.0	0.3	33.1	0.0	1.5	13.4	9.5	16.6	22.9	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.8	10.6	0.0	3.5	3.1	23.9	26.5	16.0	12.1	13.2
LnGrp Delay(d),s/veh	72.4	0.0	55.5	89.8	0.0	54.4	76.0	47.1	54.3	74.3	17.7	18.0
LnGrp LOS	E		E	F		D	E	D	D	E	B	B
Approach Vol, veh/h		165			327			1999			2365	
Approach Delay, s/veh		69.9			79.0			50.6			35.5	
Approach LOS		E			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.0	59.0		17.7	11.3	81.7		23.3				
Change Period (Y+Rc), s	4.0	4.5		4.5	4.0	4.5		4.5				
Max Green Setting (Gmax), s	30.0	55.5		18.1	12.0	73.5		18.9				
Max Q Clear Time (g_c+I1), s	30.4	49.5		12.4	7.7	27.6		18.8				
Green Ext Time (p_c), s	0.0	5.0		0.2	0.0	16.5		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			45.8									
HCM 2010 LOS			D									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	850	0	567	0	0	0	0	1918	547	0	1660	800
Future Volume (veh/h)	850	0	567	0	0	0	0	1918	547	0	1660	800
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	1900	0	1863	1863
Adj Flow Rate, veh/h	895	0	572				0	2019	0	0	1747	0
Adj No. of Lanes	2	0	2				1	3	0	0	3	1
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2				2	2	2	0	2	2
Cap, veh/h	975	0	650				3	2882	0	0	2882	897
Arrive On Green	0.28	0.00	0.28				0.00	0.57	0.00	0.00	0.57	0.00
Sat Flow, veh/h	3442	0	2787				1774	5253	0	0	5253	1583
Grp Volume(v), veh/h	895	0	572				0	2019	0	0	1747	0
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1695	0	0	1695	1583
Q Serve(g_s), s	15.1	0.0	14.9				0.0	17.1	0.0	0.0	13.6	0.0
Cycle Q Clear(g_c), s	15.1	0.0	14.9				0.0	17.1	0.0	0.0	13.6	0.0
Prop In Lane	1.00		1.00				1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	975	0	650				3	2882	0	0	2882	897
V/C Ratio(X)	0.92	0.00	0.88				0.00	0.70	0.00	0.00	0.61	0.00
Avail Cap(c_a), veh/h	975	0	650				89	2882	0	0	2882	897
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.28	0.00	0.00	0.80	0.00
Uniform Delay (d), s/veh	20.8	0.0	33.7				0.0	9.3	0.0	0.0	8.6	0.0
Incr Delay (d2), s/veh	13.0	0.0	12.8				0.0	0.4	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	10.4				0.0	8.0	0.0	0.0	6.5	0.0
LnGrp Delay(d),s/veh	33.8	0.0	46.4				0.0	9.7	0.0	0.0	9.3	0.0
LnGrp LOS	C		D					A			A	
Approach Vol, veh/h		1467						2019			1747	
Approach Delay, s/veh		38.7						9.7			9.3	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	39.0				39.0		21.0
Change Period (Y+Rc), s	3.0	5.0				5.0		4.0
Max Green Setting (Gmax), s	3.0	28.0				34.0		17.0
Max Q Clear Time (g_c+I1), s	0.0	15.6				19.1		17.1
Green Ext Time (p_c), s	0.0	8.9				11.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.7
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	481	1430	2173	570	0	1979
Future Volume (vph)	481	1430	2173	570	0	1979
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	4.5	4.5		4.5
Lane Util. Factor	0.97	0.88	0.91	1.00		0.86
Frpb, ped/bikes	1.00	1.00	1.00	0.96		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	3433	2787	5085	1512		6408
Flt Permitted	0.95	1.00	1.00	1.00		1.00
Satd. Flow (perm)	3433	2787	5085	1512		6408
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	501	1490	2264	594	0	2061
RTOR Reduction (vph)	0	1	0	336	0	0
Lane Group Flow (vph)	501	1489	2264	258	0	2061
Confl. Peds. (#/hr)		1		11	11	
Confl. Bikes (#/hr)				3		
Turn Type	Prot	custom	NA	Perm		NA
Protected Phases	4	4 5	6			2
Permitted Phases				6		
Actuated Green, G (s)	40.5	48.0	43.5	43.5		51.5
Effective Green, g (s)	40.5	48.0	43.5	43.5		51.5
Actuated g/C Ratio	0.40	0.48	0.44	0.44		0.52
Clearance Time (s)	3.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1390	1337	2211	657		3300
v/s Ratio Prot	0.15	c0.53	c0.45			0.32
v/s Ratio Perm				0.17		
v/c Ratio	0.36	1.11	1.02	0.39		0.62
Uniform Delay, d1	20.7	26.0	28.2	19.3		17.3
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.1	62.2	25.5	1.8		0.9
Delay (s)	20.8	88.2	53.7	21.0		18.2
Level of Service	C	F	D	C		B
Approach Delay (s)	71.2		46.9			18.2
Approach LOS	E		D			B

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	626	20	681	955	773	30	500	1002	370	190	90
Future Volume (veh/h)	130	626	20	681	955	773	30	500	1002	370	190	90
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	131	632	0	688	965	0	30	505	0	374	192	54
Adj No. of Lanes	1	2	0	1	2	1	1	1	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	694	0	524	1466	656	38	524	445	290	943	258
Arrive On Green	0.08	0.20	0.00	0.30	0.41	0.00	0.02	0.28	0.00	0.08	0.34	0.34
Sat Flow, veh/h	1774	3632	0	1774	3539	1583	1774	1863	1583	3442	2739	749
Grp Volume(v), veh/h	131	632	0	688	965	0	30	505	0	374	122	124
Grp Sat Flow(s),veh/h/ln	1774	1770	0	1774	1770	1583	1774	1863	1583	1721	1770	1718
Q Serve(g_s), s	10.5	24.8	0.0	42.0	31.2	0.0	2.4	38.0	0.0	12.0	6.9	7.2
Cycle Q Clear(g_c), s	10.5	24.8	0.0	42.0	31.2	0.0	2.4	38.0	0.0	12.0	6.9	7.2
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	137	694	0	524	1466	656	38	524	445	290	609	591
V/C Ratio(X)	0.95	0.91	0.00	1.31	0.66	0.00	0.79	0.96	0.00	1.29	0.20	0.21
Avail Cap(c_a), veh/h	137	764	0	524	1543	690	75	524	445	290	609	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.3	55.9	0.0	50.1	33.5	0.0	69.2	50.4	0.0	65.1	32.8	32.9
Incr Delay (d2), s/veh	62.3	13.5	0.0	154.0	0.7	0.0	12.5	30.0	0.0	152.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	13.4	0.0	42.9	15.4	0.0	1.3	23.9	0.0	11.9	3.4	3.5
LnGrp Delay(d),s/veh	127.7	69.4	0.0	204.0	34.3	0.0	81.7	80.4	0.0	218.0	32.9	33.0
LnGrp LOS	F	E		F	C		F	F		F	C	C
Approach Vol, veh/h		763			1653			535			620	
Approach Delay, s/veh		79.4			104.9			80.4			144.6	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	64.2	17.0	45.0	47.0	33.2	8.1	53.9
Change Period (Y+Rc), s	5.0	* 5.3	5.0	5.0	5.0	5.3	5.0	5.0
Max Green Setting (Gmax), s	11.0	* 62	12.0	40.0	42.0	30.7	6.0	46.0
Max Q Clear Time (g_c+I1), s	12.5	33.2	14.0	40.0	44.0	26.8	4.4	9.2
Green Ext Time (p_c), s	0.0	3.2	0.0	0.0	0.0	0.8	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	102.7
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	594	775	170	130	1834	630	300	740	250	250	420	393
Future Volume (veh/h)	594	775	170	130	1834	630	300	740	250	250	420	393
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	606	791	115	133	1871	499	306	755	0	255	429	0
Adj No. of Lanes	2	2	1	1	2	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	444	1599	706	156	1454	641	313	835	0	193	594	266
Arrive On Green	0.13	0.45	0.45	0.09	0.41	0.41	0.18	0.24	0.00	0.11	0.17	0.00
Sat Flow, veh/h	3442	3539	1562	1774	3539	1561	1774	3632	0	1774	3539	1583
Grp Volume(v), veh/h	606	791	115	133	1871	499	306	755	0	255	429	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1562	1774	1770	1561	1774	1770	0	1774	1770	1583
Q Serve(g_s), s	19.0	23.2	6.4	10.9	60.5	40.8	25.3	30.5	0.0	16.0	16.9	0.0
Cycle Q Clear(g_c), s	19.0	23.2	6.4	10.9	60.5	40.8	25.3	30.5	0.0	16.0	16.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	444	1599	706	156	1454	641	313	835	0	193	594	266
V/C Ratio(X)	1.36	0.49	0.16	0.85	1.29	0.78	0.98	0.90	0.00	1.32	0.72	0.00
Avail Cap(c_a), veh/h	444	1599	706	241	1454	641	313	901	0	193	661	296
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.1	28.5	23.9	66.2	43.4	37.5	60.3	54.6	0.0	65.6	58.0	0.0
Incr Delay (d2), s/veh	177.9	0.2	0.1	15.7	134.2	6.0	44.4	11.9	0.0	176.6	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.0	11.4	2.8	6.0	56.6	18.6	16.3	16.3	0.0	17.3	8.6	0.0
LnGrp Delay(d),s/veh	242.1	28.7	24.0	81.9	177.6	43.6	104.7	66.6	0.0	242.2	61.4	0.0
LnGrp LOS	F	C	C	F	F	D	F	E		F	E	
Approach Vol, veh/h		1512			2503			1061			684	
Approach Delay, s/veh		113.9			145.8			77.5			128.8	
Approach LOS		F			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	39.2	17.0	71.0	30.0	29.2	23.0	65.0
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Green Setting (Gmax), s	16.0	37.5	20.0	59.5	26.0	27.5	19.0	60.5
Max Q Clear Time (g_c+I1), s	18.0	32.5	12.9	25.2	27.3	18.9	21.0	62.5
Green Ext Time (p_c), s	0.0	2.2	0.2	6.1	0.0	1.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	122.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	430	2190	47	86	830	190	37	86	47	650	193	610
Future Volume (veh/h)	430	2190	47	86	830	190	37	86	47	650	193	610
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	443	2258	22	89	856	65	38	89	0	670	199	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	503	1758	768	91	1386	610	49	189	161	734	535	455
Arrive On Green	0.15	0.50	0.50	0.05	0.39	0.39	0.03	0.10	0.00	0.21	0.29	0.00
Sat Flow, veh/h	3442	3539	1547	1774	3539	1559	1774	1863	1583	3442	1863	1583
Grp Volume(v), veh/h	443	2258	22	89	856	65	38	89	0	670	199	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1547	1774	1770	1559	1774	1863	1583	1721	1863	1583
Q Serve(g_s), s	15.9	62.7	0.9	6.3	24.5	3.3	2.7	5.7	0.0	24.0	10.8	0.0
Cycle Q Clear(g_c), s	15.9	62.7	0.9	6.3	24.5	3.3	2.7	5.7	0.0	24.0	10.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	503	1758	768	91	1386	610	49	189	161	734	535	455
V/C Ratio(X)	0.88	1.28	0.03	0.97	0.62	0.11	0.78	0.47	0.00	0.91	0.37	0.00
Avail Cap(c_a), veh/h	682	1758	768	91	1386	610	112	457	389	886	819	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.8	31.8	16.2	59.8	30.8	24.4	61.0	53.5	0.0	48.5	35.9	0.0
Incr Delay (d2), s/veh	8.1	132.4	0.0	85.1	0.6	0.0	9.7	0.7	0.0	11.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	62.9	0.4	5.2	12.0	1.4	1.5	3.0	0.0	12.6	5.6	0.0
LnGrp Delay(d),s/veh	60.9	164.2	16.2	144.9	31.4	24.4	70.7	54.2	0.0	59.6	36.0	0.0
LnGrp LOS	E	F	B	F	C	C	E	D		E	D	
Approach Vol, veh/h		2723			1010			127			869	
Approach Delay, s/veh		146.2			41.0			59.1			54.2	
Approach LOS		F			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	68.0	7.0	41.3	23.3	54.7	30.4	17.8
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0
Max Green Setting (Gmax), s	6.5	62.7	8.0	55.5	25.0	42.9	32.5	31.0
Max Q Clear Time (g_c+I1), s	8.3	64.7	4.7	12.8	17.9	26.5	26.0	7.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.5	3.4	0.9	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	104.5
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	770	1150	108	77	1830	520	109	238	69	250	186	520
Future Volume (veh/h)	770	1150	108	77	1830	520	109	238	69	250	186	520
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	794	1186	60	79	1887	239	112	245	0	258	192	0
Adj No. of Lanes	2	2	1	1	2	1	1	1	1	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	607	2038	891	99	1579	696	93	300	255	296	363	308
Arrive On Green	0.18	0.58	0.58	0.06	0.45	0.45	0.05	0.16	0.00	0.09	0.19	0.00
Sat Flow, veh/h	3442	3539	1547	1774	3539	1559	1774	1863	1583	3442	1863	1583
Grp Volume(v), veh/h	794	1186	60	79	1887	239	112	245	0	258	192	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1547	1774	1770	1559	1774	1863	1583	1721	1863	1583
Q Serve(g_s), s	25.2	30.5	2.4	6.3	63.7	14.3	7.5	18.1	0.0	10.6	13.2	0.0
Cycle Q Clear(g_c), s	25.2	30.5	2.4	6.3	63.7	14.3	7.5	18.1	0.0	10.6	13.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	607	2038	891	99	1579	696	93	300	255	296	363	308
V/C Ratio(X)	1.31	0.58	0.07	0.80	1.20	0.34	1.20	0.82	0.00	0.87	0.53	0.00
Avail Cap(c_a), veh/h	607	2038	891	164	1579	696	93	394	335	296	457	388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.8	19.3	13.4	66.6	39.6	25.9	67.7	57.9	0.0	64.5	51.6	0.0
Incr Delay (d2), s/veh	150.0	0.3	0.0	5.5	94.4	0.1	157.4	7.4	0.0	22.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.5	14.9	1.0	3.2	51.6	6.2	7.7	9.9	0.0	6.0	6.9	0.0
LnGrp Delay(d),s/veh	208.8	19.6	13.4	72.2	134.0	26.0	225.0	65.3	0.0	86.9	52.1	0.0
LnGrp LOS	F	B	B	E	F	C	F	E		F	D	
Approach Vol, veh/h		2040			2205			357			450	
Approach Delay, s/veh		93.1			120.0			115.4			72.0	
Approach LOS		F			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	87.5	11.0	32.8	30.0	69.0	15.8	28.0				
Change Period (Y+Rc), s	3.5	5.3	3.5	5.0	4.8	5.3	3.5	5.0				
Max Green Setting (Gmax), s	13.2	77.0	7.5	35.0	25.2	63.7	12.3	30.2				
Max Q Clear Time (g_c+I1), s	8.3	32.5	9.5	15.2	27.2	65.7	12.6	20.1				
Green Ext Time (p_c), s	0.0	6.1	0.0	0.6	0.0	0.0	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			104.5									
HCM 2010 LOS			F									