Draft
Initial Study / Mitigated Negative Declaration

Laurel Grove Avenue Sewer Rehabilitation Project
Town of Kentfield, CA

Prepared for
Ross Valley Sanitary District
2960 Kerner Boulevard
San Rafael, CA 94901

Prepared by

703 2nd Street
Suite 256
Santa Rosa, CA 95404

April 2020

MITIGATED NEGATIVE DECLARATION

PROJECT TITLE

Laurel Grove Avenue Sewer Rehabilitation Project

LEAD AGENCY/NAME AND ADDRESS

Ross Valley Sanitary District, 2960 Kerner Boulevard, San Rafael, CA 94901

PROJECT LOCATION

The Project is located in the district service area in the unincorporated town of Kentfield in Marin County (Attachment B, Figure 1). Kentfield has a land area of approximately 3 square miles and is situated in a series of small valleys bordered by moderate hillside slopes and ridgetops. Kentfield is located between the incorporated cities/towns of San Rafael to the north, Ross to the northwest, and Larkspur and Mill Valley to the east and south.

PROJECT DESCRIPTION

The Ross Valley Sanitary District (RVSD[1]) Laurel Grove Avenue Sewer Rehabilitation Project (Project) entails the construction and rehabilitation, within the existing alignment, of approximately 4,370 linear ft of sanitary sewer mains and related appurtenances within the town of Kentfield. The site encompasses approximately 0.5 to 0.75 acre. The Project includes:

- Rehabilitation or replacement, by pipe bursting, of approximately 3,510 ft of sewers (with high-density polyethylene [HDPE] pipe), and upsizing the diameter of the trunk line under Laurel Grove Avenue between Sir Francis Drake Boulevard and Makin Grade.
- Replacement, by open cut, of approximately 290 linear ft of 6-in. clay and cast-iron sewer on Quisisana Drive with 10-in. plastic (polyvinyl chloride [PVC]) pipe between Laurel Grove Avenue including a storm drain pipe drainage shield and the first manhole, which will also be replaced to prevent groundwater infiltration.
- Replacement by open cut, of approximately 185 linear ft of the clay sewer on Hanken Drive with an 8-in. plastic (PVC) pipe and replacement of 310 linear ft of clay sewer by

[1] See Attachment A for a list of abbreviations and acronyms.

pipe burst on Laurel Grove Avenue and on Hanken Drive to the first manhole (with HDPE pipe).

- Upsizing the lower section of the sewer from 10 in. to 16 in. of approximately 110 linear ft with plastic (PVC) pipe under Sir Francis Drake Boulevard, installed by open cut methods including a pipe casing under the storm drain.

The primary objective of this Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure.

MITIGATION MEASURES

Mitigation Measure Bio1

Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps:

- If initial construction is proposed during the nesting season (March 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within 7 days prior to the onset of construction in order to determine whether any active nests are present in the area of potential effect (APE) and surrounding area within 100 ft of proposed construction. The survey shall be re-conducted any time construction has been delayed or curtailed for more than 7 days during the nesting season.
- If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions.
- If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the California Department of Fish and Wildlife (CDFW), and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be delineated if construction is to be initiated elsewhere in the APE to make it clear that the area should not be disturbed.
- A report of findings shall be prepared by the qualified biologist and submitted to the RVSD or designated agent for review and approval prior to initiation of construction during the nesting season (March 1 to August 31). The report shall either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if

construction is initiated during the non-nesting season (September 1 to January 31) and continues uninterrupted according to the above criteria.

Mitigation Measure Cul1

- Areas determined to be highly sensitive areas (section of Laurel Grove Avenue between Quisisana Drive and Sir Francis Drake Boulevard, Quisisana Drive, and Hanken Drive) will be monitored during all Project-related ground disturbance, and less sensitive areas (the portion of Laurel Avenue north of Quisisana Drive) will be spot monitored, even in areas where mostly disturbed soils will be impacted. It is possible that secondary deposits, or intact pockets of midden in trench walls, will be encountered in these areas.
- If paleontological resources are encountered during Project subsurface construction, all ground-disturbing activities within 25 ft will be redirected and a qualified paleontologist will be contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel will not collect or move any paleontological materials. Paleontological resources include fossil plants and animals, and trace fossil evidence of past life such as tracks.

Mitigation Measure Cul2

- Construction crews shall be trained in "basic archaeological/tribal resources identification" by a qualified archaeologist and have access to a Cultural Resources Alert Sheet. The Alert Sheet shall photographically depict midden and associated indicators of precontact archaeological sites (no photographs of human remains), and clearly outline the procedures in the event of an archaeological discovery. These procedures include temporary work stoppage (Stop Work Order) of all ground disturbance, short-term physical protection of artifacts and their context, and immediate advisement of the archaeological/tribal team and RVSD representatives. Any Stop Work Order will contain a description of the work to be stopped, special instructions or requests for the Contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. A qualified archaeologist and tribal representative from the Federated Indians of Graton Rancheria (FIGR) will be contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery and offer recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those cultural resources that have been encountered.

Mitigation Measure Cul3

- Upon discovery, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.
- If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC will then identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.
- If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods.

FINDINGS

An Initial Study has been prepared to assess the proposed Project's potential effects on the environment and the significance of those effects. Based on the Initial Study, it has been determined that the proposed Project, with the mitigation measures described above incorporated, would not have any significant effects on the environment.

A copy of the Initial Study is attached. The materials related to the proposed Project are on file at the Ross Valley Sanitary District office, located at 2960 Kerner Boulevard, San Rafael, CA 94901, and are available online at www.rvsd.org.

Steve Moore
General Manager

April 24, 2020
Date

CALIFORNIA ENVIRONMENTAL QUALITY ACT INITIAL STUDY

Integral Consulting Inc. (Integral) has completed the following document for this project in accordance with the California Environmental Quality Act (CEQA) [Pub. Resources Code, div. 13, § 21000 et seq.] and accompanying Guidelines [Cal. Code Regs., tit. 14, § 15000 et seq.].

PROJECT TITLE: Laurel Grove Avenue Sewer Rehabilitation Project		
PROJECT ADDRESS: Laurel Grove Avenue between Sir Francis Drake Boulevard and Makin Grade	CITY: Kentfield	COUNTY: Marin
PROJECT SPONSOR: Ross Valley Sanitary District	CONTACT: Steve Moore	PHONE: (415) 259-2949 x217

LEAD AGENCY ADDRESS:	CONTACT:	PHONE:
2960 Kerner Blvd. San Rafael, CA 94901	Steve Moore	(415) 259-2949 x217

APPROVAL ACTION UNDER CONSIDERATION:
Implementation of sewer rehabilitation project.

Project Overview and Purpose

The Ross Valley Sanitary District (RVSD[1]) Laurel Grove Avenue Sewer Rehabilitation Project (Project) entails the construction and rehabilitation, within the existing alignment, of approximately 4,370 linear ft of sanitary sewer mains and related appurtenances within the town of Kentfield. The site encompasses approximately 0.5 to 0.75 acre. The Project includes:

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[1] See Attachment A for a list of abbreviations and acronyms.

including a storm drain pipe drainage shield and the first manhole, which will also be replaced to prevent groundwater infiltration.

- Replacement, by open cut, of approximately 185 linear ft of the clay sewer on Hanken Drive with an 8-in. plastic (PVC) pipe and replacement of 310 linear ft of clay sewer by pipe burst on Laurel Grove Avenue and on Hanken Drive to the first manhole (with HDPE pipe).
- Upsizing the lower section of the sewer from 10 in. to 16 in. of approximately 110 linear ft with plastic (PVC) pipe under Sir Francis Drake Boulevard, installed by open cut methods including a pipe casing under the storm drain.

The primary objective of this Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure.

Project Location

The Project is located in the district service area in the unincorporated town of Kentfield in Marin County (Attachment B, Figure 1). Kentfield has a land area of approximately 3 square miles and is situated in a series of small valleys bordered by moderate hillside slopes and ridgetops. Kentfield is located between the incorporated cities/towns of San Rafael to the north, Ross to the northwest, and Larkspur and Mill Valley to the east and south.

Site Setting

The Project is located along Laurel Grove Avenue, Sir Francis Drake Boulevard, Quisisana Drive, and Hanken Drive. Regional access to the Project site from the north and south is provided by U.S. Highway 101 (U.S. 101) and from the east by the Richmond-San Rafael Bridge (Interstate 580 [I-580]). The area west of U.S. 101 includes a mix of commercial, residential, and recreational uses.

Land uses surrounding the Project site are mainly comprised of single-family residential uses to the north, east, and west. A private recreational club (The Priory Tennis and Swim Club) is located at the corner of Laurel Grove Avenue and Hanken Drive. Sir Francis Drake Boulevard, located to the south of the Project site, is a major traffic artery linking U.S. 101 with communities in the upper and lower Ross Valley area. Residences, businesses, and schools are located along Sir Francis Drake Boulevard, east and west of the Project site. Specifically, the Anthony G. Bacich Elementary School and the Ross Valley Nursey School are located approximately 0.20 mile from the intersection of Sir Francis Drake Boulevard and a commercial strip is located approximately 0.20 mile to the west between McAllister Avenue and College Avenue.

Site Background

The RVSD was established in 1899 and is located approximately 15 miles north of San Francisco. The service area is bounded on the east by the San Francisco Bay, and on the west by the coastal hills. RVSD is one of three wastewater collection agencies that form the Central Marin Sanitation Agency. RVSD serves the wastewater collection needs of approximately 56,000 customers in Fairfax, San Anselmo, Ross, Larkspur, Bon Air, Sleepy Hollow, Kentfield, Kent Woodlands, Oak Manor, Greenbrae, and Murray Park.

Planning for the proposed Project began in 2005 as part of RVSD's Sanitary Sewer Hydraulic Evaluation and Capacity Assurance Plan. Between 2008 and 2013, RVSD experienced an increase in the number and severity of sewer system overflows (SSOs). On May 13, 2013, the San Francisco Bay Regional Water Quality Control Board (RWQCB) issued cease and desist order (CDO) No. R2-2013-0020 in response to instances where SSOs reached waters of the state (RWQCB 2013). The CDO required RVSD to develop and implement an Infrastructure Asset Management Plan (IAMP). The IAMP

presents projects to rehabilitate and replace RVSD's deficient wastewater facilities through the year 2020. The proposed Project is one of the last remaining projects to be completed under the IAMP.

Construction Methods

Two construction methods will be utilized for this Project: pipe bursting is the primary method of construction, followed by open cut (Attachment B, Figure 2). Pipe bursting is a trenchless method and will not require open exposure from the surface along the entire segment. Construction methods are further detailed below:

- *Pipe bursting* uses equipment to burst the host pipe outward into the surrounding soil while simultaneously pulling the new pipeline in its place.
- The *open cut* method relies on excavation of a trench from the surface. In many cases, open cut trenches are dug in previously disturbed soils within the footprint of an existing trench or roadway.

Full constructions plans are provided in Attachment C.

Work Hours and Schedule

Construction is expected to begin in late spring 2020 and is anticipated to be complete in October 2020. Work hours will generally be 8 a.m. to 5 p.m. for all work occurring along Laurel Grove Avenue, Quisisana Drive, and Hanken Drive. Work hours for construction activities taking place at Sir Francis Drake Boulevard would occur from approximately 8 p.m. to 5 a.m. However, hours will be dependent on location-specific constraints imposed by encroachment permits conditions and only once written permission from the Marin County Community Development Director has been obtained based upon showing sufficient cause (for nighttime work).

Construction Staging

Site preparation will include the following general tasks: survey and excavation layout, and preparation of staging, ingress, and egress areas. Prior to construction, the selected contractor will develop a staging operations plan that identifies construction equipment staging and support areas, site access, exclusion areas, excavation areas and stockpile areas, truck lanes, parking areas, and site office trailers. Construction staging will occur daily given the nature of the Project area.

Bypass Pumping

Bypass pumping during construction will be location-specific and based on site-specific requirements and constraints as outlined in a Contractor-supplied and RVSD-approved bypass plan. In general, bypass systems will be surface laid and follow the most direct route, excluding trespass onto private property.

Site Restoration

The Contractor will, at all times, keep property on which work is in progress and the adjacent property free from the accumulation of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the Contractor will remove all surplus materials, temporary structures, rubbish, and waste materials resulting from their operation.

Permits and Project Approvals

Permits that will likely be required, but are not necessarily limited to, include the following:

- County of Marin Encroachment Permit.

The area of Project disturbance is less than 1 acre in total; therefore, a General Constructions Stormwater Permit is not required.

Overview of Control Measures

Numerous control measures would be incorporated into the Project's Contract Documents by RVSD to address environmental and public health and safety issues. Control measures are procedures known to further reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experiences of RVSD and the design engineer.

Regulatory agency requirements would be contained in permits obtained for the Project. The Contractor would be required to obtain encroachment permits from the County of Marin. These permits would contain specific requirements for traffic control and parking, emergency access, pavement restoration, noise control, and allowable work hours, and would provide for the safety of residents, pedestrians, and motorists. The Contractor would be required to comply with all conditions set forth in the encroachment permits and corresponding RVSD standards.

Coordination would be established and maintained with local residents and businesses along the alignment and a mechanism for monitoring construction activities and addressing any complaints would be implemented. Any damaged landscaped and/or hardscaped areas would be restored, and a series of best management practices (BMPs) would be enforced to maintain site appearance; control dust, erosion, and stormwater discharge; and provide noise attenuation if needed.

Full control measures to be implemented for the Project are included in Attachment D. Control measures implemented for the site include measures for:

- Site management, including tree protection
- Dust control
- Stormwater and erosion control
- Geotechnical
- Hazardous materials
- Safety
- Dewatering
- Noise
- Traffic management
- Ground movement monitoring
- Air Quality
- Aesthetics.

Biological (Attachment E) and cultural resources (Far Western 2020[2]) technical reports have been completed, which identify measures that would be included in the contract documents to address potential impacts. Deep excavations would be needed in some areas to support the open cut construction methods. A variety of geotechnical and regulatory agency control measures would be included to provide for the constructability of the Project and its environmental compatibility, and to ensure the protection of workers' and the public's health and safety.

References

Far Western. 2020. Archaeological resources inventory for the Ross Valley Sanitary District Laurel Grove Avenue Sewer Rehabilitation Project, Marin County, California. Far Western Anthropological Research Group, Inc. February.

RWQCB. 2013. Order No. R2-2013-0020. San Francisco Bay Regional Water Quality Control Board. May 13.

[2] The cultural resources technical report contains confidential information and is not provided in this document. Relevant information has been incorporated into the Initial Study.

ENVIRONMENTAL IMPACT ANALYSIS:

1. Aesthetics

Project Activities Likely to Create an Impact:

- Staging of construction materials
- Generation of rubbish and debris/material storage
- Damage to hardscape and landscaped areas
- Transporting and handling of imported and exported materials
- Work crews accessing the Project site.

Description of Baseline Environmental Conditions:

Visual Character. The Project site is mainly located along Laurel Grove Avenue, just north of Sir Francis Drake Boulevard, within a residential neighborhood identified as Single Family Residential under the town of Kentfield/Greenbrae Community Plan and Marin Countywide Plan (Kentfield/Greenbrae Community Planning Group and Marin County Planning Department 1987; Marin County 2007). A portion of the Project is located through the intersection of Sir Francis Drake Boulevard, a main thoroughfare in Marin County.

The overall visual character of the immediate area is dominated by view of surrounding single-family residential homes with landscaping. The visual character of the Project site is characterized by the following features:

- Laurel Grove Avenue and Roadway. Laurel Grove Avenue is a two-lane road with roadside ditches, planted street trees, and adjacent landscaping. The street is residential with limited sidewalks on the eastern and western extents of the street. Laurel Grove Avenue provides access to the surrounding neighborhood.
- Sir Francis Drake Boulevard. Sir Francis Drake Boulevard is a main east-to-west thoroughfare in Marin County that has been developed with a four-lane road, cross walks, traffic lights, and a landscaped median.

The Project site is nearly level and does not have extensive views along the roadway. Laurel Grove Avenue serves predominantly residential traffic traveling from the neighborhood to outside locations within the town of Kentfield and the surrounding area, via Sir Francis Drake Boulevard. Viewer sensitivity for residents driving along Laurel Grove Avenue between their homes and Sir Francis Drake Boulevard is low due to the low number of viewers and limited area affected by the proposed Project, as well as limited visibility of the area from Sir Francis Drake Boulevard. Viewer sensitivity for commuters driving along Sir Francis Drake Boulevard would also be low due to the limited area affected by this portion of the Project and the short-term nature of construction activities.

Scenic Routes and Vistas. According to the California Department of Transportation (Caltrans) Scenic Highway inventory, portions of State Route 1, 101, and 37 are considered eligible for listing as a scenic highway (Caltrans 2019). However, these roadways are not located near the Project site and there are no other scenic highway designations or scenic vistas in the Project vicinity. While the Marin Countywide Plan does not identify any official scenic vistas within the Kentfield area, Countywide Policy Des-4.1 “Preserve Visual Quality” emphasized the protection of scenic quality and view of the natural environment (Marin County 2007). Views of ridgelines, upland greenbelts, and hillsides are not easily visible from the Project site. Though trees are located adjacent to the roadway at the Project site, all activities will be temporary. With implementation of Control Measures listed in Attachment D under “Site Management Practices,” temporary construction activities would have no impact on aesthetics.

Light and Glare. Light pollution is defined as any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste. Existing sources of light and glare are generally from streetlights, residences, and from traffic on Sir Francis Brake Boulevard and Laurel Grove Avenue.

Analysis as to whether or not project activities would:

a. Have a substantial adverse effect on a scenic vista.

Impact Analysis:

There are no designated scenic vistas within the Project vicinity and the proposed Project would not be visible from any designated scenic vista.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a State scenic highway.

Impact Analysis:

The Project site is not located on or near a state-designated scenic highway and will not result in damage to scenic resources within a state scenic highway.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

c. Substantially degrade the existing visual character or quality of public views the site and its surroundings. (Public views are those that are experienced from a 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?

Impact Analysis:

Currently, the site is a local roadway primarily used by locals and residents. Construction activities would be temporary and limited to daylight hours. Although the Project work will increase site activity, it will only temporarily degrade the existing visual quality of the site or the surroundings.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Impact Analysis:

Construction activities would be temporary and limited to daylight hours for all Project work occurring along Laurel Grove Avenue, Quisisana Drive, and Hanken Drive.

Construction activities taking place at Sir Francis Drake Boulevard would need to occur from approximately 8 p.m. to 5 a.m. due to high traffic volumes. Nighttime construction would require artificial lighting, which would be minimized in residential areas and set up to avoid significant light and glare impacts on adjacent residential properties.

To reduce glare and light used during nighttime construction activities, RVSD will require the contractor to direct lighting onto the immediate area under construction only and to avoid shining lights toward residences, nighttime commercial properties, and oncoming traffic lanes, as stated in the Control Measures in Attachment D.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. Marin County. 2007. Marin Countywide Plan. Last amendment September 23, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.
2. Caltrans. 2019. Caltrans List of Designated Scenic Routes. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed August 2019. California Department of Transportation.
3. Kentfield/Greenbrae Community Planning Group and Marin County Planning Department. 1987. Kentfield/Greenbrae Community Plan. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/communityandareaplans/kentfield_greenbrae_community_plan_1987.pdf. Kentfield/Greenbrae Community Planning Group and Marin County Planning Department. May.

2. Agricultural and Forestry Resources

Project Activities Likely to Create an Impact:

No Project activities are likely to create an impact to agricultural and forestry resources.

Description of Baseline Environmental Conditions:

The Project is located within the town of Kentfield, which is largely built out with residential and some commercial uses. According to the Kentfield Land Use Policy Map (Marin County 2007), no agricultural or forest lands exist within the town. In addition, The California Department of Conservation Farmland Mapping

and Monitoring Program classifies the area as Urban and Built-up Land (California Department of Conservation 2018). The proposed Project site does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the Farmland Mapping & Monitoring Program for the State of California, Department of Conservation.

Analysis as to whether or not project activities would:

a. 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:

The proposed Project site does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the Farmland Mapping & Monitoring Program of the State of California, Department of Conservation. The Project would not call for the conversion of land from agricultural to non-agricultural use. Additionally, the Project is surrounding by lands that are already developed, approved for development, or designated as parkland area and, therefore, would not increase development pressure on agricultural lands by extending infrastructure into agricultural areas. Therefore, the Project would have no impact on agricultural resources.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Conflict with existing zoning or agriculture use, or Williamson Act contract.

Impact Analysis:

The Project would not call for the conversion of any land from agricultural to non-agricultural use.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

c. Conflict with existing zoning for, or cause rezoning of, forest land (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 Codes section 51104(g))?

Impact Analysis:

The Project would not conflict with existing zoning or cause rezoning of forest land or timber.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

d. Result in the loss of forest land or conversion of forest land or conversion of forest land to non-forest use?

Impact Analysis:

The Project area does not contain forest land.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

e. 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?

Impact Analysis:

The Project area does not contain forest land nor is it zoned for agriculture.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. California Department of Conservation. 2018. Marin County Important Farmland 2016. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/mar16.pdf. Farmland Mapping and Monitoring Program, California Department of Conservation.
2. Marin County. 2007. Marin Countywide Plan. Last amendment September 23, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

3. Air Quality

Project Activities Likely to Create an Impact:

- Equipment used for construction activities[3]
- Heavy duty trucks used for transporting materials and supplies to and from work areas

[3] Will require the use of an excavator and/or other pieces of heavy machinery.

- Loading of media including soil and construction debris onto dump trucks
- Transporting and handling of imported backfill materials.

Description of Baseline Environmental Conditions:

The proposed Project is located in the town of Kentfield in the eastern portion of Marin County, part of the nine-county San Francisco Bay Area Air Basin (SFBAAB). Federal, state, and regional agencies regulate air quality in the SFBAAB. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the federal Clean Air Act (CAA). The California Air Resources Board (CARB) is the state agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California CAA. The local air quality regulatory agency responsible for the SFBAAB is the Bay Area Air Quality Management District (BAAQMD).

Local Climate and Air Quality

The air quality in a given area depends on the sources of air pollution in the area, transport of pollutants to and from surrounding areas, and local and regional meteorological conditions, as well as the surrounding topography of the SFBAAB. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of a pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population.

Marin County is bounded on the west by the Pacific Ocean, on the east by San Pablo Bay, on the south by the Golden Gate, and on the north by the Petaluma Gap. Most of Marin's population lives in the eastern part of the county, in small, sheltered valleys. Because of the wedge shape of the county, northeast Marin County is farther from the ocean than is the southeastern section. This extra distance from the ocean allows the marine air to be moderated by bayside conditions as it travels to northeastern Marin County. In southern Marin the distance from the ocean is short and elevations are lower, resulting in higher incidence of maritime air in that area.

In the summer months, areas along the coast are usually subject to onshore movement of cool marine air. In the winter, proximity to the ocean keeps the coastal regions relatively warm, with temperatures varying little throughout the year. Coastal temperatures are usually in the high 50s in the winter and the low 60s in the summer. The warmest months are September and October. The eastern side of Marin County has warmer weather than the western side because of its distance from the ocean and because the hills that separate eastern Marin from western Marin occasionally block the flow of the marine air. The temperatures of cities next to the Bay are moderated by the cooling effect of the Bay in the summer and the warming effect of the Bay in the winter. For example, San Rafael experiences average maximum summer temperatures in the low 80s and average minimum winter temperatures in the low 40s. Inland towns such as Greenbrae experience average maximum temperatures that are two degrees cooler in the winter and two degrees warmer in the summer.

Air pollution potential is highest in eastern Marin County, where most of population is located in semi-sheltered valleys. In the southeast, the influence of marine air keeps pollution levels low. As development moves farther north, there is greater potential for air pollution to build up because the valleys are more sheltered from the sea breeze. While Marin County does not have many polluting industries, the air quality on its eastern side—especially along the U.S. 101 corridor—may be affected by emissions from increasing motor vehicle use within and through the county (BAAQMD 2017a).

Criteria Air Pollutants

The federal and California CAAs have established ambient air quality standards for common pollutants. The ambient air quality standards are intended to protect human health and welfare. At the federal level, national

ambient air quality standards have been established for criteria pollutants. These criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter with a diameter less than 10 microns (PM10), fine particulate matter with a diameter less than 2.5 microns (PM2.5), sulfur dioxide (SO_2), and lead.

California has adopted ambient air quality standards that are, in general, more stringent than the national ambient air quality standards, and include other pollutants not regulated at the federal level (sulfates, hydrogen sulfide, and vinyl chloride). National and state ambient air quality standards are shown in Table 1. Both the national and California ambient air quality standards have been adopted by BAAQMD.

Table 1. State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Project Area (2016–2018)

Pollutant/ Averaging Period	Primary Standard		Year	Maximum Concentration [a]	Days Exceeding State/National Standard
	State	National			
Ozone 1-hour	0.09 ppm	none	2016	0.088	6/0
			2017	0.088	6/0
			2018	0.072	2/0
Ozone 8-hour	0.70 ppm	0.70 ppm	2016	0.067	15/15
			2017	0.063	6/6
			2018	0.053	3/3
Carbon Monoxide 1-hour	20 ppm	35 ppm	2016	1.4	0/0
			2017	2.6	0/0
			2018	2.0	0/0
Carbon Monoxide 8-hour	90. ppm	9 ppm	2016	1	0/0
			2017	1.6	0/0
			2018	1.6	0/0
Nitrogen Dioxide 1-hour	0.18 ppm	0.100 ppm	2016	0.044	0/0
			2017	0.053	0/1
			2018	0.055	0/0
Nitrogen Dioxide Annual	0.030 ppm	0.053 ppm	2016	0.011	0/0
			2017	0.01	0/0
			2018	0.09	0/0
Sulfur Dioxide 1-hour	none	0.075 ppm	2016	ND	0/0
			2017	ND	0/0
			2018	ND	0/0
Sulfur Dioxide 24-hour	0.04 ppm	none	2016	ND	0/0
			2017	ND	0/0
			2018	ND	0/0
Respirable Particulate Matter (PM_{10}) 24-hour	50 µg/m^3	150 µg/m^3	2016	27	0/0
			2017	94	6/0
			2018	166	6/1
Respirable Particulate Matter (PM_{10}) Annual	20 µg/m^3	none	2016	13.8	0/0
			2017	17.7	0/0
			2018	19.0	0/0

Table 1. State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Project Area (2016–2018)

Pollutant/ Averaging Period	Primary Standard		Year	Maximum Concentration [a]	Days Exceeding State/National Standard
	State	National			
Fine Particulate Matter ($PM_{2.5}$) [a] 24-hour	None	35 µg/m^3	2016	15.6	0/0
			2017	74.7	0/18
			2018	167.6	0/18
Fine Particulate Matter ($PM_{2.5}$) [a] Annual	12 µg/m^3	12.0 µg/m^3	2016	6.4	0/0
			2017	9.7	0/0
			2018	11.1	0/0

Source: BAAQMD (2018)

Notes:
µg/m^3 = micrograms per cubic meter
ND = no data available
ppm = parts per million

[a] All pollutant concentrations were measured at the San Rafael monitoring station.

Ambient concentrations of criteria pollutants are monitored in the SFBAAB by BAAQMD. The San Rafael station is the closest to the Project site and the only station in Marin County. Table 1 includes a summary of the monitored maximum concentrations and the number of occurrences of exceedances of the state/national ambient air quality standards for the 3-year period from 2016 through 2018.

Table 1 shows that over the last 3 years reported the state 1-hour and 8-hour O_3 standards were exceeded 14 times and 24 times, respectively. The state 24-hour PM_{10} standards were exceeded 12 times and the 24-hour national $PM_{2.5}$ standard was not exceeded.

Toxic Air Contaminants

In addition to “criteria” air pollutants, there is another group of substances found in ambient air referred to as toxic air contaminants (TACs). These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects including cancer. Sources of TACs include industrial processes such as petroleum refining and manufacturing, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. One of the TACs of greatest concern in California is diesel particulate matter, which is classified as a carcinogen (i.e., causes cancer). TACs are regulated at the local, state, and federal level.

Federal Air Quality Regulations

The federal CAA requires CARB, based on air quality monitoring data, to designate portions of the state where the national ambient air quality standards are not met as “nonattainment areas.” Because of the differences between the national and state ambient air quality standards, the designation of nonattainment areas is different under the federal and state legislation. Areas that meet the air quality standards are considered to be in attainment of the standards. Areas where there are no monitoring data available or insufficient data to classify an area are considered unclassified, which for regulatory purposes is treated as an attainment area.

The Bay Area as a whole does not meet national ambient air quality standards for O_3 and PM2.5. EPA has classified the region as marginal nonattainment for 8-hour O_3. In October 2009, EPA designated the Bay Area as nonattainment for 24-hour PM2.5 standard. The Bay Area is considered as attainment or unclassifiable with respect to the national air quality standards for all other pollutants. EPA requires states

that have areas that are not in compliance with the national standards to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the State Implementation Plan (SIP). On January 9, 2013, EPA issued a final rule to determine that the San Francisco Bay Area has attained the national 24-hour PM2.5 air quality standard. This action suspends federal SIP planning requirements for the Bay Area. BAAQMD has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and develops regulations that must be consistent with or more stringent than federal and state air quality laws and regulations.

California Air Quality Regulations

The California CAA outlines a program for areas in the state to attain the California ambient air quality standards by the earliest practical date. The California CAA set more stringent air quality standards for most of the pollutants covered under national standards, and additionally regulates other pollutants. If an area does not meet the California ambient air quality standards, CARB designates the area as nonattainment area. With respect to the state air quality standards, the Bay Area is a nonattainment area for ozone and particulate matter (PM10 and PM2.5), and either attainment or unclassified for other pollutants. The California CAA requires local air pollution control districts to prepare air quality attainment plans for pollutants, except for particulate matter, that are not in attainment with the state standards. These plans must provide for district-wide emission reductions of 5 percent per year averaged over consecutive 3-year periods or if not, provide for adoption of “all feasible measures on an expeditious schedule.”

Regional Air Quality Regulations and Planning

Air quality in the Project region is regulated by BAAQMD. BAAQMD regulates stationary sources (with respect to federal, state, and local regulations), monitors regional air pollutant levels (including measurement of toxic air contaminants), develops air quality control strategies, and conducts public awareness programs.

The most recent air quality air plan is the 2017 Clean Air Plan that was adopted by BAAQMD in April 2017 (BAAQMD 2017b). The 2017 Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how BAAQMD will continue making progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. The 2017 Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful, such as particulate matter, ozone, and toxic air contaminants; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion. The 2017 Plan represents the Bay Area’s most recent assessment of the region’s strategy to attain the state and national ozone and PM2.5 standards.

The BAAQMD has also developed CEQA Air Quality Guidelines that establish significance thresholds for evaluating new projects and plans and provides guidance for evaluating air quality impacts of projects and plans (BAAQMD 2017a). The Air Quality Guidelines provide procedures and significance thresholds for evaluating potential construction-related impacts during the environmental review process consistent with CEQA requirements. The Air Quality Guidelines also address operation-related impacts, but the proposed Project is a construction activity with no substantial additional operational component as compared to existing operations.

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were included in BAAQMD’s most recent CEQA Air Quality Guidelines (BAAQMD 2017a, updated May 2017).

Analysis as to whether or not project activities would:

a. Conflict with or obstruct implementation of the applicable air quality plan.

Impact Analysis:

The Project is in an area currently designated nonattainment for the state 1-hour and 8-hour O_3 standards, nonattainment for the state 24-hour and annual PM_{10} standards, and nonattainment for the state annual $PM_{2.5}$ standard. It is also designated as nonattainment for the national 8-hour O_3 standard. To meet planning requirements related to these standards, BAAQMD has developed a regional air quality plan, the Bay Area 2017 Clean Air Plan. A significant impact would occur if a project conflicted with the plan by not being consistent with the population-growth and vehicle miles traveled assumptions of the plan. As discussed in the Project Description, the proposed Project involves the rehabilitation and replacement of deficient wastewater facilities, and thus would not be considered growth-inducing. Construction activities associated with the Project would be short term and temporary, and there would be no long-term operational component to the Project that would generate new vehicle trips in the SFBAAB that would conflict with the plan. As a result, the Project would not conflict with or obstruct with implementation of the plan, and there would be no impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

Impact Analysis:

The proposed Project would involve construction activities associated with the rehabilitation and replacement of sewer system components that would result in temporary increases in air pollutant emissions. These emissions would be generated primarily from construction equipment exhaust, earth disturbance, and construction worker and other construction-related vehicle trips to and from the Project construction areas. The overall Project activities would occur for approximately 3 months.

BAAQMD's approach to the CEQA analysis of construction impacts is two-fold. BAAQMD has identified thresholds of significance for exhaust emissions from construction-related activities. The guidelines specify the following significance thresholds for daily and annual criteria air pollutant emissions from project construction (BAAQMD 2017a):

- PM10 = 82 lb/day; 15 ton/year
- PM2.5 = 54 lb/day; 10 ton/year
- Reactive organic gases (ROG) = 54 lb/day; 10 ton/year
- Oxides of nitrogen (NOx) = 54 lb/day; 10 ton/year
- PM10 from fugitive dust: BMPs; if appropriate construction controls are implemented, fugitive dust emissions from construction activities would be considered less than significant. Control Measures listed in Attachment D are consistent with BAAQMD-recommended control methods for particulate emissions.

Emissions from construction activities were estimated with the Roadway Construction Emissions Model version 8.1.0 (RoadMod) developed by the Sacramento Metropolitan Air Quality Management District (SMAQMD) (SMAQMD 2016). RoadMod was developed to calculate emissions from road-related construction and linear projects. BAAQMD recommends using RoadMod for linear projects such as new

roadways, road widening, or pipeline installation (BAAQMD 2017a). Projected sewer line construction information, including the size of disturbed areas, and number and types of construction equipment and vehicles, along with the anticipated length of their use for the different sewer construction methods, were used with RoadMod to calculate Project exhaust and fugitive dust emissions. Project emissions for the sewer rehabilitation were developed based on information provided by the Project Engineer, including Project activities and scheduling, off-road equipment use, and projected haul truck and vendor truck trips. Details of the emission calculations are included in Attachment F.

Table 2 provides a summary of the average daily and annual criteria pollutant emissions from Project construction activities, along with a comparison to the BAAQMD significance thresholds and conformity with *de minimis* emission thresholds.

Table 2. Annual and Average Daily Emissions from Project Activities

Pollutant	Annual Emissions (ton/year)	Thresholds (ton/year)	Average Daily Emissions (lb/day)[a]	Thresholds (lb/day)	Above Threshold?
ROG	0.01	10	0.35	54	No
CO	0.07	NA	3.50	NA	No
SO_2[a]	- [b]	NA	- [b]	NA	No
NOx	0.07	10	4.96	54	No
PM10[c]	0.01	15	0.41	82	No
PM2.5[c]	0.00	10	0.15	54	No

Source of input parameters: Pippin Cavagnaro, Project Engineer, February 2020

Notes:
NA = not applicable

[a] SO_2 emissions are expected to be negligible due to use of ultra-low sulfur diesel fuel.
[b] Average daily emissions calculated from annual emissions and 66 (22 days per month x 3 months) working days for construction activities.
[c] PM10 and PM2.5 represent total emission values.

Due to the very low level of annual emissions from the Project, significantly less than 1 ton per year, the Project's annual emissions would be well below 10 percent of the SFBAAB's annual emissions. Therefore, the Project emissions would be below the *de minimis* level and less than 10 percent of the emissions inventory for nonattainment pollutants in the SFBAAB, and further general conformity analysis is not required.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Result in 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:

As noted above, Project activities that have the potential to impact air quality can be characterized as construction activities because of the short duration of the Project and use of construction equipment. As

demonstrated above, estimated emissions are below significance thresholds listed in the BAAQMD guidelines.

Since emissions from gasoline- and diesel-fueled vehicles and equipment are below significance thresholds, and fugitive dust emissions would be controlled with BMPs, the Project would not result in a violation of an air quality standard or contribute significantly to an existing or projected air quality violation.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. Expose sensitive receptors to substantial pollutant concentrations.

Impact Analysis:

Sensitive receptors are locations where an identifiable subset of the general population (children, asthmatics, the elderly, and the chronically ill) that is at greater risk than the general population to the effects of air pollutants are likely to be exposed. These locations include residences, schools, playgrounds, childcare centers, retirement homes, hospitals, and medical clinics. The Project is mostly within residential areas and there are several sensitive receptors including residences, an elementary school, and a nursery school located beyond the Project area, 0.20 mile to the east on Sir Francis Drake Boulevard. These sensitive receptors would be exposed to short-term emissions of TACs while construction takes place.

The primary concern for nearby sensitive receptors would be exposure to diesel emissions from diesel-powered construction equipment associated with Project construction activities and diesel trucks while at the sites. Diesel particulate matter (DPM) is designated as a TAC by CARB for the cancer risk associated with long-term (i.e., 30 years) exposure to DPM. Given that construction would occur for a limited amount of time (less than 1 year) and the Project will only be utilizing a limited number of diesel-fueled equipment and trucks, DPM emissions will be very low and localized exposure to DPM would be minimal. In addition, the amount of onsite diesel-generated PM2.5 exhaust for this Project is estimated to be 0.00 ton/year. The estimated PM2.5 exhaust emissions are several orders of magnitude below the BAAQMD threshold of 10 tons/year.

The Project is not expected to expose sensitive receptors to substantial pollutant concentrations for the following reasons:

- Minor amounts of soil excavations would occur on a daily basis.
- A limited number of construction vehicles or equipment would operate at any time.
- The Project activities are short-term and would last approximately 3 months.
- Combustion emissions from vehicles and equipment are below the significance thresholds from the BAAQMD guidelines.
- Schools are located beyond the Project limits.
- Control Measures, listed under “Dust Control” and “Air Quality” in Attachment D, will be implemented such as minimizing idle times to control emissions and exposures.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. Result in other emissions (such as those leading to odors adversely affecting a substantial number of people).

Impact Analysis:

During construction there are sources of odor from the proposed Project. During sewage bypass pumping, odors can disperse from open manholes or access openings in the sewers. However, Control Measures listed in Attachment D will serve to minimize dispersal of odor and provide for control, as well as to address odor complaints if received.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. BAAQMD. 2017a. California Environmental Quality Act Air Quality Guidelines. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Bay Area Air Quality Management District. May.
3. BAAQMD. 2017b. Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Bay Area Air Quality Management District. April.
4. BAAQMD. 2018. Annual Bay Area Air Quality Summaries. http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Bay Area Air Quality Management District.
5. SMAQMD. 2016. Roadway Construction Emissions Model Version 8.1.0 (May 2016). Available at: http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools. Sacramento Metropolitan Air Quality Management District. May.

4. Biological Resources

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Site restoration, including backfill of all excavated areas with imported clean soil.

Description of Baseline Environmental Conditions**:**

Biological resources associated with the area of potential effect (APE) were identified through a review of available background information and a field reconnaissance survey. Available documentation was reviewed to provide information on general resources in the Kentfield area, presence of sensitive natural communities, and the distribution and habitat requirements of special-status species, which have been recorded from or are suspected to occur in the Project vicinity. Literature review included: the occurrence records of the California Natural Diversity Database (CNDDB) of the California Department of Fish and Wildlife (CDFW); the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants; and a record of federally listed and candidate species from the U.S. Fish and Wildlife Service (USFWS) for the Project site

vicinity. Carolyn Huynh, a biologist/environmental scientist with Integral, conducted a field reconnaissance on January 17, 2020, to determine the vegetation and wildlife resources, absence of any sensitive resources such as potential jurisdictional wetlands, and potential suitability of the APE to support populations of special-status species. The CNDDB, USFWS, and CNPS species list are contained in Attachment E.

The APE consists largely of road right-of-ways that have been developed with roadways, roadside ditches, planted trees, and adjacent landscaping, with no remaining natural habitat. Landscaping along the roadway frontages consists of native and non-native trees, shrubs, and groundcovers. Native tree species growing along the roadway frontages include Coast redwood (*Sequoia sempervirens)*, coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobate)*, Monterey pine (*Pinus radiate*), and Pacific Madrone (*Arbutus menziesii*), of various size and condition. Non-native tree species growing along the roadway frontages include Carob tree (*Ceratonia silique*), Brazilian peppertree (*Schinus terebinthifolia*), and blackwood acacia (*Acacia melanoxylon)*. Shrubs and groundcover are generally non-native ornamental species such as English ivy (*Hedera helix)*, cherry laurel (*Prunus laurocerasus)*, glossy and Japanese privet (*Ligustrum* spp.), rose (*Rosa* spp.), oleander (*Nerium oleander*), and irrigated lawns.

Most of the APE provides very little in terms of wildlife habitat given its developed condition as roadway and adjacent residential frontages. The limited vegetation cover, intensity of human disturbance and activity, and risk of vehicle strikes limits its foraging and dispersal habitat. Species typical of residential development utilize the mature trees and well-developed landscape for foraging, perching, and possibly nesting substrate. These species include house sparrow (*Passer domesticus*), northern mocking bird (*Mimus polyglottos*), American robin (*Turdus migratorius*), scrub jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), and California towhee (*Melozone crissalis*), among others. Common mammals include naturalized pest species such as house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and raccoon (*Procyon lotor*). The introduced marsupial Virginia opossum (*Didelphis virginiana*) is also common throughout east Marin, including the Kentfield area. There was no evidence of any bird nesting observed in the trees and other landscaping along the APE during the field reconnaissance.

Special-Status Species

Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Acts or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Species with legal protection under the Endangered Species Acts[4] often represent major constraints to development, particularly when they are wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a "take"[5] of these species.

A record search conducted by the CNDDB, together with review of lists from the USFWS and CNPS indicates that occurrences of numerous plant and animal species with special status have been recorded or are suspected to occur within the Kentfield area of Marin County. Figures 3 and 4 (Attachment B) show the known occurrences of special-status plants and animals, respectively, as mapped by the CNDDB in an approximately 2-mile radius of the APE. The attached lists from the CNDDB, USFWS, and CNPS (see Attachment E) show the broad list of special-status plants and animals known from a wide range of habitat types found in Marin County, none of which contain suitable habitat any longer within the APE due to the

[4] The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

[5] "Take" as defined by the FESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect" a threatened or endangered species. "Harm" is further defined by USFWS to include the killing or harming of wildlife due to significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modification or degradation. CDFW also considers the loss of listed species habitat as take, although this policy lacks statutory authority and case law support under the CESA.

extent of past and ongoing development and disturbance. The following provides a summary of the plant and animal species suspected to occur in the surrounding area away from the APE where natural habitat remains.

Plant Species

Based on the review of CNDDB data, the USFWS species list, and the CNPS Inventory (see Attachment E), a total of 39 special-status plant species were suspected to possibly occur in the Kentfield vicinity. Table E-1 in Attachment E provides a summary of each of these species, their status, typical habitat characteristics, and conclusion regarding absence from the APE. These species have varied status, and most are considered rare (list 1B) by CNPS in its electronic Inventory of Rare and Endangered Plants of California. However, suitable habitat for special-status plant species known from the surrounding area is absent and none is expected to occur in the APE due to past development and ongoing disturbance observed during the field reconnaissance. The APE has been completely disturbed by past grading, installation of pavement, ornamental landscaping, and existing sewer line facilities, which preclude the possibility of presence of any species-status plant species in the APE.

Animal Species

Based on the review of CNDDB data and the USFWS species list (see Attachment E), a total of 34 mammals, birds, reptiles, amphibians, fish, and invertebrate species are known or suspected to occur in the vicinity of the APE. Table E-2 in Attachment E provides a summary of each of these species, their status, typical habitat characteristics, and conclusion regarding absence from the APE. Suitable habitat for all of these species is absent from the limits of construction disturbance within the APE. This includes absence of coastal salt marsh and open water habitat for many of the fish, mammal, and bird species known from the Baylands, forest and woodland habitat necessary to support the federally threatened northern spotted owl (*Strix occidentalis caurina*), and suitable nesting habitat for special-status bird species.

No evidence of any bird nesting was observed during the field reconnaissance survey. The intensity of human activity and absence of suitable habitat limits the likelihood that any special-status bird species listed in Table E-2 nest in or near the APE, including northern spotted owl. But there is a possibility that new nests of more common bird species could be established in the future in advance of Project construction. Nests in active use of both special-status and more common bird species are protected under the federal Migratory Bird Treaty Act and State Fish and Game code.

Jurisdictional Waters

Although definitions vary, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or groundwater, and support vegetation adapted life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration and purification functions. Jurisdiction of the U.S. Army Corps of Engineers (Corps) is established through provisions of Section 404 of the Clean Water Act (CWA), which prohibits the discharge of dredged or fill material into “waters of the U.S.” without a permit. The RWQCB jurisdiction is established through Section 401 of the CWA, which requires certification or waiver to control discharges in water quality whenever a Corps permit is required under Section 404 of the CWA, and State waters as regulated under the Porter-Cologne Act. Jurisdictional authority of the CDFW over wetland areas is established under Sections 1600–1607 of the State Fish and Wildlife Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream.

Based on a review of the National Wetland Inventory mapping and the observations made during the field reconnaissance survey, there are no potential jurisdictional wetlands or regulated unvegetated “other waters of the U.S.” in the vicinity of the APE.

Analysis as to whether or not project activities would:

a. 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 California Department of Fish and Game or U.S. Fish and Wildlife Service.

Impact Analysis:

Special status species were evaluated using the CNDDB (2020) for the San Rafael quad. CNDDB records (Attachment E) include federal special-status species, state special-status species, CDFW special-status species, and California rare plant species. CNDDB shows records for 39 special-status plant species or communities within the quad, including three federally endangered species (Marin western flax, two-fork clover, and white-rayed pentachaeta) and one threatened species (Santa Cruz tarplant). However, none of the 39 special status plant species/communities is found on the site of the proposed Project.

CNDDB shows records for 34 special status animals within the San Rafael quad including 10 federally endangered species (Coho salmon, Tidewater goby, Mission blue butterfly, Myrtle's silverspot butterfly, San Bruno elfin butterfly, California Ridgway's rail, California least tern, California clapper rail, Short-tailed albatross, and Salt marsh harvest mouse) and six threatened species (Delta smelt, Green sea turtle, California red-legged frog, Marbled murrelet, Northern spotted owl, and Western snowy plover).

None of the federally listed species is found on the Project site as there are no suitable habitats. The California clapper rail, California black rail, and salt marsh harvest mouse are only found in salt marshes. The San Bruno elfin butterfly is found on north-facing slopes where host plants are present, and the Mission blue butterfly and Myrtle's silverspot butterfly are found in coastal chaparral, scrub, and grassland. The California least tern, and Western snowy plover are found along costal shoreline and bay and the Pacific Ocean. The Marbled murrelet are found foraging at sea and nest in conifers. The Northern spotted owl is found in dense forest and woodlands. The Short-tailed albatross is found foraging over open ocean. None of these habitats occurs on the Project site.

There was no evidence of any bird nesting within the APE observed during the field reconnaissance survey. Although the limited habitat values and extent of ongoing disturbance generally precludes the potential for nesting birds in the APE, there remains a remote possibility that new bird nests could be established in the trees and other vegetation in and near the APE. If construction were initiated during the bird nesting season (March 1–August 31), construction-related disturbance could result in abandonment of the nests if any are present in the immediate vicinity. If construction-related noise and disturbance resulted in destruction or abandonment of a nest in active use and loss of any eggs or young in the nest, this would be a significant adverse impact and violation of the federal Migratory Bird Treaty Act and State Fish and Game Code sections. Mitigation Measure Bio1 would serve to avoid this potential for violation of federal and state regulations by conducting a preconstruction survey and implementing appropriate construction restrictions if any active nests are encountered until any young birds have successfully fledged. With implementation of Mitigation Measure Bio1, impacts to biological resources would be less than significant.

Mitigation Measure Bio1

Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps:

- If initial construction is proposed during the nesting season (March 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within 7 days prior to the onset of construction in order to determine whether any active nests are present in the APE and surrounding area within 100 ft of proposed construction. The survey shall be re-conducted any time construction has been delayed or curtailed for more than 7 days during the nesting season.

- If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions.
- If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the CDFW, and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be delineated if construction is to be initiated elsewhere in the APE to make it clear that the area should not be disturbed.
- A report of findings shall be prepared by the qualified biologist and submitted to the RVSD or designated agent for review and approval prior to initiation of construction during the nesting season (March 1 to August 31). The report shall either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if construction is initiated during the non-nesting season (September 1 to January 31) and continues uninterrupted according to the above criteria.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Impact Analysis:

No sensitive natural communities are located near the Project area.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

c. Have a substantial adverse effect on state or federally protected wetlands as (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Impact Analysis:

No state or federally protected wetlands are located near the Project area.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

d. 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:

The proposed Project would not have any significant adverse impacts on wildlife movement opportunities or adversely impact native wildlife nursery sites. Wildlife in the vicinity of the APE are already acclimated to human activity, and construction-related disturbance would not cause any significant impacts on wildlife movement in the surrounding area. Species common to the area would continue to utilize the surrounding area, even during construction.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

e. Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Impact Analysis:

The proposed Project would not conflict with policies in the Marin Countywide Plan (Marin County 2007), which addresses the protection of sensitive biological and wetland resources including creeks, trees, threatened and endangered species habitat, riparian vegetation, and other resources.

The County of Marin Ordinance No. 3577 establishes regulations for the preservation and protection of native trees in the unincorporated areas of Marin County by limiting tree removal. A tree removal permit would be required in the following instances[6]:

- More than two (2) “Protected Trees” are being removed from a developed lot in a 12-month period.
- The tree qualifies as a “Heritage Tree.”
- The tree is a “Protected Tree” or “Heritage Tree” and is located in a Stream Conservation Area or a Wetland Conservation Area.
- Any removal of “Protected Trees” on a vacant lot.
- The trees proposed for removal do not qualify for an exemption under Section 22.62.040 of the Marin County Code.

Two 12-in.-diameter Eucalyptus trees located on Hanken Drive are planned for removal. These trees are not considered “Protected Trees” or Heritage Trees” per the County of Marin Ordinance. Removal activities and some of the Project improvements could affect a number of trees along the APE, including both non-native and native trees. Damage to the tree root zones, limbs, and trunks could occur as a result of trenching and other construction activities. As described in Attachment D, the contractor shall exercise due diligence and

[6] County of Marin – Tree Removal Permit Fact Sheet, https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/factsheets/treeremoval_fs.pdf

implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping in the Project limits. Any required pruning of existing tree will be completed by a certified arborist. No major conflicts with local plans and policies are anticipated, and potential impact would be less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

f. 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:

No habitat conservation plans have been prepared addressing the APE, and the Project would therefore not conflict with any adopted habitat conservation plans.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. CNDDB. 2020. California Natural Diversity Database. Wildlife & Habitat Data Analysis Branch, Department of Fish and Game.
2. Marin County. 2007. Marin Countywide Plan. Last amendment September 23, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

5. Cultural and Tribal Cultural Resources

Project Activities Likely to Create an Impact:

- Excavating of soil

The Project entails the construction and rehabilitation of sewer lines located within the existing alignment of approximately 4,600 lineal ft of sanitary sewer mains and related appurtenances.

The Project construction pipe bursting method has a minimal potential impact, and open cut has a high potential impact for near-surface and buried cultural sites. Potential impacts for near-surface sites (precontact and historic-era) would occur along Hanken Drive, Quisisana Drive, Laurel Grove Avenue, and the intersection of Laurel Grove Avenue and Sir Francis Drake Boulevard. Potential impacts to buried sites

would occur along Laurel Grove Avenue between Quisisana Drive and Sir Francis Drake Boulevard, along Quisisana Drive, and at the intersection of Laurel Grove Avenue and Sir Francis Drake Boulevard.

Impacts from pipe bursting are limited to the soils immediately surrounding the existing pipeline, while open cut will displace soils immediately surrounding the pipe as well as all soils above it. While the affected soil in both cases would be solely or primarily backfill from the initial installation of the existing pipeline, and thus should not contain an intact archaeological deposit, the open cut method may impact native soils if the new trench does not exactly correspond with the depth or width of the original trench.

In addition, as backfill could still contain previously displaced cultural materials, any methods disturbing adjacent soils have the potential to affect human remains or disturbed cultural materials.

Impacts from open cut and from excavation of insertion and receiving pits have the ability to be monitored. Impacts along trenchless segments—the soils surrounding a host pipe in pipe bursting cannot be monitored. However, soils removed can be observed out of context, if necessary.

Description of Baseline Environmental Conditions:

Project activities include both pipe bursting and open cut methods along sections of Laurel Grove Avenue, Hanken Drive, Quisisana Drive, and Sir Francis Drake Boulevard. An Archaeological Resources Inventory report for the proposed Project was prepared by Far Western Anthropological Research Group, Inc. (Far Western) in February 2020. Because the report contains confidential information about the locations and characteristics of archaeological sites, the report is not included in this Initial Study for public review, but can be made available to agencies and other professionals for review as necessary.

The archaeological study includes a records search, a literature review, Native American and historical society consultation, archaeological site sensitivity and potential analyses, and a pedestrian survey.

Analyses conducted for buried and submerged precontact sites found that the areas proposed for open cut (trench excavation) are the locations most sensitive for precontact Native American archaeological deposits. These areas include Hanken Drive, Quisisana Drive, and Sir Francis Drake Boulevard. Buried site analysis also found the southern portion of Laurel Grove Avenue between Quisisana Drive and Sir Francis Drake Boulevard to be highly sensitive for precontact Native American deposits. Hanken and Quisisana Drives are identified as sensitive for historic-era structural and/or domestic archaeological remains. The entirety of Laurel Grove Avenue was found sensitive for historic-era resources (especially road features), with Project activities having the potential to encounter these archaeological remains along this portion of the Project.

Pursuant to CEQA Section 21080.3.1(d), within 14 days of a determination that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency is required to contact the Native American tribes that are culturally or traditionally affiliated with the geographic area in which the Project is located. Notified tribes have 30 days to request consultation with the lead agency to discuss potential impacts on tribal cultural resources and measures for addressing those impacts. On January 17, 2020, Far Western (on behalf of Integral) sent consultation letters to the Federated Indians of Graton Rancheria (FIGR) and the Guidiville Rancheria of California, and made follow-up phone calls on January 29, 2020. The representative from Guidiville expressed no concerns for the Project, had no additional comments or questions, and thus did not request to consult. On February 24, 2020, FIGR responded in a letter requesting tribal consultation. On April 8, 2020, representatives from FIGR, RVSD, Integral, and Far Western participated in an online, remote-access meeting to discuss the Project details, schedule, and mitigation measures. It was agreed by all parties that Native American and archaeological monitoring would occur during Project-related, ground-disturbing activities due to the cultural sensitivity of the area.

Analysis as to whether or not project activities would:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to California Code of Regulations (CCR) Section 15064.5, 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).

Impact Analysis:

A cultural resource's significance is determined by its potential eligibility to be listed on the California Register of Historical Resources. The California Register is a listing of properties that are important to the history of California and our nation. To be eligible for listing on the California Register, a property must typically be 50 years of age or more; it must possess historical significance; and it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. Historical significance is the importance of a property to the history, architecture, archaeology, engineering, or cultural aspects of a community.

Although two, precontact archaeological sites P-32-000544/MRN-406 and P-21-000105/MRN-75, are located in proximity to the areas of direct impact (ADI), their currently documented boundaries do not extend into the Project area and no evidence was found to suggest that this or any other known archaeological resources exist within the Project area. However, given the highly sensitive nature of the Project area for near-surface and buried sites, it is recommended that areas determined to be highly sensitive for archaeological/cultural deposits be monitored by a qualified professional archaeologist and tribal representative from FIGR during all Project-related ground disturbances, even if much of the excavation has been previously disturbed, as deposits may be visible in trench walls and re-deposited midden may contain human remains. With implementation of Mitigation Measures Cul1 and Cul2, impacts to cultural and tribal cultural resources would be less than significant.

Mitigation Measure Cul1

Areas determined to be highly sensitive areas (section of Laurel Grove Avenue between Quisisana Drive and Sir Francis Drake Boulevard, Quisisana Drive, and Hanken Drive) will be monitored during all Project-related ground disturbance, and less sensitive areas (the portion of Laurel Avenue north of Quisisana Drive) will be spot monitored, even in areas where mostly disturbed soils will be impacted. It is possible that secondary deposits, or intact pockets of midden in trench walls, will be encountered in these areas.

If paleontological resources are encountered during Project subsurface construction, all ground-disturbing activities within 25 ft will be redirected and a qualified paleontologist will be contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel will not collect or move any paleontological materials. Paleontological resources include fossil plants and animals, and trace fossil evidence of past life such as tracks.

Mitigation Measure Cul2

Construction crews shall be trained in "basic archaeological/tribal resources identification" by a qualified archaeologist and have access to a Cultural Resources Alert Sheet. The Alert Sheet shall photographically depict midden and associated indicators of precontact archaeological sites (no photographs of human remains), and clearly outline the procedures in the event of an archaeological discovery. These procedures include temporary work stoppage (Stop Work Order) of all ground disturbance, short-term physical protection of artifacts and their context, and immediate advisement of the archaeological/tribal team and RVSD representatives. Any Stop Work Order will contain a description of the work to be stopped, special instructions or requests for the Contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. A qualified archaeologist and tribal representative from FIGR will be contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery and offer recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those cultural resources that have been encountered.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

b. Cause a substantial adverse change in the significance of an archeological resource pursuant to 15064.5 or a tribal cultural resource, defined in Public Resources Code section 21074 as either 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.[7]

Impact Analysis:

The following investigations were conducted as part of this archaeological resources evaluation:

1. A records search of relevant archival documents on file at the Northwest Information Center at Sonoma State University in Rohnert Park

2. Correspondence with the Native American Heritage Commission (NAHC) in Sacramento, as well as consultation with members of the local Native American community (Federated Indians of Graton Rancheria)

3. A site sensitivity assessment to assess the potential for precontact Native American and historic-era archaeological sites within the Project area based on a review and analysis of relevant documents

4. A pedestrian field survey of the entire Project area

5. Detailed assessment of the archaeological potential of the various sites and alignments under consideration.

The alignments are located beneath paved, active streets; the presence of these sites could thus not be completely ruled out within the scope of this study. The Project alignment is surrounded on multiple sides by locations that are sensitive for archaeological sites/deposits.

Analyses conducted for buried and submerged precontact sites found that the areas proposed for open cutting (trench excavation) are the locations most sensitive for Native American archaeological sites/deposits. These areas include the portions of the Project area along Hanken Drive, Quisisana Drive, and Sir Francis Drake Boulevard. Buried site analysis also found the southern portion of Laurel Grove Avenue between Quisisana Drive and Sir Francis Drake Boulevard to be highly sensitive for precontact Native American sites and potential historic-era deposits. Thus, these areas will be monitored by a qualified professional archaeologist and tribal representative from FIGR during all Project-related ground disturbances, even if much of the excavation is disturbed, as deposits may be visible in trench walls and re-deposited midden may contain human remains. See Mitigation Measures Cul1 and Cul2.

[7] Including those listed in (a) 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

c. Disturb any human remains, including those interred outside of formal cemeteries.

Impact Analysis:

In California, discovery of human remains during construction activities is regulated by the California Health and Safety Code. Per California Health and Safety Code §7050.5 and California Public Resources Code §5097.98, the following procedures will be followed in the event that human remains and associated cemetery/grave items are encountered. Associated cemetery/grave items are any items (e.g., clothing, funerary gifts, etc.) that are buried with the individual, as well as any cemetery furniture, architecture, fencing, or other features associated with the cemetery itself. This definition applies to both prehistoric and historic-period cemeteries. The term "grave" also extends to cremation pits containing (non-intact) human remains. Because archaeological sites and deposits (including human remains) can be impacted by earth disturbances, it is often recommended that subsurface archaeological exploration is conducted to determine if sites are present or absent, and assess if any further work is needed ahead of construction. However, due to the footprint of Project-related work occurring within the roadway and previously excavated utility corridor, exploratory work cannot be conducted prior to Project implementation. Due to the sensitivity of the site, there is a potential to discover human remains during any phases of the Project that involve excavation in native soils. With implementation of Mitigation Measure Cul3, impacts to cultural and tribal cultural resources would be less than significant.

Mitigation Measure Cul3

Upon discovery, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.

If the remains are Native American, the Coroner must notify the NAHC of the discovery within 24 hours. The NAHC will then identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

References Used:

1. Far Western. 2020. Archaeological resources inventory for the Ross Valley Sanitary District, Laurel Grove Avenue Sewer Rehabilitation Project, Marin County, California. Far Western Anthropological Research Group, Inc. February.

6. Geology and Soils

Project Activities Likely to Create an Impact:

- Excavating of soil and fill/debris
- Loading of soil and fill/debris onto dump trucks
- Transporting and handling of imported backfill materials.

Description of Baseline Environmental Conditions:

Geotechnical studies were not prepared in time the Project for this CEQA review, however, a previous study performed by Miller Pacific Engineering (2017) for a similar sewer rehabilitation project within the RVSD, and regional geologic information from the Kentfield/Greenbrae Community Planning Group and Marin County Planning Department and the Marin Countywide Plan were used to supplement this section. Additional Geotechnical Control Measures may be added to Attachment E after the completion of soil borings and/or a geotechnical report. However, unstable soils are not expected at the Project location and thus it is not likely that the results of the soil borings and/or geotechnical studies would create Project-related impacts.

Regional Geology and Topography

The site is located within the Coast Range Geomorphic Province of California. The regional bedrock geology consists of complexly folded, faulted, sheared, and altered sedimentary, igneous, and metamorphic rock of the Franciscan Complex. Bedrock is characterized by a diverse assemblage of greenstone, sandstone, shale, chert, and melange, with lesser amounts of conglomerate, calc-silicate rock, schist, and other metamorphic rocks.

The regional topography is characterized by northwest-southeast-trending mountain ridges and intervening valleys that were formed by movement between the North American and the Pacific Plates. Continued deformation and erosion during the late Tertiary and Quaternary Ages (the last several million years) formed the prominent coastal ridges and the inland depression that is now the San Francisco Bay. The more recent seismic activity within the Coast Range Geomorphic Province is concentrated along the San Andreas Fault zone, a complex group of generally north-to-northwest-trending faults.

The site is located in the seismically active San Francisco Bay Area region. The town of Kentfield is not included on “Table 4 Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010” in *Special Publication 42, Fault-Rupture Hazard Zones in California*, indicating that the site property is not located within an Earthquake Fault Zone. No active faults were identified onsite or in the Project vicinity by the *Principal Faults Zones Under Alquist-Priolo Earthquake Fault Zoning Act 1974-2007* issued by the California Division of Mines and Geology in 2007 (Bryant and Hart 2007). Therefore, there would be no Project impacts related to rupture of a known earthquake fault as delineated by the State Geologist or other substantial evidence of a known fault.

The town of Kentfield is generally underlain by bedrock, while much of the crest and southern slopes of Ross Hill is greenstone (Kentfield/Greenbrae Community Planning Group and Marin County Planning Department 1987). The land area adjacent to the Corte Madera Creek is generally underlain by unconsolidated alluvial deposits of clay, silt, sand, and gravel deposited in active stream channels, on terraces, and as floodplain or

over bank deposits (Kentfield/Greenbrae Community Planning Group and Marin County Planning Department 1987; Miller Pacific Engineering 2017).

Geologic Hazards

Although there are no active faults onsite, the Project is located near several active faults, and is in an area subject to strong ground shaking from earthquakes along the San Andreas 6 miles to the west and Hayward fault 10 miles to the east.

Geological hazards identified in the Marin Countywide Plan include seismic shaking amplification and liquefaction. As indicated on the seismic shaking amplification hazards map in the Marin Countywide Plan (Marin County 2007, Map 2-9), soil types at the Project site include quaternary muds, sands, gravels, silts, and muds ("Soil Type D") at the intersection of Sir Francis Drake Boulevard and Laurel Grove Avenue, and some Quaternary sands, sandstones, and mudstones; some Upper Tertiary sandstones, mudstones, and limestones; some Lower Tertiary mudstones and sandstones; and Franciscan melange and serpentinite ("Soil Type C"). Soil Type D would be subject to significant seismic shaking amplification, whereas Soil Type C would be subject to less significant seismic shaking amplification (Marin County 2007). In addition, the Liquefaction Susceptibility Hazards Map indicates the Project area is mapped within a zone of high susceptibility to liquefaction (Marin County 2007, Map 2-11).

Within the Project area, surface conditions generally consist of asphalt-paved roadways. The sites are located within relatively densely populated suburban areas with neighboring properties generally consisting of residential land use. There are overhead power lines along the shoulder of some of the streets, and numerous underground utilities exist and are often located within several feet of the proposed alignments.

Groundwater

The Project includes maximum excavations of 8.5 ft for construction of various improvements. A search was performed on GeoTracker to identify studies performed in the vicinity of the Project area. One study approximately 0.5 mile west of the Project location on Sir Francis Drake Boulevard and College Avenue identified groundwater ranging from 9 to 17 ft below ground surface (bgs; Stellar Environmental Solutions 2014). The document also indicated that local monitoring wells at a nearby site show the groundwater elevation at about 7.5 to 10.5 ft bgs; however, this site is located across the Corte Madera Channel and is not likely representative of the Project area groundwater conditions. Based on the data from studies performed near the Project area, it is not likely that groundwater will be encountered during construction.

Analysis as to whether or not project activities would:

a. 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?

Impact Analysis:

Although there are no active faults in the Project area, the proposed Project site is located near several active faults and is in an area subject to strong ground shaking from earthquakes along the active San Andreas and Hayward faults. Therefore, there is a possibility that the site may experience ground shaking from periodic minor earthquakes and possibly a major earthquake.

The potential for seismically induced landslides in the slopes above the Project site is not a concern. The Project area is located in a valley, with slopes flanking the town on the east and west. However, there are no identified deep-seated slide areas on or above the Project site, and there is not a potential for seismically induced landslides in the slopes above the Project site. Construction activities will not increase the potential for seismically induced landslides or attract additional population to a potentially hazardous area.

Excavation depths will approach approximately 8.5 ft on Quisisana Drive at the intersection of Laurel Grove Avenue. Strong seismic ground shaking can result in damage to the pipelines and related improvements. Liquefaction can result in flood failure, lateral spreading, ground movement, settlement, and other related effects. Buried pipelines and manholes embedded within liquefied soils may also experience uplift due to buoyancy. Control measures outlined in Attachment D have been included in the Project to address these issues, should they arise. Therefore, potential impacts related to ground shaking, ground failure, and associated physical hazards are less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Result in substantial soil erosion or the loss of topsoil.

Impact Analysis:

Project construction will involve soil excavation, primarily for areas of open cut excavation and for the insertion and receiving pits. Although the construction activities are limited in extent and duration, these activities could still cause sediment and other pollutants to leave the sites and enter local drainage systems, and possibly nearby streams. Proper implementation of the Control Measures listed in Attachment D would prevent significant soil erosion from occurring and the loss of topsoil would be considered a less-than-significant impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. 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 ground shaking accompanying major earthquakes has primary and secondary effects. Primary effects of ground shaking are those that directly affect buildings and other structures. Secondary effects of ground shaking can cause various types of soil movements, such as landslides, settlement, and liquefaction. Liquefaction is a response to severe ground shaking that can occur in loose, uniform soils that are saturated with water.

The soils on the Project site and in the watershed above the site are made up of surface soils. The Project site is expected to be underlain by Soil Types C and D, as indicated above under “Geological Hazards.”

The primary geologic hazards that could affect the proposed development include strong seismic ground shaking and liquefaction. The Liquefaction Susceptibility Hazards Map indicates the Project area is mapped within a zone of high susceptibility to liquefaction (Marin County 2007, Map 2-11). Project improvements should include flexible connections and new structures should be designed to resist seismic loads to account for uplift and buoyancy effects associated with liquefaction. Proper implementation of geotechnical consideration would be considered a less-than-significant impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. 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:

Expansive soils are not an issue with this Project as construction activities will not increase the potential for additional population or call for the construction of new properties. Fill materials used for pipe backfill will consist of non-expansive materials (Miller Pacific Engineering 2017).

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

e. 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 water.

Impact Analysis:

Project activities aim to rehabilitate deficient wastewater facilities by replacing existing sewer pipes, installing new pipes, constructing new manholes and spot repairs on existing sewer lines. This infrastructure is currently in place. Because RVSD is not constructing a new system, the soils will adequately support the Project needs.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Impact Analysis:

The proposed sewer replacement Project would not destroy a unique geologic feature.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. CGS. 2013. Table 4. Cities and Counties Affected by Alquist-Priolo Earthquake Faults as of January 2010. Available at: http://www.trpa.org/documents/rseis/3.7%20Geo%20soils/3.7_CGS%202010_Cities%20and%20Counties.pdf. California Geological Survey.
2. Bryant, W.A., and E.W. Hart. 2007. Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps. Special Publication 42. Interim Revision 2007. California Department of Conservations, Sacramento, CA.
3. Marin County. 2007. Marin Countywide Plan. Last amendment September 23, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.
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5. Kentfield/Greenbrae Community Planning Group and Marin County Planning Department. 1987. Kentfield/Greenbrae Community Plan. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/communityandareaplans/kentfield_greenbrae_community_plan_1987.pdf. Kentfield/Greenbrae Community Planning Group and Marin County Planning Department. May.
6. Stellar Environmental Solutions. 2014. Petroleum Contaminated Soil and Groundwater Investigation Report Preferential Pathway and Sensitive Receptor Study. Available at: https://geotracker.waterboards.ca.gov/getfile?filename=/esi/uploads/geo_report/4186042129/T10000005546.PDF. Prepared for College of Marin, Kentfield, California. Stellar Environmental Solutions, Berkeley, CA. May 16.

7. Greenhouse Gas Emissions

Project Activities Likely to Create an Impact:

- Excavation/removal of soil and debris using appropriate construction equipment in select areas (may include excavator, backhoe, bulldozer, or grader)
- Offsite transport and disposal of excavated soil and debris to appropriate facility
- Site restoration, including backfill of all excavated areas with imported clean soil.

Description of Baseline Environmental Conditions:

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The process of heat being trapped in the atmosphere is similar to the effect greenhouses have in raising the internal temperature, hence the name "greenhouse gas." Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the Earth's temperature; however, emissions from human activities—such as fossil fuel–based electricity production and the use of motor vehicles—have elevated the concentration of GHGs in the atmosphere. GHGs are not monitored in the same manner as air quality pollutants, so there are no background data to characterize the baseline conditions of a given area in terms of GHG levels.

GHGs from fossil fuel combustion include carbon dioxide (CO_2), methane, and nitrous oxide. CO_2 is the most common reference gas for climate change. To account for warming potential, GHGs are often quantified and reported as CO_2 equivalents (CO_2e), based on their warming potential relative to CO_2.

Short-term construction projects are not recognized in Table 3-1 of the Air Quality Guidelines, which provides land use type screening-level sizes for criteria air pollutants, precursors, and GHG (BAAQMD 2017a). The California Global Warming Solutions Act of 2006 (AB32) requires statewide GHG emissions be reduced to 1990 levels by the year 2020, but the proposed Project will be completed in only several months and have no contribution to the 2020 emission cap. BMPs identified in the Air Quality Guidelines for reducing GHG emissions during construction can include the following (BAAQMD 2017a):

1. Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet. (The proposed Project is a small-scale construction project with limited vehicle and equipment needs. While the chosen Contractor may have alternative-fueled vehicles and equipment, requiring 15 percent of the fleet to be alternative-fueled would have an unnecessary cost burden with no measurable benefit.)

2. Use local building materials of at least 10 percent. (Construction materials use such as aggregate base and asphalt will be limited for the Project but all will be obtained locally.)

3. Recycle or reuse at least 50 percent of construction waste or demolition materials. (The generation of construction waste will also be limited.)

Analysis as to whether or not project activities would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Impact Analysis:

Proposed Project activities would result in direct GHG emissions from fuel combustion in construction equipment and vehicles. The number of Project-related vehicles would be relatively small and the Project duration would be relatively short. GHG emissions were calculated using the RoadMod emissions estimator model, as described above in Section 3, Air Quality. The estimated GHG emissions are shown in the table below.

Table 3. Maximum Annual Emission from Project Activities

Pollutant	Maximum Annual Emissions (MT/year)	Threshold[a] (MT/year)	Above Threshold?
CO_2e	38.41	1,100	No

[a] Based on the threshold of significance for operations-related GHG emissions (BAAQMD 2017a)

The Guidelines (BAAQMD 2017a) present an emissions threshold for GHGs from a land use operations project of 1,100 CO_2e maximum annual emissions (MT/year), but do not report an adopted threshold of significance for construction-related GHG emissions. However, based on the small scale of this construction Project, it is estimated that the maximum annual emissions (38.41 MT/year) that could be generated during construction are approximately one-third of the BAAQMD's threshold of significance for operations-related GHG emissions of 1,100 CO_{2e} MT/year. As a comparison, SMAQMD's threshold of significance for construction-related GHG emissions is 1,100 MT/year (SMAQMD 2015). The Marin Climate and Energy Partnership website (http://www.marinclimate.org/) was reviewed, but also contains no thresholds of significance. The Marin County Interim Community Greenhouse Gas Emissions Assessment (County of Marin 2017) establishes a target of reducing GHG emissions in the unincorporated portions of the County. The estimated GHG emissions for unincorporated County of Marin in 2015 were over 450,000 MT. Within unincorporated Marin County, the transportation and agricultural sectors account for more than half the GHG emissions reported, followed by the residential sector. As the construction-related Project emissions would comprise of less than 1 percent of the residential emissions for all of the unincorporated towns in Marin County, the level of Project-related increase is less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impact Analysis:

The proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Measures contained in the 2017 Clean Air Plan (BAAQMD 2017b) to reduce overall emissions from construction equipment, already accounted for in the regional planning emissions budget, would also control GHG emissions. Thus, the Project would not conflict with GHG plans, policies, or regulations, and impacts would be less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. BAAQMD. 2017a. California Environmental Quality Act Air Quality Guidelines. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Bay Area Air Quality Management District. May.
2. BAAQMD. 2017b. Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Bay Area Air Quality Management District. April.
3. Marin Climate & Energy Partnership. 2017. County of Marin Interim Community Greenhouse Gas Emissions Inventory. Available at: https://marinclimate.org/wp-content/uploads/2019/09/County-of-Marin-2017-GHG-Inventory-Report.pdf. Marin Climate & Energy Partnership. April.

4. SMAQMD. 2015. Thresholds of Significance Table. Available at: http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable5-2015.pdf. Sacramento Metropolitan Air Quality Management District.

8. Hazards and Hazardous Materials

Project Activities Likely to Create an Impact:

- Excavation and stockpiling of debris using appropriate construction equipment in select areas (may include excavator, backhoe, bulldozer, or grader)
- Storage and staging of construction equipment.

This resource category addresses health and safety issues related to construction activities at the Project site. Health and safety issues apply to construction workers and members of the public who would be exposed to hazardous materials and physical conditions associated with the presence of construction equipment and excavations in the area of sensitive land uses. Construction activities are generally located within local roadways and the surrounding areas are predominately residential.

Description of Baseline Environmental Conditions:

Hazardous materials are not expected to be encountered during construction activities. There are a variety of state and federal regulations that apply to construction projects for protection of health and safety. RVSD also has standard specifications to address these issues based on other successfully completed projects. Control measures in Attachment D have been established to manage the unexpected discovery of hazardous materials during Project implementation. The use of hazardous materials would be limited during construction activities and would include such traditional materials as gasoline, diesel, oil, paint, resin, and epoxy concrete.

Several regulatory agency databases were consulted regarding the presence of hazardous materials release sites within the Project area, including the State Water Resources Control Board (SWRCB) GeoTracker website and the Department of Toxic Substances Control (DTSC) Cortese List. No sites on the SWRCB GeoTracker website (SWRCB 2015) or the Cortese List (DTSC 2019) are located in the Project area. If hazardous materials are encountered during Project work, Control Measures listed in Attachment D under “Hazardous Materials” will be implemented.

Analysis as to whether or not project activities would:

a. Create a significant hazard to the public or the environment throughout the routine transport, use or disposal of hazardous materials.

Impact Analysis:

Construction activities will not create a significant hazard to the public or environment. Control measures in Attachment D have been established to manage the unexpected discovery of hazardous materials during Project implementation.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. 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 will not create a significant hazard to the public or environment. The primary objective of the Project is to relieve hydraulic and structural deficiencies in the Project area. These improvements help address the problem of SSOs in the RVSD service area. SSOs can expose the public to raw sewage, and overflows can reach local streams with adverse water quality impacts. Thus, the impact related to public health and environmental hazards is beneficial.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ Beneficial Impact

☐ No Impact

c. 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 use of hazardous materials would be limited during construction activities and would include such traditional materials as gasoline, diesel, oil, paint, resin, and epoxy concrete. In addition to the Control Measures listed in Attachment D, which address hazards and hazardous materials, the impact is less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. 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 public or the environment.

Impact Analysis:

The Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

e. 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 residing or working in the project area.

Impact Analysis:

The Project is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The Project is not within the vicinity of a private airstrip. Thus, the Project would not result in a safety hazard for people residing or working in the Project area.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.

Impact Analysis:

See 8e above.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Impact Analysis:

The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Project activities and movement related to such activities would be conducted in a manner that would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; therefore, there will be no impacts with an adopted emergency response plan or emergency evacuation plan.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

h. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Impact Analysis:

No development is planned for this Project and, therefore, no impacts are expected.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. DTSC. 2019. Hazardous waste and substances site list (Cortese). Available at: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM,COLUR&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+(CORTESE). Department of Toxic Substances Control.
2. SWRCB. 2015. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=kentfield+ca. State Water Resources Control Board.

9. Hydrology and Water Quality

Project Activities Likely to Create an Impact:

- Excavation of soil and fill/debris
- Generation of rubbish and debris material
- Site restoration, including backfill of all excavated areas with imported clean soil.

The Project does not propose any discharges to receiving waters other than discharges associated with stormwater runoff.

Construction and grading within the Project site would require temporary disturbance of surface soils and removal of vegetative cover. During the construction period, grading and excavation activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. Excavated areas on the Project site would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation in downstream culverts and the Bay. The accumulation of sediment could result in blockage of flows, potentially resulting in increased localized ponding or flooding.

The potential for chemical releases is present at most construction sites. Once released, substances such as fuels and lubricants could be transported to nearby surface waters in stormwater runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. Control Measures listed in Attachment D will serve to minimize the exposure of soil to runoff and chemical releases.

Description of Baseline Environmental Conditions:

Regional Hydrology

The Project is located within the Corte Madera Creek Watershed, a 28-square-mile area of eastern Marin County. The Corte Madera Creek is a major waterway in Marin County, reaching from the San Francisco Bay to the Town of Fairfax and beyond. The Corte Madera Creek watershed ranges in elevation from sea level to 2,571 ft at the East Peak of Mount Tamalpais. The watershed encompasses the Towns of Larkspur, Corte Madera, Kentfield, Ross, San Anselmo, and Fairfax. The watershed includes Corte Madera Creek mainstem and major tributaries of Fairfax Creek, San Anselmo Creek, Sleepy Hollow Creek, Tamalpais Creek, and Larkspur Creek. Larkspur and Tamalpais creeks drain directly into the estuary/tidal portion. Ross Creek drains the northern slope of Mt. Tamalpais with Phoenix Lake on the lower reach of the creek; San Anselmo Creek and its tributaries drain the northwestern portion of the watershed. Ross Creek and San Anselmo Creek join to form Corte Madera Creek, which continues through more than a mile of concrete-lined channel past the confluences of Larkspur and Tamalpais Creeks and into the tidal salt marsh at the mouth, near Kentfield, and then into San Francisco Bay near Corte Madera.

Flood Hazard

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Marin County provides coverage for the Project area. The Project area at Sir Francis Drake Boulevard extending along Laurel Grove Avenue and Meadow Drive is located in a 0.2 percent chance of annual chance flood hazard area (Zone X). The Project area starting at Laurel Grove Avenue and Meadow Drive extending to Makin Grade is located in an area of minimal flood hazard (Zone X).

Groundwater

The Project is located within the Central Basin of San Francisco Bay. The basin is not used for municipal drinking water or for major agricultural use. As discussed in Section 6 (Geology and Soils), studies performed in the Project area found that groundwater occurs in the Project area from 9 to 17 ft bgs, thus groundwater is not likely to be encountered during excavation activities along the Project alignments (Stellar Environmental Solutions 2014).

Analysis as to whether or not project activities would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

Impact Analysis:

The proposed Project is one of a series of RVSD projects that are included in its IAMP (V.W. Housen & Associates 2013). The IAMP includes projects to rehabilitate and replace RVSD's deficient wastewater facilities through the year 2020. The IAMP is in response to RWQCB CDO No. R2-2013-0020 (RWQCB 2013). Construction of the Project helps ensure compliance with the RWQCB order and is a beneficial impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ Beneficial Impact

☐ No Impact

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Impact Analysis:

The Project does not propose the use of groundwater and therefore no long-term extraction of groundwater at the Project site is expected. There may be short-term dewatering of shallow groundwater associated with soil removal and filling activities. Short-term dewatering activities would not be expected to have any significant long-term effect on groundwater resources because any pumping activities would be of limited duration. Therefore, with the implementation on Control Measures listed in Attachment D, the Project would have a less-than-significant impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. 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 offsite;

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;

Impact Analysis:

The Project involves the rehabilitation and replacement of sewer lines within existing easement areas of the RVSD without altering the existing drainage pattern of the area. No significant changes in runoff rates and volumes from the Project site are anticipated and work areas will be returned to pre-Project conditions. Existing drainage patterns will not be significantly affected.

It is not expected that construction activities will increase discharge, and water from dewatering activities will be properly disposed of by the Contractor. There is no impact-related runoff capacity for this Project, and a less-than-significant level of impact related to additional sources of polluted runoff with proper implementation of Control Measures listed in Attachment D.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

In a flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Impact Analysis:

Tsunamis (seismic sea waves) are long-period waves that are typically caused by underwater seismic disturbances, volcanic eruptions, or submerged landslides. Low-lying coastal areas such as tidal flats,

marshlands, and former bay margins that have been artificially filled but are still at or near sea level are generally the most susceptible to tsunami inundation. A seiche is caused by the oscillation of the surface of an enclosed body of water such as San Francisco Bay due to an earthquake or large wind event.

In 2009, the California Geological Survey, California Emergency Management Agency, and the Tsunami Research Center at the University of California completed the state's official tsunami inundation maps. The Project limits are not within the tsunami inundation zone, which in Ross Valley extends from the bay shoreline inland along Corte Madera Creek to Kentfield (CalEMA, CGS, and USC 2009).

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

d. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Impact Analysis:

See 9a and 9b above.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. CalEMA, CGS, and USC. 2009. Tsunami Inundation Map for Emergency Planning, San Rafael Quadrangle, San Quentin Quadrangle. California Emergency Management Agency, California Geological Society, and the University of Southern California. July 1.
2. Stellar Environmental Solutions. 2014. Petroleum Contaminated Soil and Groundwater Investigation Report Preferential Pathway and Sensitive Receptor Study. Available at: https://geotracker.waterboards.ca.gov/getfile?filename=/esi/uploads/geo_report/4186042129/T10000005546.PDF. Prepared for College of Marin, Kentfield, California. Stellar Environmental Solutions, Berkeley, CA. May 16.
3. RWQCB. 2013. Order No. R2-2013-0020. San Francisco Bay Regional Water Quality Control Board. May 13.
4. V.W. Housen & Associates. 2013. Sanitary District No. 1 of Marin County, Infrastructure Asset Management Plan. V.W. Housen & Associates. October 1.

10. Land Use and Planning

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The proposed Project is currently zoned for single family residential and is located within the RVSD. The Project is a high priority wastewater collection system improvement consistent with RVSD's responsibility to provide high quality wastewater collection and disposal service for the local community, which is protective of public health and the environment.

Analysis as to whether or not project activities would:

a. Physically divide an established community.

Impact Analysis:

No land use changes are proposed, thus implementation of the proposed Project would not physically divide an established community.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. 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:

The proposed sewer replacement Project would occur predominately within the town of Kentfield's existing right-of-way and the proposed Project would remain consistent with the existing site land use and surrounding land use designations, requiring no further change or amendment to the Community Plan and Countywide Plan land use designation or zoning assigned by the Town and County. Therefore, the Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

5. Marin County. 2007. Marin Countywide Plan.

11. Mineral Resources

Project Activities Likely to Create an Impact:

There are currently no significant mineral deposits or active mining operations within the town of Kentfield.

Description of Baseline Environmental Conditions:

The California Division of Mines and Geology (CDMG) has classified urbanizing lands within the North San Francisco Bay Production-Consumption Region according to presence or absence of sand, gravel, or stone deposits that are suitable as sources of aggregate. The Project site is located in an area that has been classified as Mineral Resource Zone 1 (MRZ-1). Areas that are classified MRZ-1 are "areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence" (CDMG 1987).

Analysis as to whether or not project activities would:

a. 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.

Impact Analysis:

No mineral extraction activities exist on the Project site and mineral extraction is not included as a part of the Project.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. 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:

See 11a.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. CDMG. 1987. Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area: North San Francisco Bay Production Consumption Region. California Department of Conservation, Division of Mines and Geology.

12. Noise

Project Activities Likely to Create an Impact:

The Project could potentially cause temporary noise impacts associated with the upgrade and replacement of existing sewer lines primarily related to Project-generated traffic noise and operational noise from onsite construction equipment.

Description of Baseline Environmental Conditions:

The existing noise environment is dominated by traffic noise along Laurel Grove Avenue and Sir Francis Drake Boulevard, where Sir Francis Drake Boulevard is considered a major source of noise in the county (Marin County 2007). Sensitive receptors at the Project site include the adjacent residences.

Local Noise Regulations

The Project is within the town of Kentfield and is subject to the following noise regulations of Marin County.

The County of Marin, Title 6, Chapter 6.70, Section 6.70.030 Enumerated noises establishes allowable hours of operation for construction-related activities:

a. Hours for construction activities and other work undertaken in connection with building, plumbing, electrical, and other permits issued by the community development agency shall be limited to the following:
    i. Monday through Friday: 7 a.m. to 6 p.m.
    ii. Saturday: 9 a.m. to 5 p.m.
    iii. Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.)
b. Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from 8 a.m. to 5 p.m. Monday through Friday only.
c. Special exceptions to these limitations may occur for:
    i. Emergency work as defined in Section 22.130.030 of this code provided written notice is given to the community development director within 48 hours of commencing work
    ii. Construction projects of city, county, state, other public agency, or other public utility
    iii. When written permission of the community development director has been obtained, for showing of sufficient cause
    iv. Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties
    v. Modifications required by the review authority as a discretionary permit condition of approval.

The noise levels contained in Section 8.10 of the Marin Countywide Plan, Noise Element contains benchmarks for allowable noise exposure from stationary sources.

Level	Daytime (7 a.m. to 10 pm)	Nighttime (10 p.m. to 7a.m.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65
Maximum Level, dB (Impulsive Noise)	65	60

Notes:
L_{eq} = Equivalent Sound Pressure Level. It is the constant sound energy that would produce the same noise level as actual sources that are fluctuating during the specified time period (1 hour).
dB = decibels; the standard measure of pressure exerted by sound

As a condition of permit approval for projects generating significant construction noise impacts during the construction phase, construction management for any project shall develop a construction noise reduction plan and designate a disturbance coordinator at the construction site to implement the provisions of the plan.

Analysis as to whether or not project activities would result in:

a. 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:

An encroachment permit will be obtained before the start of Project work and the Contractor will be required to comply with all conditions set forth in the permit and RVSD standards. Construction activities necessary to complete the proposed Project could generate a considerable amount of noise in the immediate Project vicinity. Noise from vehicles, earth-moving operations, and heavy equipment would result in elevated ambient and intermittent noise levels. Noise impacts from construction depend on the noise generated by various pieces of equipment, timing and duration of noise-generating activities, the distance between construction noise sources and noise-sensitive receptors, and the noise environment in which the proposed Project would be constructed. Noise generated during the construction period would vary on a day-to-day basis, depending on the specific activities being undertaken at any given time.

As identified in the Project Description, RVSD will conduct work on Sir Francis Drake Boulevard during nighttime hours due to the high volume of daytime traffic on the roadway. Nighttime work would occur between 8 p.m. and 5 a.m. Construction noise is permitted by Marin County when activities occur between the hours of 8 a.m. to 5 p.m. Monday through Friday. Construction activities occurring outside of these hours are permitted for City and County construction projects and when written permission from the Marin County Community Development Director has been obtained showing sufficient cause.

Construction noise may result in a temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project. However, this impact would be considered less than significant with the implementation of the Control Measures listed in Attachment D under “Noise.”

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Generation of excessive groundbourne vibration or groundbourne noise levels.

Impact Analysis:

Construction activities likely to create groundbourne vibration or groundbourne noise levels include pipe bursting and backfill operations. With the implementation of Control Measures listed under "Ground Movement Monitoring" in Attachment D, this impact would be considered less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. 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.

Impact Analysis:

The Project site is not within any airport land use plan or within 2 miles of any airport or airstrip. Therefore, the Project would not impact, or be impacted by, an airport land use.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. County of Marin. Municipal Code, Title 06 – Public Peace, Safety and Morals, Chapter 6.70 Loud and Unnecessary Noise. Marin County, CA.
2. Marin County. 2007. Marin Countywide Plan. Last amendment September 23, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

13. Population and Housing

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The primary objective of the Project is to replace existing sewer pipes, install of new pipes, construct new manholes, and spot repair existing sewer lines. Improvements will be made along local access roads Laurel Grove Avenue, Sir Francis Drake Boulevard, and public-right-of-ways. Although the sewer line is being upsized, the primary purpose is to prevent sewer overflows and will not generate additional capacity to accommodate new population growth under the proposed design.

Analysis as to whether or not project activities would:

a. Induce substantial unplanned population growth in area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

Impact Analysis:

The construction activities will not induce population growth. Activities are aimed towards relieving hydraulic and structural deficiencies in existing pipes.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

Impact Analysis:

Replacing the sewer line with similar infrastructure within largely the same Project footprint would not involve the construction, displacement, or demolition of any existing housing structures.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

14. Public Services

Project Activities Likely to Create an Impact:

The proposed Project will have no public service impacts.

Description of Baseline Environmental Conditions:

The Project is in an area that is currently served by fire, police, and paramedic services; schools; and other public facilities. It is not anticipated that the soil removal and filing activities would increase the number of police and fire protection–related calls received from the area or the level of regulatory oversight that must be provided as a result of the work. Overall, the Project would not create additional demand for public services in the town of Kentfield. Therefore, the Project would have no impact on public services.

Analysis as to whether or not project activities would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered government 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 following public services:

- Fire protection
- Police protection
- Schools
- Parks
- Other public facilities?

Implementing the proposed Project would not create new housing or other structures and, therefore, would not require additional public services (including fire or police protection facilities, schools, or parks). The updated sewer line ensures necessary system reliability to continue meeting peak utility demands.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

15. Recreation

Project Activities Likely to Create an Impact:

The primary objective of the Project is to relieve hydraulic and structural deficiencies in a portion of RVSD's collection system. Improvements will be made along local access road Laurel Grove Avenue public right-of-ways. The Project will have no impacts related to recreation and will not increase the use of local parks or involve construction of new facilities.

Description of Baseline Environmental Conditions:

There are no public recreational facilities near the Project location.

Analysis as to whether or not project activities would:

a. 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 does not include the development of any new residential uses or include other land development that would directly induce additional population growth affecting existing recreation facilities or opportunities. Employment opportunities from the construction phase of the Project would not induce any additional population growth within the town of Kentfield or Marin County. Therefore, the Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Impact Analysis:

See 15a.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

16. Transportation

Project Activities Likely to Create an Impact:

The Project could impact transportation and traffic by the following activities:

- Empty dump trucks accessing the Project site to load soil and debris excavated as part of the Project
- Loaded dump trucks transporting excavated soil and debris from the Project site to appropriate disposal facilities
- Loaded dump trucks accessing the site to deliver imported materials to backfill excavations
- Empty dump trucks leaving the site after delivering backfill materials
- Transport of Project-related construction equipment, materials, etc.
- Worker travel to and from the Project site.

All areas of the site will require flow bypassing and traffic control measures (Attachment D) during construction activities. Excavated soils will be hauled away and replaced with suitable material from offsite on a continuous basis.

Description of Baseline Environmental Conditions:

The Project site is bound to the north by the Ross/Kentfield border along Laurel Grove Avenue. Sir Francis Drake Boulevard, the southern border of the Project site, is the major east-west through road in Marin County, stretching from Point Reyes on the west to the San Quentin Peninsula on the east. According to the Marin Countywide Plan, travel through and around Kentfield is affected by countywide development and travel patterns on Sir Francis Drake Boulevard. Bottlenecks on Sir Francis Drake Boulevard can push through traffic on Laurel Grove Avenue. Roadways affected include:

- Laurel Grove Avenue—A two-lane arterial that connects the community of the town of Kentfield with Sir Francis Drake Boulevard.
- Sir Francis Drake Boulevard—A four-lane arterial that is the major east-west through road in Marin County, stretching from Point Reyes on the west to the San Quentin Peninsula on the east.

Analysis as to whether or not project activities would:

a. Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Impact Analysis:

The Project is a standard construction activity requiring equipment, materials, removal and offsite transport of construction debris and workers, and import of clean fill. The added number of vehicle trips would be minimal and by themselves not overload traffic flow. However, the intrusion of construction equipment and vehicles into the local street system of this residential area, especially along Laurel Grove Avenue, can result in traffic circulation and safety impacts. The Contractor will prepare a traffic control plan (TCP) and submit it to RVSD and the County of Marin for review and approval at least 3 weeks prior to start of construction. The TCP will include, at minimum, the measures listed in Attachment D to minimize traffic flow overload.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Would the project be conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

Impact Analysis:

The proposed Project does not include the development of any new residential uses or include other land development that would directly induce additional population growth or affect the existing “vehicle miles traveled” by residents or visitors within the area. Replacement and rehabilitation of sewer lines would have no impact on vehicle miles traveled and therefore is presumed to result in a less than significant transportation impact consistent with CEQA Guidelines 15054.3(b)(2).

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

c. 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:

Lane closures are planned for Sir Francis Drake Boulevard, Laurel Grove Avenue, and segments of Hanken and Quisisana Drives. No hazards due to design features would occur through implementation of the proposed Project. The Contractor will place temporary signs 1 month in advance of work notifying residents of these lane closures and flaggers will be present during the lane closures. With the implementation of the traffic control plan prepared by the Contractor and the Control Measures in Attachment D, no elements of the Project design would introduce hazards to the road system.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. Result in inadequate emergency access.

Impact Analysis:

RVSD staff would ensure that access to the Project site will be maintained and controlled throughout Project implementation. In addition, the Project does not prescribe activities involving transportation of massive amounts of material and the high frequency of truck trips usually associated with such activities.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

17. Utilities and Service Systems

Project Activities Likely to Create an Impact:

The construction activities would not significantly increase the requirement of water or wastewater services for the Project site.

Description of Baseline Environmental Conditions:

The Project is in an area where water service is provided by the Marin Municipal Water District, sewer facilities are managed by Sanitary District No. 1, wastewater treatment service is provided at the Central Marin Wastewater Treatment Plant, and local solid waste disposal is provided by Marin Sanitary Service at the Novato Landfill.

The Project site is currently owned by the town of Kentfield. The sewer piping is operated and maintained by the Sanitary District No. 1. The Sanitary District No. 1 provides collection service to the Project site. Wastewater would not be generated by the soil removal and filling activities.

The soil removal and filling activities would not significantly increase the consumption of water on the Project site. A temporary increase of water consumption may occur associated with water truck use for dust suppression during soil removal and filling activities.

The Project would not require the construction of new public wastewater or stormwater drainage facilities.

Analysis as to whether or not project activities would:

a. Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Impact Analysis:

The Project will not result in the construction of new wastewater or wastewater-treatment facilities, or the expansion of existing facilities; therefore, there would be no impact on the existing wastewater network.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

Impact Analysis:

The construction activities would not significantly increase the consumption of water on the Project site. A temporary increase of water consumption may occur associated with water truck use for dust suppression during construction activities.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments.

Impact Analysis:

Wastewater would not be generated by the construction activities; therefore, there would be no impact on the existing wastewater network.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

d. 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 construction would not significantly increase solid waste disposal needs at the Project site. A temporary increase of solid waste disposal may occur associated with site debris from soil removal and filling activities. Since landfill approval will take place before the planned soil removal, there will be no impact associated with permitted capacity.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Impact Analysis:

The removed soil and other wastes will be properly disposed of at a designated facility following the applicable state and federal regulations. See Attachment D.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

18. Wildfire

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The proposed Project is located in a residential area near Sir Francis Drake Boulevard, a major arterial roadway in Marin County. According to the Marin Countywide Plan, the Project is not located in the State Responsibility Area for Fire Protection (Marin County 2007; Map 2-14). The Project is, however, located in an area classified as very high fire risk.

Analysis as to whether or not project activities would:

a. If located in or near State responsibility area or lands classified as very high fire hazard severity zones, would the project:

i. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Impact Analysis:

The majority of Project activities will occur along Laurel Grove Avenue, a residential roadway. The Project will require a short-term, one-way roadway closure of Laurel Grove Avenue and segments of Hanken and

Quisisana Drives during sewer line replacement to ensure construction is completed efficiently and with as short a construction period as possible. To minimize traveler delays and ensure residential circulation and access along Laurel Grove Avenue and Sir Francis Drake Boulevard, during the construction period, the Contractor will implement the TCP.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

ii. 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:

Heavy equipment used during Project construction has the potential to start a fire on surrounding open space areas near the Project site. However, implementation of Control Measures for "Site Management Practices" in Attachment D would reduce the potential for construction-related wildland fires by providing a clearing, reducing fire fuels, and removing fire-sustaining litter. In addition, during construction fire extinguishers would be required for all heavy equipment.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

iii. 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 proposed Project does not involve installing or maintaining infrastructure that would exacerbate fire risk.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

iv. 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 proposed Project would not expose people or structure to significant risks. All activities associated with the sewer rehabilitation Project would occur without altering the existing drainage pattern of the area.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. Marin County. 2007. Marin Countywide Plan. Last amendment September 23, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

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Bridgette DeShields, Principal-in-Charge
Carolyn Huynh, Project Manager

Mandatory Findings of Significance

Based on evidence provided in this Initial Study, Integral makes the following findings:

a. The project ☐ has ☒ does not have the potential substantially to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially 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.

The short-term disturbance of the Project area during the construction activities would not impact the adjacent habitat. There are no identified special-status species in the Project area. Based on the information presented within the Biological Resources section, there would be a less-than-significant potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. There was no evidence of any bird nesting within the APE observed during the field reconnaissance survey. Although the limited habitat values and extent of ongoing disturbance generally preclude the potential for nesting birds in the APE, there remains a remote possibility that new bird nests could be established in the trees and other vegetation in and near the APE. With implementation of the mitigation measure, impacts to biological resources would be less than significant.

Based on the information presented within the Cultural and Tribal Cultural Resources section, the Project area is determined to be highly sensitive. Sites/deposits are expected to be found in close proximity to the Project alignment/footprint in multiple directions. Analyses conducted for buried and submerged precontact sites found that the areas proposed for open cutting (trench excavation) are the locations most sensitive for Native American archaeological sites/deposits. These areas include the portions of the ADI along Hanken Drive, Quisisana Drive, and Sir Francis Drake Boulevard. Buried site analysis also found the southern portion of Laurel Grove Avenue between Quisisana Drive and Sir Francis Drake Boulevard to be highly sensitive for precontact Native American sites/deposits. Hanken and Quisisana Drives are identified as sensitive for historic-era structural and/or domestic archaeological remains. The entirety of Laurel Grove Avenue was found sensitive for historic-era resources (especially road features), with Project activities having the potential to encounter these archaeological remains along this portion of the ADI. Spot monitoring will be conducted in areas where disturbed soils will be impacted. In addition, construction crews will be trained in “basic archaeological identification” and will have access to an Alert Sheet. If human remains are identified, the Coroner Division of the Marin County Sheriff’s Office will be contacted for identification of human remains. With implementation of the mitigation measures, impacts to Native American or historic archaeological resources due to subsurface excavation would be less than significant.

b. The project ☐ has ☒ does not have impacts that are individually limited but cumulatively considerable. "Cumulatively considerable" means that 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 proposed activities are limited in aerial extent and duration, would result in the construction of no new structures/buildings, and would return the ground surface in outdoor areas to pre-Project conditions. Therefore, the cumulative impact from Project activities is less than significant.

c. The project ☐ has ☒ does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Worker and public health and safety were discussed in various sections of this Initial Study, including air quality, geology and soils, hazards and hazardous materials, noise and vibration, transportation/traffic, and utilities and service systems. In all instances, specific control measures have been included as necessary in

the Project to reduce impacts to worker and public health and safety to less-than-significant levels. It should be noted that the proposed Project will replace infrastructure that is past its useful life, improve maintenance operations and safety, and reduce SSOs. Thus, the impact related to public health and environmental hazards is beneficial.

Determination of Appropriate Environmental Document:

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Certification:

_____ _____

Name
Title

Date

Attachment A

Abbreviations and Acronyms

ATTACHMENT A
ABBREVIATIONS AND ACRONYMS

ADI	areas of direct impact
APE	area of potential effect
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CDO	cease and desist order
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FIGR	Federated Indians of Graton Rancheria
GHG	greenhouse gas
HDPE	high-density polyethylene
I-580	Interstate 580
IAMP	Infrastructure Asset Management Plan
Integral	Integral Consulting Inc.
L_{eq}	Equivalent Sound Pressure Level

MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
MT/year	maximum annual emissions
NAHC	Native American Heritage Commission
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
O_3	ozone
PM2.5	fine particulate matter with a diameter less than 2.5 microns
PM10	respirable particulate matter with a diameter less than 10 microns
ppm	parts per million
Project	Laurel Grove Avenue Sewer Rehabilitation Project
PVC	polyvinyl chloride
RoadMod	Roadway Construction Emissions Model
ROG	reactive organic gases
RVSD	Ross Valley Sanitary District
RWQCB	San Francisco Bay Regional Water Quality Control Board
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SSO	sewer system overflow
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCP	traffic control plan
U.S. 101	U.S. Highway 101
USFWS	U.S. Fish and Wildlife Service
$\mu g/m^3$	micrograms per cubic meter

Attachment B

Figures

- Figure 1. Location Map
- Figure 2. Project Construction Method Overview
- Figure 3. Special-Status Plants and Sensitive Natural Communities
- Figure 4. Special-Status Animals and Critical Habitat

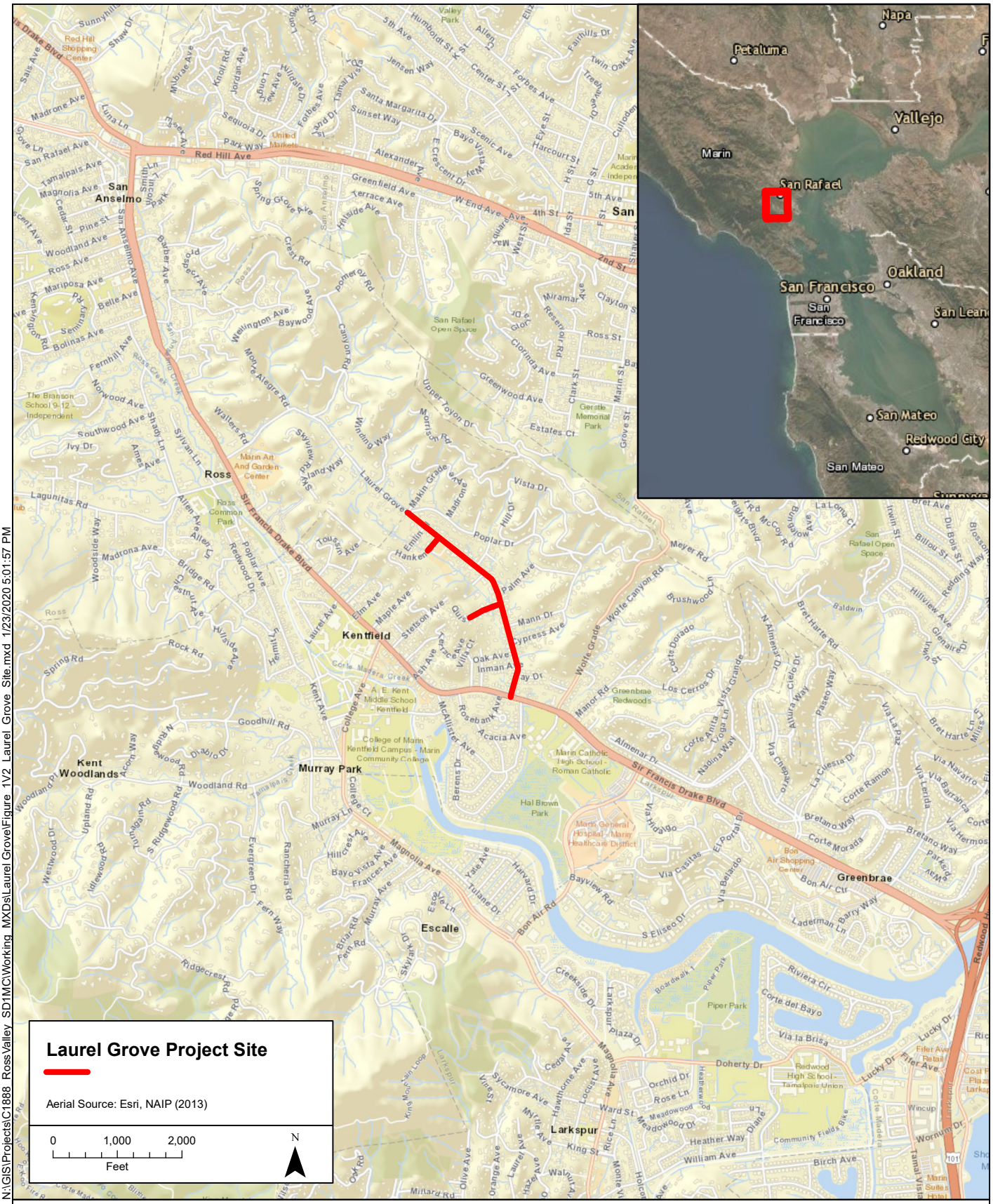

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Figure 1.
Location Map
Laurel Grove Avenue Sewer Rehabilitation Project
Kentfield, Marin County, California

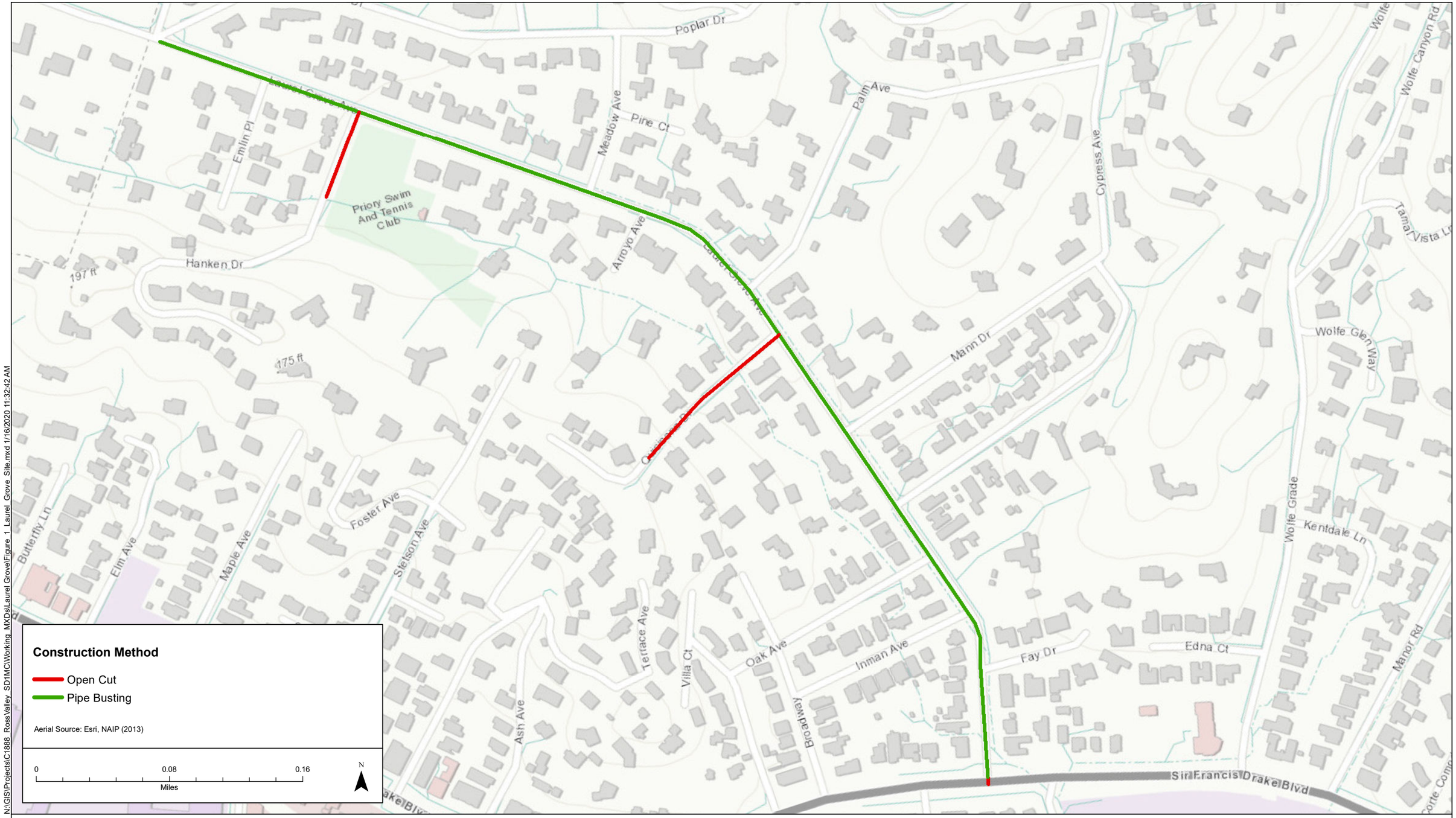

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Figure 2.
Project Construction Method Overview
Laurel Grove Avenue Sewer Rehabilitation
Project Kentfield, Marin County, California

Species Names (acronymns)

Napa false indigo (Nfi)	minute pocket moss (mpm)	white-rayed pentachaeta (w-rp)
bent-flowered fiddleneck (b-ff)	Marin checker lily (Mcl)	Tamalpais oak (To)
Mt. Tamalpais manzanita (M.Tm)	dark-eyed gilia (d-eg)	Point Reyes checkerbloom (PRc)
Marin manzanita (Mm)	Marin western flax (Mwf)	Santa Cruz microseris (SCm)
Point Reyes salty bird's-beak (PRsbb)	thin-lobed horkelia (t-lh)	Tamalpais jewelflower (Tj)
Mt. Tamalpais thistle (M.Tt)	Tamalpais lessingia (Tl)	Mt. Tamalpais bristly jewelflower (M.Tbj)
western leatherwood (wl)	marsh microseris (mm)	two-fork clover (t-fc)
Tiburon buckwheat (Tb)	Marin County navarretia (MCn)	

Laurel Grove Project Site

CNDDB Special Status Plants

Plant Occurrences

Terrestrial Community

Aerial Source: Esri, NAIP (2013)

0 0.5 1 Miles

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Figure 3.
Special-Status Plants and Sensitive Natural Communities
Laurel Grove Avenue Sewer Rehabilitation Project
Kentfield, Marin County, California

Laurel Grove Project Site

CNDDB Animals in San Rafael

Animal Occurrences

Northern Spotted Owl Critical Habitat

Aerial Source: Esri, NAIP (2013)

0 0.5 1 Miles

N

Species Names (acronymns)

California blackrail (Cbr)
California giant salamander (Cgs)
California Ridgway's rail (CRr)
foothill yellow-legged frog (fy-lf)
tidewater goby (tg)
hoarybat (hb)
Marin elfin butterfly (Meb)
Marin hesperian (Mp)
Northern Coastal Salt Marsh (NCSM)
obscure bumble bee (obb)
pallid bat (pb)
salt-marsh harvest mouse (s-mhm)
San Pablo song sparrow (SPss)
western bumble bee (wbb)
western pond turtle (wpt)

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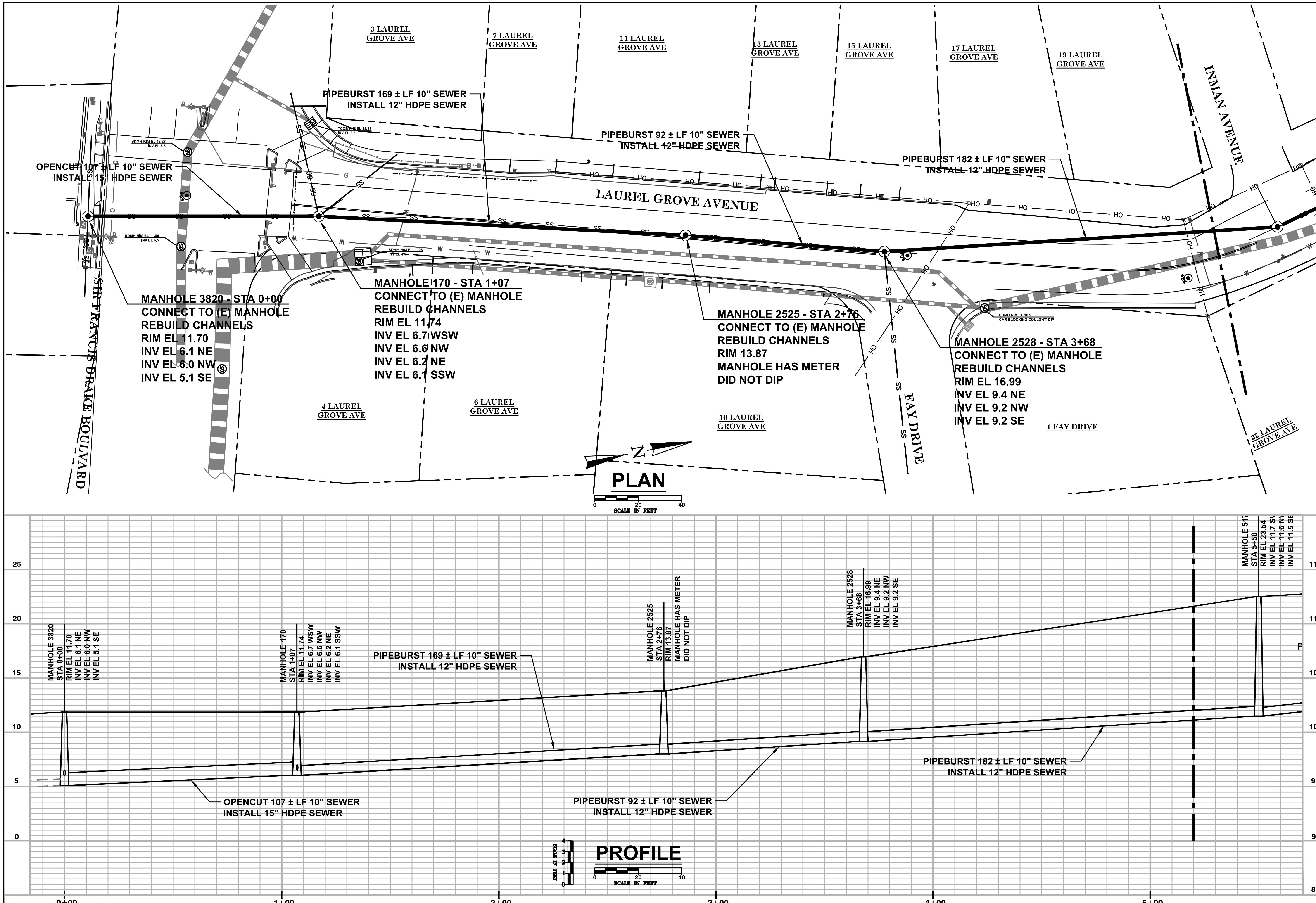
Figure 4.
Special-Status Animals and Critical Habitat
Laurel Grove Avenue Sewer Rehabilitation Project
Kentifeld, Marin County, California

Attachment C

Construction Plans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11 LAUREL GROVE AVE
13 LAUREL GROVE AVE
15 LAUREL GROVE AVE
17 LAUREL GROVE AVE
19 LAUREL GROVE AVE
INMAN AVENUE
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INSTALL 12" HDPE SEWER
PIPEBURST 92 ± LF 10" SEWER
INSTALL 12" HDPE SEWER
PIPEBURST 182 ± LF 10" SEWER
INSTALL 12" HDPE SEWER
OPENCUT 107 ± LF 10" SEWER
INSTALL 15" HDPE SEWER
LAUREL GROVE AVENUE
SDMH RIM EL 12.27
INV EL 6.6
TCCB RIM EL 12.27
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SDMH RIM EL 11.80
INV EL 6.5
SDMH RIM EL 11.08
SDMH RIM EL 18.2
CAR BLOCKING COULDN'T DIP
MANHOLE 3820 - STA 0+00
CONNECT TO (E) MANHOLE
REBUILD CHANNELS
RIM EL 11.70
INV EL 6.1 NE
INV EL 6.0 NW
INV EL 5.1 SE
MANHOLE 170 - STA 1+07
CONNECT TO (E) MANHOLE
REBUILD CHANNELS
RIM EL 11.74
INV EL 6.7 WSW
INV EL 6.6 NW
INV EL 6.2 NE
INV EL 6.1 SSW
MANHOLE 2525 - STA 2+76
CONNECT TO (E) MANHOLE
REBUILD CHANNELS
RIM 13.87
MANHOLE HAS METER
DID NOT DIP
MANHOLE 2528 - STA 3+68
CONNECT TO (E) MANHOLE
REBUILD CHANNELS
RIM EL 16.99
INV EL 9.4 NE
INV EL 9.2 NW
INV EL 9.2 SE
SIR FRANCIS DRAKE BOULVARD
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INV EL 6.0 NW
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RIM EL 11.74
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INV EL 6.1 SSW
MANHOLE 2525
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RIM 13.87
MANHOLE HAS METER
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STA 3+68
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MANHOLE 517
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OPENCUT 107 ± LF 10" SEWER
INSTALL 15" HDPE SEWER
PIPEBURST 92 ± LF 10" SEWER
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NUTE
NUTE ENGINEERING
Civil and Sanitary Consultants
907 MISSION AVE. SAN RAFAEL, CA 94901
T.415.453.4480 F. 415.453.0343 nute.biz

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PROJECT #8863

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2960 KERNER BOULEVARD
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P: 415-259-2949 WWW.RVSD.ORG

PREPARED FOR:
ROSS VALLEY SANITARY DISTRICT Est. 1899

MARIN COUNTY CALIFORNIA
ROSS VALLEY SANITARY DISTRICT
2019 CIPP SEWER REHABILITATION PROJECT

**LAUREL GROVE AVENUE
PLAN AND PROFILE
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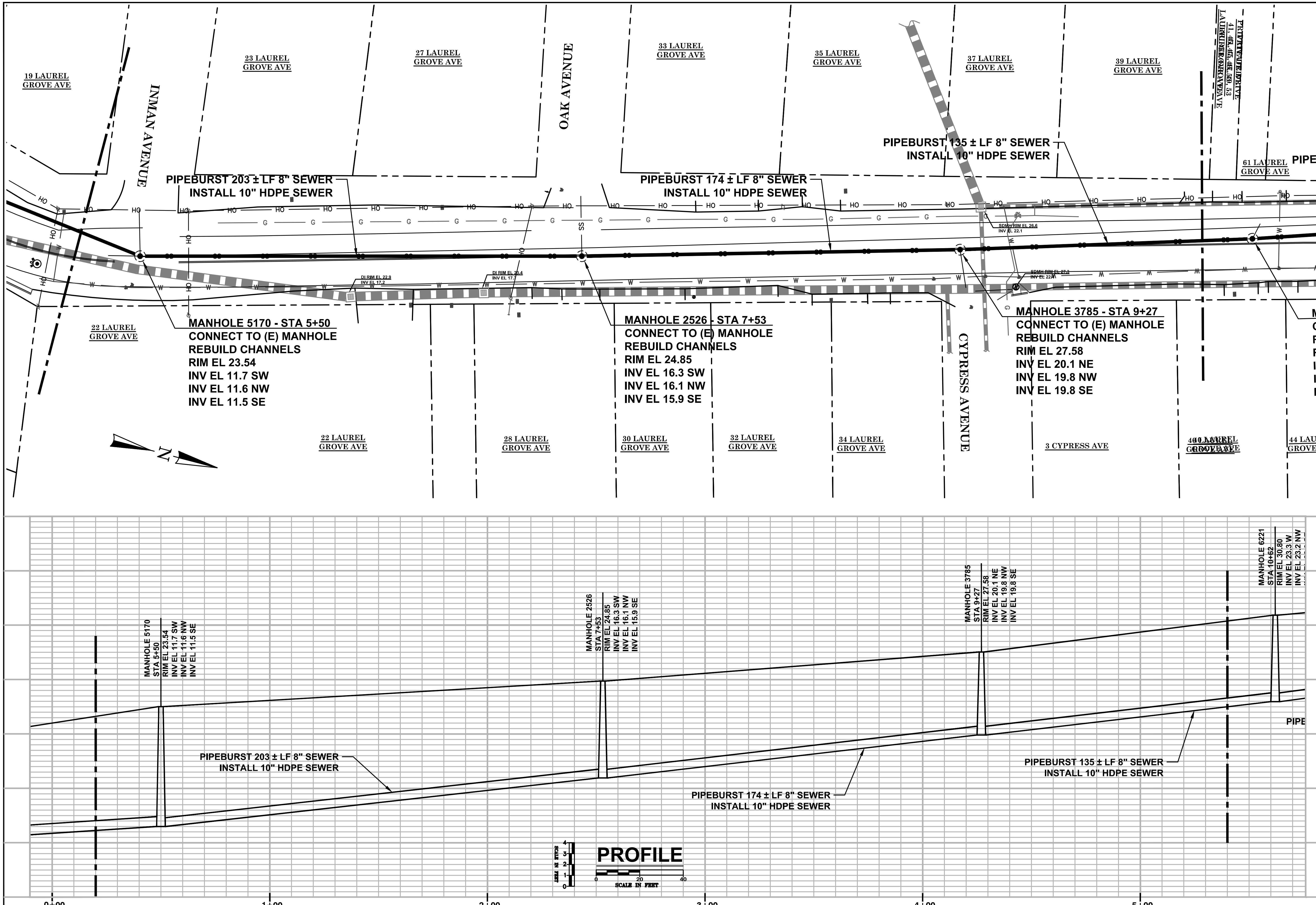

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MARIN COUNTY CALIFORNIA
ROSS VALLEY SANITARY DISTRICT
2019 CIPP SEWER REHABILITATION PROJECT

LAUREL GROVE AVENUE PLAN AND PROFILE STA 0+00 TO STA #+##

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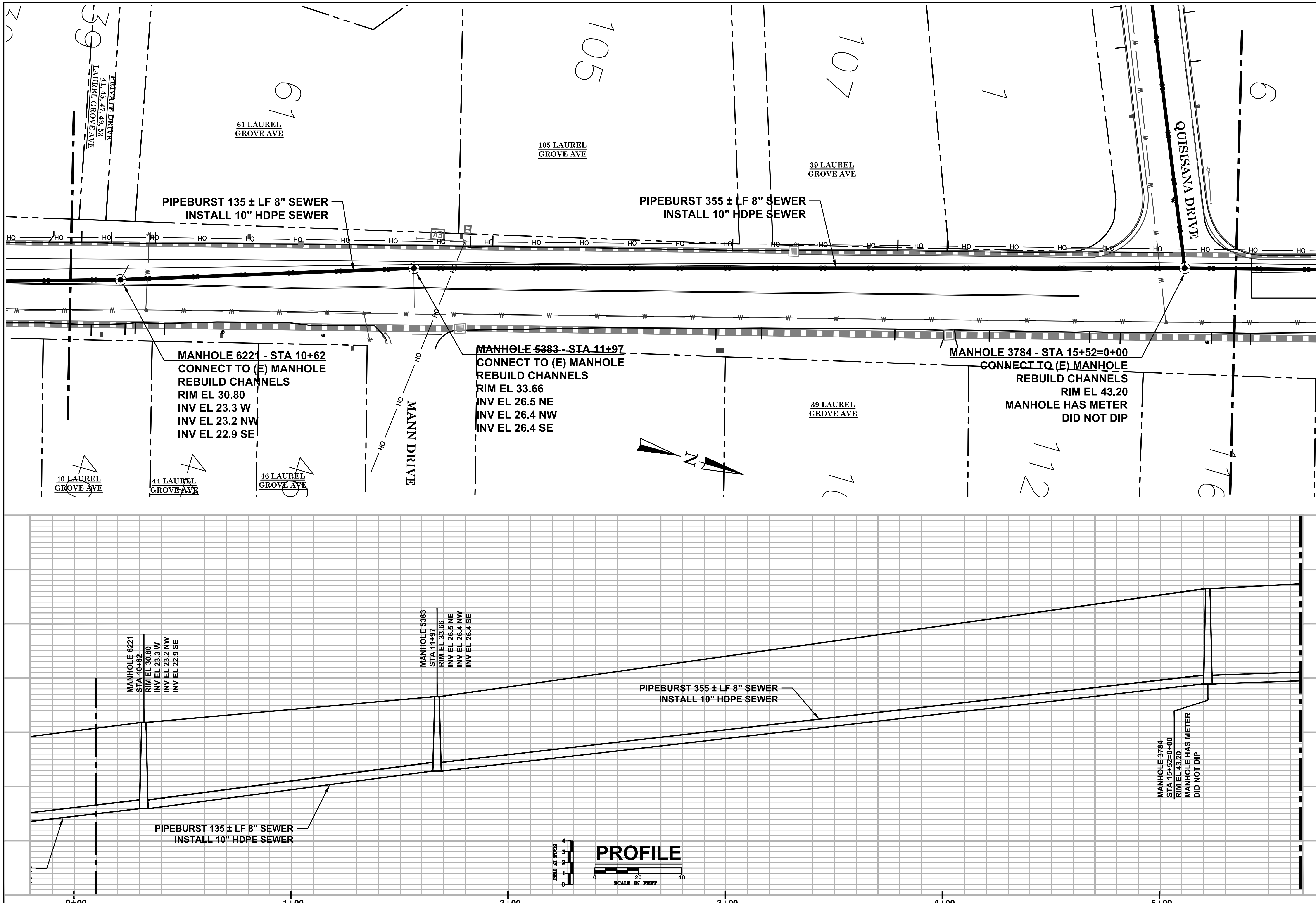

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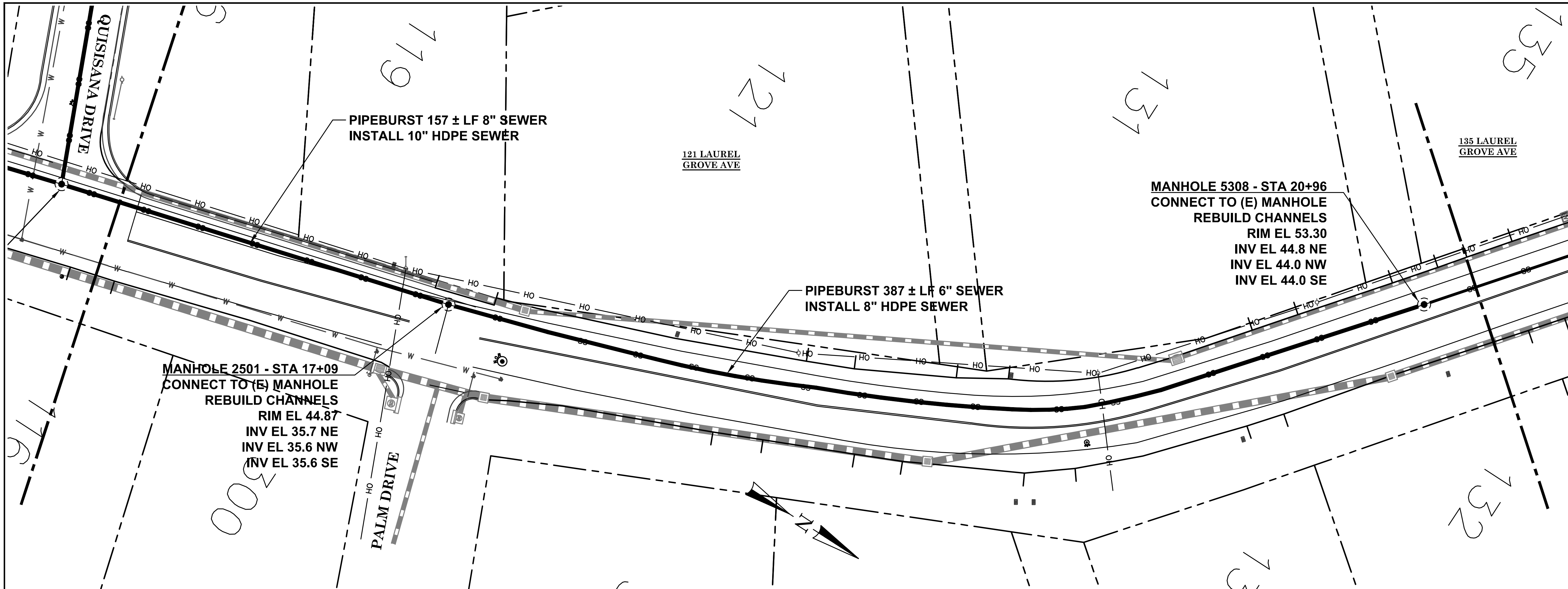

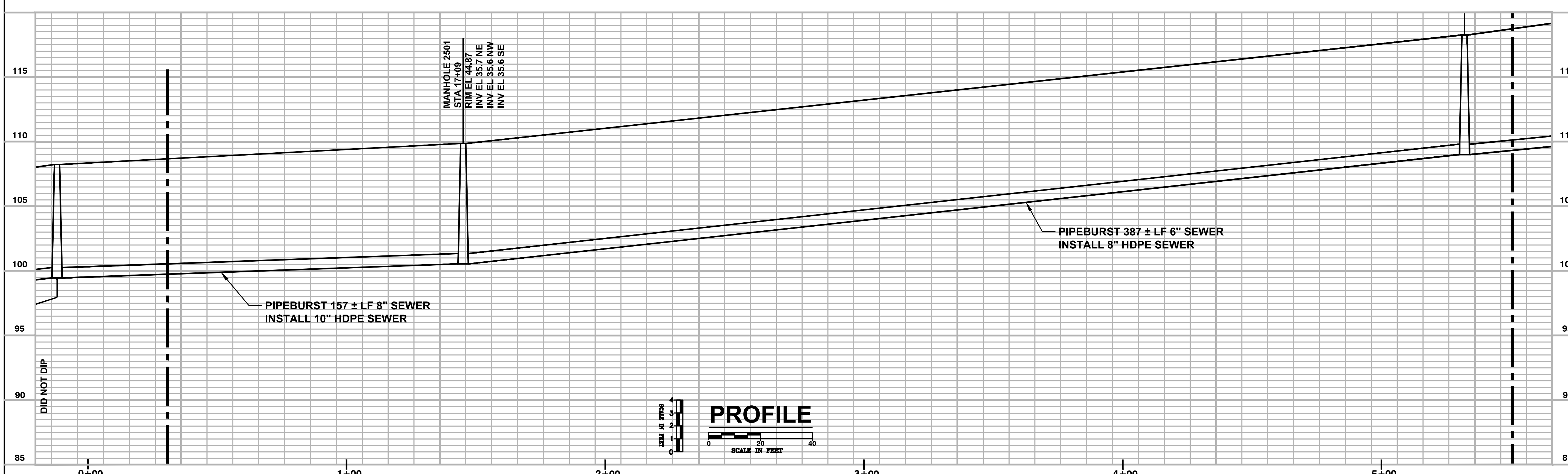

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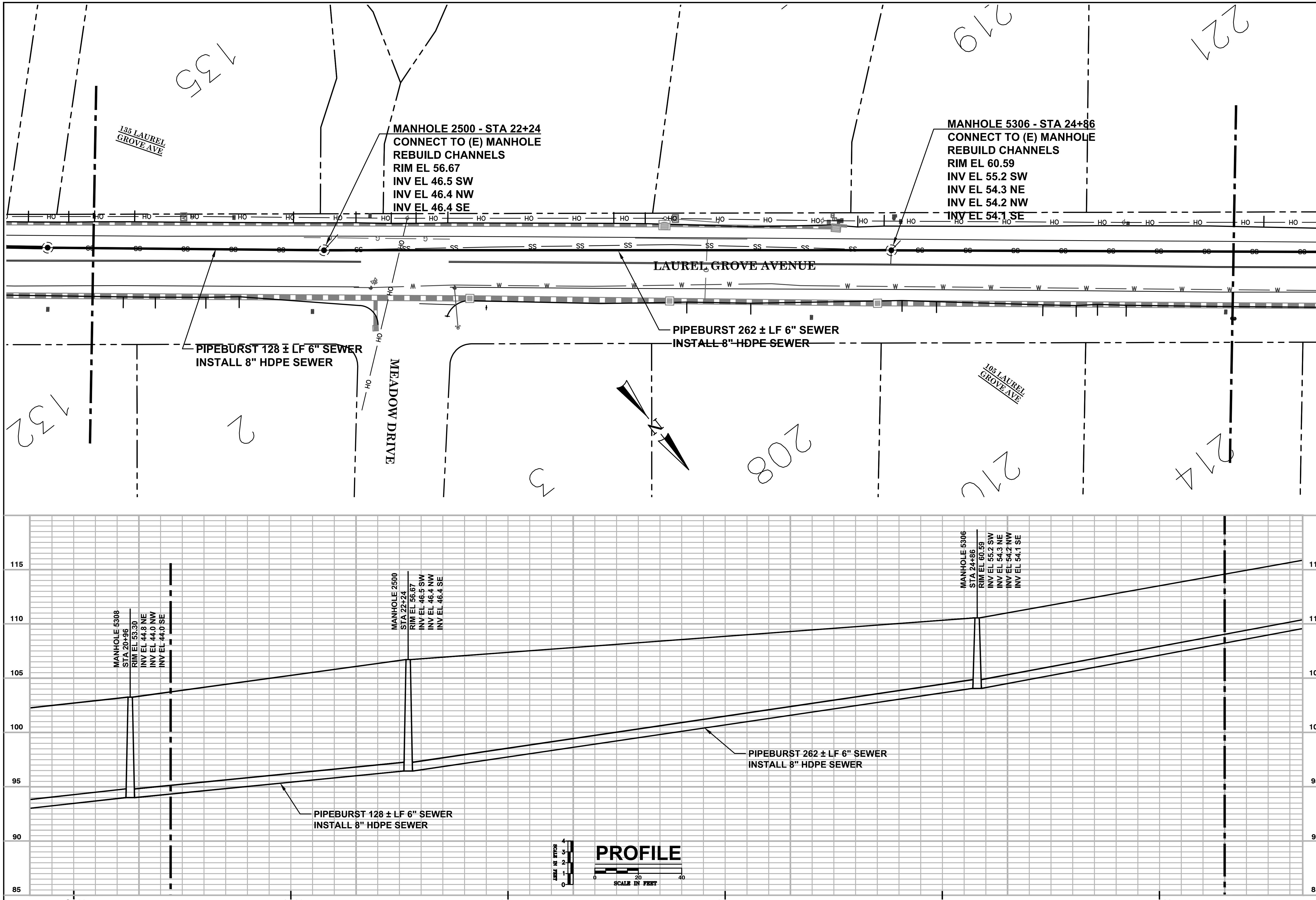

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PREPARED BY:
NUTE ENGINEERING
Civil and Sanitary Consultants
907 MISSION AVE. SAN RAFAEL, CA 94901
T.415.453.4480 F. 415.453.0343 nute.biz

NOT APPROVED FOR CONSTRUCTION

PROJECT #8863

ROSS VALLEY SANITARY DISTRICT
2960 KERNER BOULEVARD
SAN RAFAEL, CA 94901
P: 415-259-2949 WWW.RVSD.ORG

PREPARED FOR:

MARIN COUNTY — CALIFORNIA
ROSS VALLEY SANITARY DISTRICT
2019 CIPP SEWER REHABILITATION PROJECT

LAUREL GROVE AVENUE
PLAN AND PROFILE
STA 0+00 TO STA #+##

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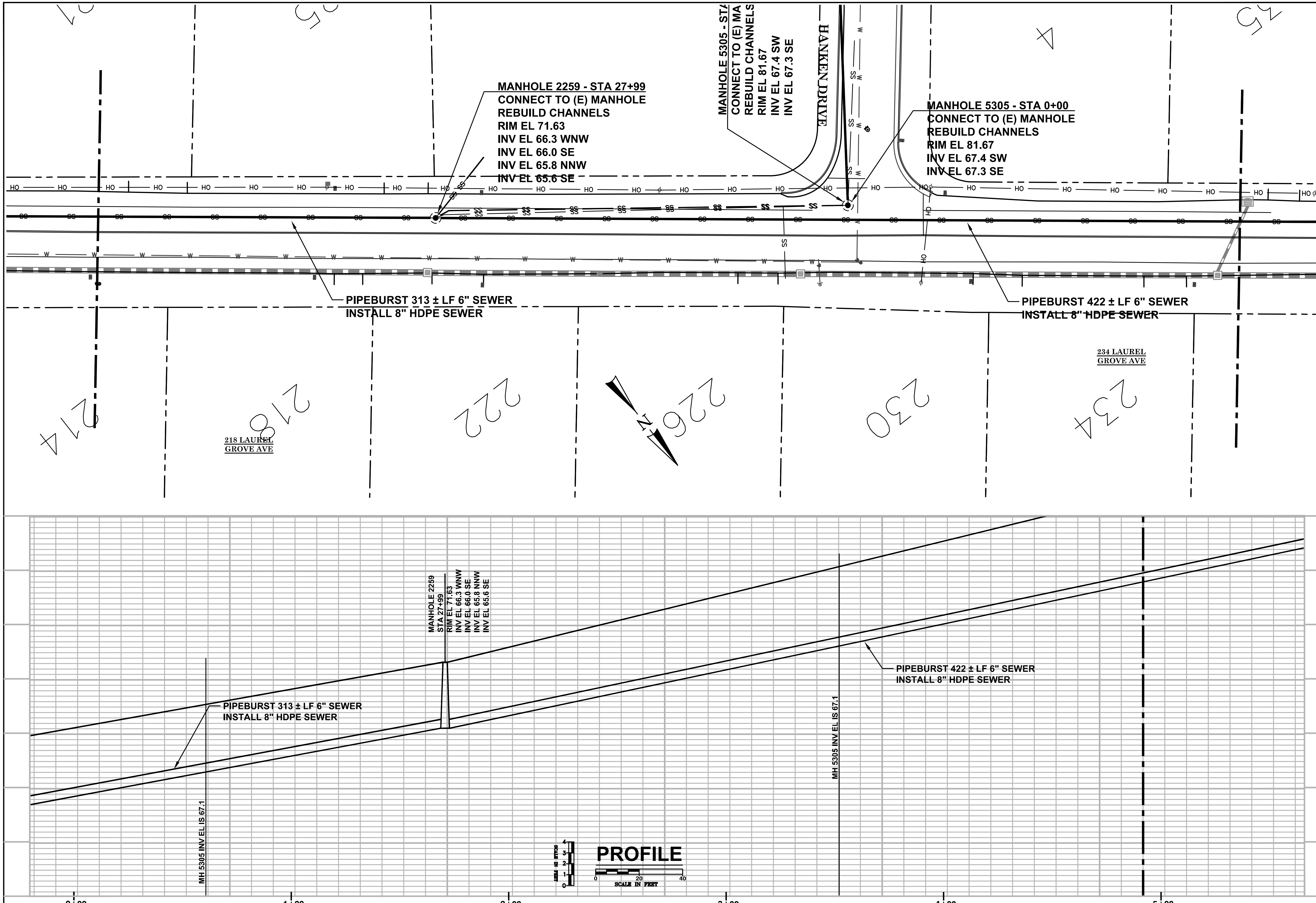
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REBUILD CHANNELS
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INV EL 66.3 WNW
INV EL 66.0 SE
INV EL 65.8 NNW
INV EL 65.6 SE
MANHOLE 5305 - STA 0+00
CONNECT TO (E) MANHOLE
REBUILD CHANNELS
RIM EL 81.67
INV EL 67.4 SW
INV EL 67.3 SE
HANKEN DRIVE
PIPEBURST 313 ± LF 6" SEWER
INSTALL 8" HDPE SEWER
PIPEBURST 422 ± LF 6" SEWER
INSTALL 8" HDPE SEWER
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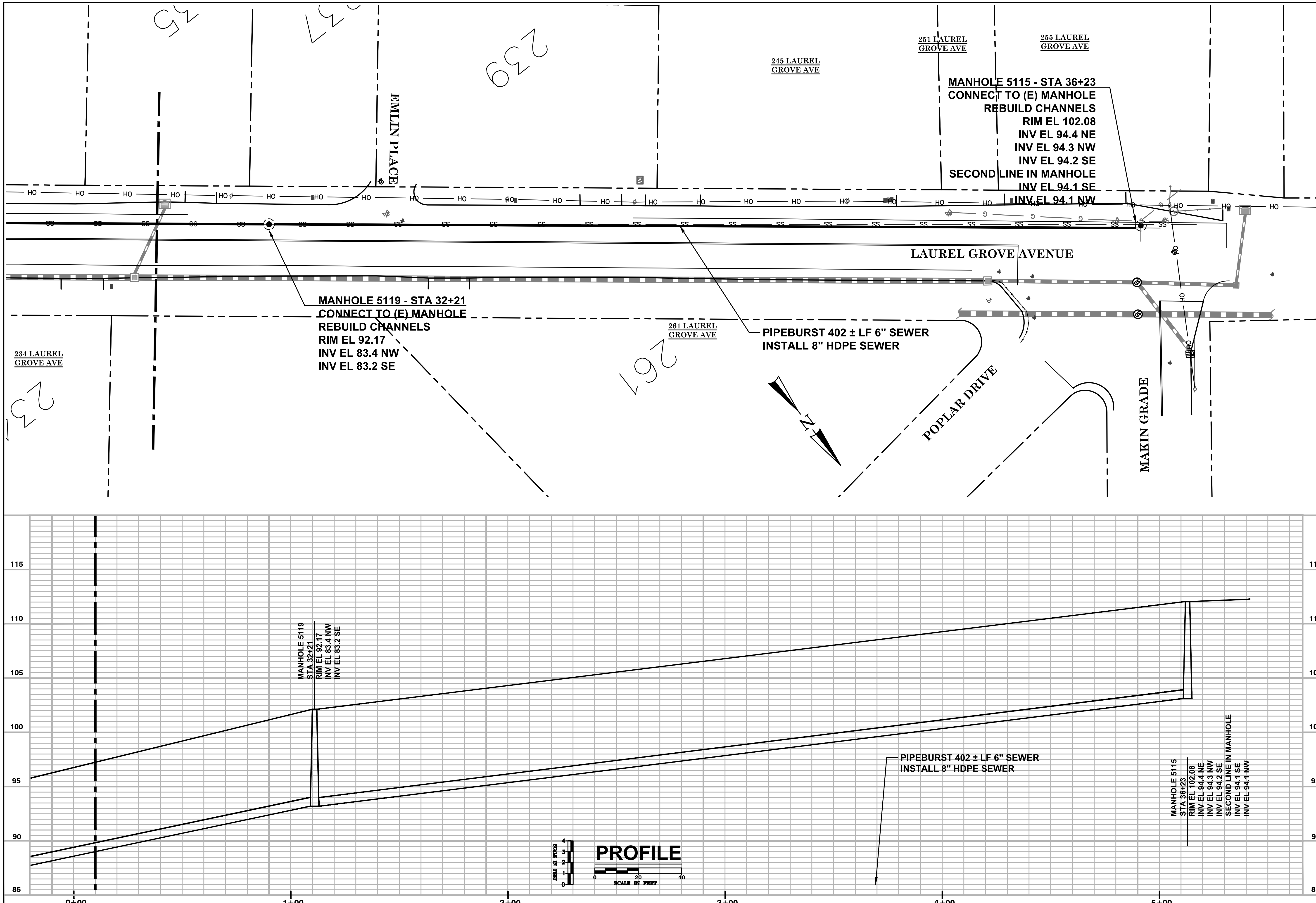

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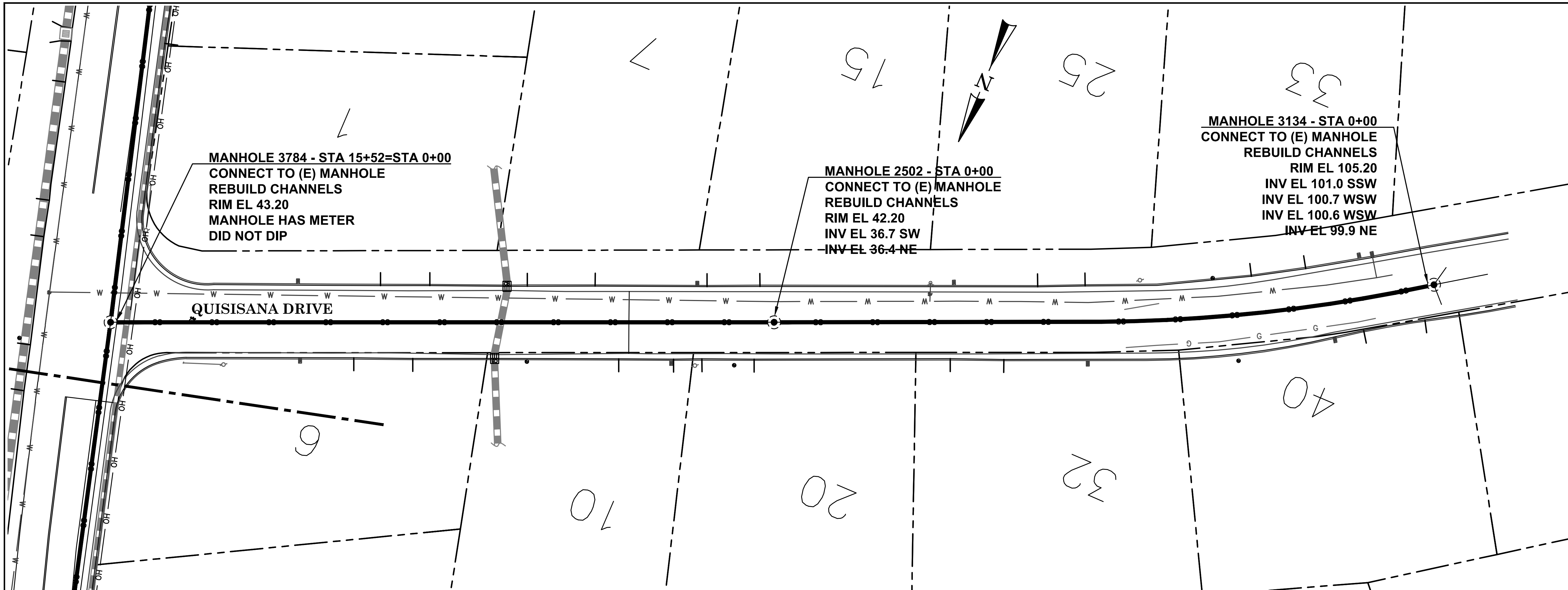

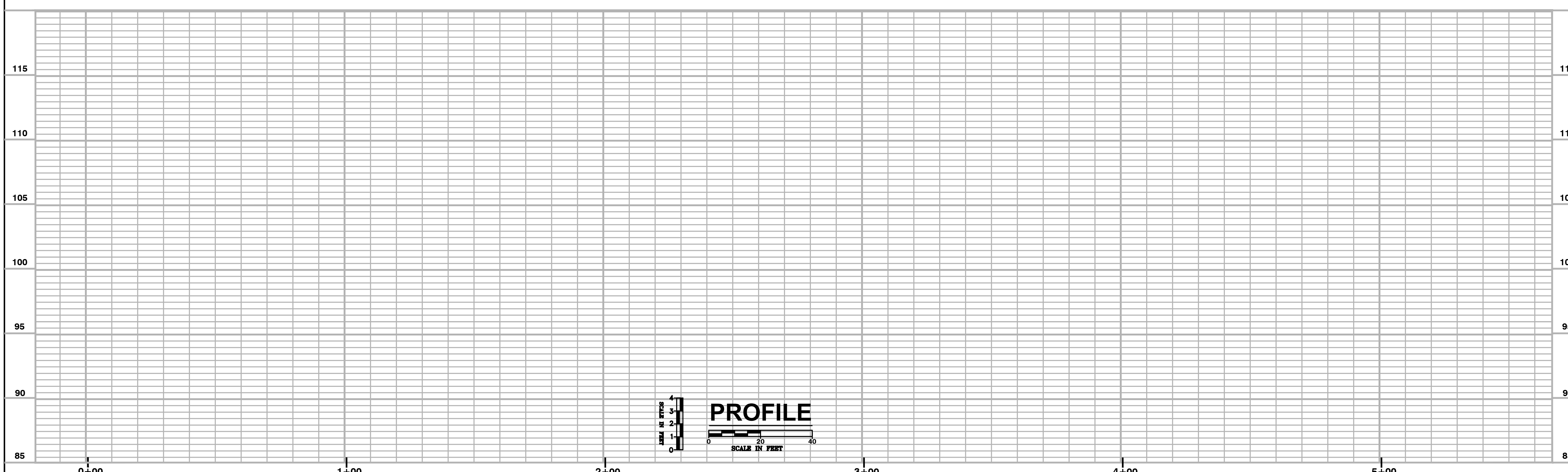

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PREPARED FOR:

MARIN COUNTY CALIFORNIA
ROSS VALLEY SANITARY DISTRICT
2019 CIPP SEWER REHABILITATION PROJECT

QUISISANA DRIVE
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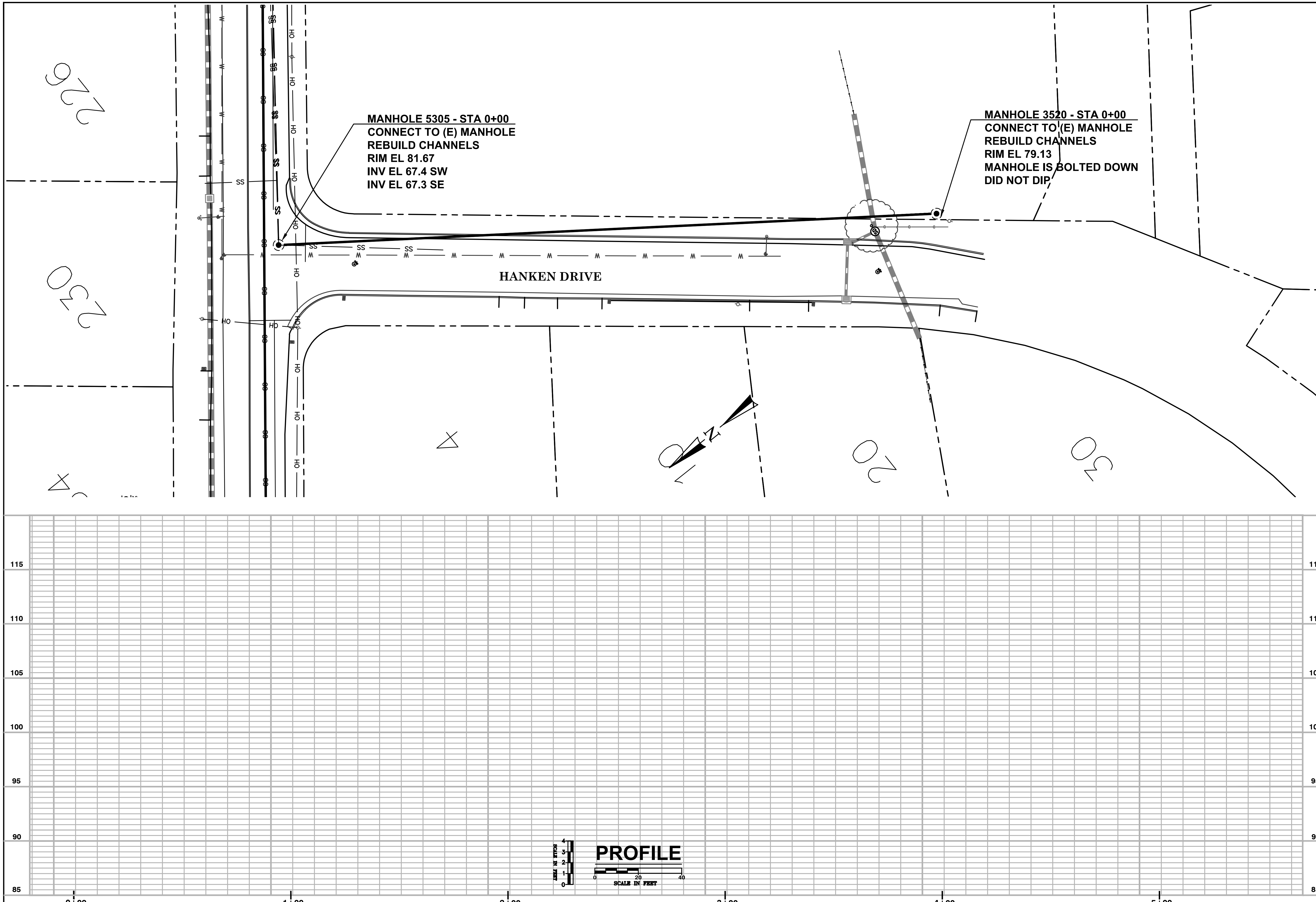

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Attachment D

Control Measures

Attachment D—Overview of Control Measures

Numerous control measures would be incorporated into the Project's Contract Documents by Ross Valley Sanitary District (RVSD) to address environmental and public health and safety issues. Control measures are procedures known to further reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experiences of RVSD and the design engineer.

Site Management Practices

1. Remove rubbish and debris from job site daily with proper disposal in compliance with all federal, state, and local regulations. Removal and transport of rubbish and debris shall be in a manner that prevents spillage on pavements, streets, or adjacent areas. Clean up any spillage.
2. Store materials that cannot be removed daily in the Contractor's approved laydown and storage areas, following all requirements established by the property owner and associated permitting jurisdiction.
3. All material excavated shall be removed immediately and transported offsite. No stockpiling of excavated materials will be allowed at any time in the public right-of-way except for limited stockpiling of soil or imported fill at the work site to help facilitate daily operations.
4. Provide temporary lighting that complies with California Occupational Safety and Health Administration (Cal/OSHA) standards.
5. Conduct operations to cause as little damage to hardscape and landscape areas as possible:
   - The Contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping in the Project limits. Any required pruning of existing trees will be completed by a certified arborist. A specification for the protection of trees will be provided to the Contractor.
   - The Contractor shall protect all existing utilities, pavement, sidewalks, curbs, fences, landscaping, and other improvements that are not designated for removal from damage by his or her operations. Any such features that are damaged or temporarily relocated by the Contractor during construction shall be repaired or restored by the Contractor to a condition equal to or better than they were prior to such damage or temporary relocation.

6. Upon completion of the work, and prior to final acceptance, the Contractor shall remove from the vicinity of the work all surplus material and equipment belonging to them or used under their direction during construction.
7. Restore pavement in all roadways, driveways, and sidewalks.
8. Upon completion of work, the Contractor shall restore road stripping on the roadway.

Dust Control

1. Water all exposed unpaved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) up to two times per day.
2. Cover all haul trucks transporting soil, sand, or other loose material offsite.
3. Sweep pavements as often as necessary to avoid the spread of debris. Remove all visible mud or dirt track-out from adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. Minimize idling times either by shutting equipment off when not in use or 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 [CCR]). Clear signage shall be provided for construction workers at all access points.
5. Maintain and properly tune all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
6. Post a publicly visible sign with the telephone number and person to contact at RVSD regarding dust complaints. This person shall respond and take corrective action within 48 hours.
7. Priority shall be given to obtaining power from Pacific Gas and Electric (PG&E) to reduce air pollutant emissions; if not practicable, then electrical generators and, if necessary, diesel generators shall be used subject to the noise attenuation measures in under the Noise Control Measures.
8. All excavations shall be adequately ventilated and air monitoring of the shafts or pits will be done continuously, pursuant to the Contract Documents.
9. To minimize the dispersal of sewer odors above ground during sewage bypass pumping, the Contractor shall:
    a. Seal all open sanitary manholes or access openings in the sewers when operations have been suspended for a period of 2 hours or more.

b. During construction operations when open manholes or access openings cannot be sealed, vent and filter hydrogen sulfide gases upstream of the openings in the sewer.

10. Odor related to construction shall be controlled through the use of filters, chemical addition to the wastewater, and masking agents as needed to limit the levels of hydrogen sulfide gas to 5 parts per million (by volume) 25 ft from the source or at the outside wall of any habitable structure.
11. If odor complaints are received, identify the source, evaluate and implement available abatement measures, and notify the complainant(s) of the results.

Permits

1. The RVSD shall secure any required authorizations from regulatory agencies, conform with any conditions included in these authorizations, and comply with all applicable state and federal laws related to biological and wetland resources.
2. Trees and other landscaping removed during construction shall be replaced by the Contractor. If required, the Contractor shall obtain a permit from Marin County for the removal of any trees of regulated size and shall comply with relevant permit conditions of Chapter 22.75 of the County Code (Ordinance No. 3342)
3. The Contractor will submit to RVSD, if applicable, a copy of their annual trench and/or excavation permit issued by Cal/OSHA.
4. Comply with all applicable provisions of Section 7-1.01I, "Sound Control Requirements," of Caltrans Standard Specifications and Contract Documents.
5. Comply with the County Code that regulates noise levels. The County of Marin, Title 6, Chapter 6.70, Section 6.70.030 Enumerated noises states that:

> *a. Hours for construction activities and other work undertaken in connection with building, plumbing, electrical, and other permits issued by the community development agency shall be limited to the following:*
>
> > *i. Monday through Friday: 7 a.m. to 6 p.m.*
> >
> > *ii. Saturday: 9 a.m. to 5 p.m.*
> >
> > *iii. Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.)*
>
> *b. Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for*

permits administered by the community development agency from 8 a.m. to 5 p.m. Monday through Friday only.

c. Special exceptions to these limitations may occur for:

i. Emergency work as defined in Section 22.130.030 of this code provided written notice is given to the community development director within 48 hours of commencing work

ii. Construction projects of city, county, state, other public agency, or other public utility

iii. When written permission of the community development director has been obtained, for showing of sufficient cause

iv. Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties

v. Modifications required by the review authority as a discretionary permit condition of approval.

6. Contractor to obtain an encroachment permit from the County and comply with permit conditions.

Stormwater and Erosion Control

1. Contractor shall prepare a Water Pollution Control Plan (WPCP) for RVSD approval. The WPCP shall describe measures to be implemented to prevent the discharge of contaminated stormwater runoff from the job site. Erosion control measures shall be in accordance with the requirements of Marin County Stormwater Pollution Prevention Program, and RVSD's Field Management Practices for protection of water quality. The temporary construction site best management practices (BMPs) to be included in the WPCP shall address, but not be limited to the following:
    a. Providing all excavated areas with temporary erosion control measures where natural ground cover is disturbed, all temporary excavation stockpiles, including structures and trench excavations.
    b. Prevent any construction debris from entering drainages in the Project vicinity.
    c. Control of equipment fueling and maintenance, concrete mixing and washout, and hauling and storage of materials.
    d. Inspection and maintenance of protected areas regularly during the course of the work.

e. Placing all excavations, spills, and waste materials in areas not subject to washout, flooding, or natural drainage. No sand, mud, rocks, or other construction debris shall be disposed of in the sanitary sewers, storm sewers, or waterways. The Contractor shall comply with all water discharge requirements to local sanitary and storm sewers.

f. Placement of filter fabric at local storm drains and use of other appropriate BMPs.

Geotechnical

1. Incorporate the recommendations of the Project Geotechnical Studies for design, construction, and long-term performance into the Contract Documents for the Project.
2. Have a geotechnical engineer review the final Project plans and specifications prior to construction to verify that geotechnical aspects of the Project are consistent with the intent of the recommendations included in the Project Geotechnical Studies.
3. Have a geotechnical engineer review geotechnical-related Contractor submittals during construction (e.g., shoring, dewatering, ground improvement, backfill materials, etc.).
4. Have a geotechnical engineer perform periodic site inspections during the construction to observe and document subsurface conditions encountered by the Contractor with respect to the subsurface conditions described in the Project Geotechnical Studies.
5. In accordance with the provisions in Section 6705 of the Labor Code, the Contractor shall submit in advance of excavation of any trench or trenches 5 ft or more in depth, a detailed plan in conformance with the Project Geotechnical Studies showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. The use of water-tight shoring in excavations or dewatering will be options available to the Contractor. All trenches in streets shall have vertical trench walls. If such plans vary from the shoring system standards set forth in the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, CCR, the plans shall be prepared and signed by a California registered civil or structural engineer.

Hazardous Materials

1. Store and handle all hazardous materials in strict accordance with the Material Safety Data Sheets for the products. The storage and handling of potential pollution-causing and hazardous materials, including but not necessarily limited to gasoline, oil, and paint, will be in accordance with all local, state, and federal requirements.
2. When sandblasting, spray painting, spraying insulation, or other activities inconveniencing or dangerous to property or the health of employees or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, overspray, or other hazards. In the event there are no permanent enclosures at the area, or such enclosures are incomplete or inadequate, the Contractor shall provide suitable temporary enclosures.
3. If contaminated materials are encountered during excavation, then all work shall comply with the following codes:
    a. Code of Federal Regulations – Title 40 – Protection of the Environment, Part 761 (40 CFR 761).
    b. California Code of Regulations, Title 22, Social Security, Division 4, Environmental Health, Chapter 30 – Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes.
4. Pursuant to the Contract Documents, relative to contaminated materials, the Contractor shall submit the following to the RVSD for review:
    a. The Contractor shall prepare and submit to the RVSD or its appointed Representative, for review, a detailed Job Plan describing the proposed methods and procedures for excavating, segregating, testing, and disposing of petroliferous soil or groundwater. The Job Plan shall be submitted to the RVSD or its appointed Representative no less than 14 days prior to the start of any excavation work at locations where contaminated soils and groundwater is anticipated.
    b. The Job Plan shall include step-by-step procedures for the actions to be taken in identifying, handling, removing, and disposing of any contaminated soil or groundwater encountered during excavation.
    c. At least 14 days before the start of any excavation at locations where contaminated soils and groundwater are anticipated, the Contractor shall prepare and submit to the RVSD or its appointed Representative, for review, a supplemental Health and Safety Plan. The supplemental Health and Safety Plan shall be prepared by an industrial hygienist certified by the American Board of Industrial Hygiene and shall include, but not be limited to, training

of the Contractor's personnel, protective equipment, air monitoring, sampling, and emergency procedures.

d. No excavation will be allowed to commence until the Health and Safety Plan has been returned by the RVSD to the Contractor with the notation: "Resubmittal not required."

e. The Contractor shall provide copies of hazardous waste transporter licenses, permits, or registrations for all states in which the shipment shall travel.

f. The Contractor shall obtain all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including certification of transport vehicles carrying hazardous material.

5. Pursuant to the Contract Documents relative to contaminated materials, the Contractor shall implement the following monitoring requirements:

    a. Contractor shall furnish a properly calibrated, fully functional organic vapor analyzer (OVA) for use at the site of every excavation or open trench to continually sample and monitor the ambient atmosphere.

    b. The preliminary mode of examination for petroliferous soil and/or groundwater shall be through visual and olfactory means. Upon the first observation of soil or water that may contain petroliferous products, the Contractor shall stop excavation work and immediately notify the RVSD or its appointed Representative. No excavation of petroliferous soil, nor pumping of petroliferous water, shall proceed without the approval of RVSD or its appointed Representative.

    c. Following sensory observation of petroliferous products, the OVA equipment shall be brought to the excavation site and the atmosphere shall be tested. The Contractor's Job Plan and Health and Safety Plan shall be immediately placed into effect.

    d. Potentially contaminated soil or water shall be segregated and tested by the Contractor, at a certified laboratory approved by RVSD or its appointed Representative, to determine the consistency and quantity of petroliferous products. The soil or water shall then be disposed of in accordance with applicable local, state, and federal law, following the procedures described in the Contractor's Job Plan and Health and Safety Plan.

6. Pursuant to the Contract Documents, contaminated materials will be handled and disposed of in the following manner:

    a. The Contractor shall avoid or minimize excavation in contaminated areas whenever possible.

b. Excavated trench material that, in the opinion of RVSD or its appointed Representative, exhibits evidence of petroleum contamination shall be removed from the site and temporarily stockpiled by the Contractor. The location of the temporary stockpile area must be reviewed by RVSD. The contaminated trench materials shall be placed on a 10-mil polyethylene sheeting to prevent contamination of uncontaminated soils and shall be separated from all uncontaminated trench materials. The temporary stockpiles of contaminated trench materials shall be covered securely with 10-mil polyethylene sheeting to limit emissions and prevent rainfall from entering the stockpile. Runoff or drainage from the temporary stockpile shall be prevented from leaving the area and all materials shall be surrounded with 6-ft-high temporary chainlink fence.

c. The temporary stockpiles of contaminated trench materials shall be sampled and analyzed by a certified testing laboratory, approved by RVSD or its appointed Representative. Results of the laboratory analysis shall be provided by RVSD or its appointed Representative within calendar days from the date that the material is stockpiled.

d. Disposal of the contaminated trench materials will depend on the results of the testing program. The Contractor shall dispose of the contaminated material with the approval of RVSD or its appointed Representative, either at a licensed thermal remediation plant or by disposal at a Class II landfill, following required procedures.

   All handling, storing, transporting, treatment, and disposal of contaminated soil and groundwater shall conform to the federal and state environmental regulations, including those of the San Francisco Bay Regional Water Quality Control Board (RWQCB), Department of Toxic Substances Control (DTSC), Integrated Waste Management Board, California Air Resources Board (CARB), and Bay Area Air Quality Management District (BAAQMD). Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.

7. Groundwater management shall conform to the federal and state environmental regulations, including those of the RWQCB, DTSC, Integrated Waste Management Board, CARB, and BAAQMD. Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.

   a. Upon completion of excavation within the contaminated area and the hauling and disposal of contaminated materials, the Contractor shall clean up the site, including proper removal and disposal of all plastic sheeting, containers, and other materials used.

b. Any groundwater from trenching activities within the contaminated soil area, as shown on the plan, shall be stored in temporary Baker-type storage tanks. The Contractor shall sample and analyze groundwater, then dispose of the stored groundwater as directed by RVSD or its appointed Representative. Depending on the quality of the groundwater, disposal may be to the sewer system or a suitable offsite disposal facility.

Safety

1. Employ safety provisions conforming to the U.S. Department of Labor Occupational Safety and Health Administration (OSHA), Cal/OSHA, and all other applicable federal, state, county, and local laws, ordinances, and codes. The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items, required by the state and federal industrial authorities and applicable local and national codes. Develop and submit to RVSD for approval a Health and Safety Plan that defines proposed site safety measures.
2. Appoint as safety supervisor an employee who is qualified and authorized to supervise and enforce compliance with the Safety Program. The Safety Program will include an operation plan with emergency contacts.
3. The Contractor shall construct appropriate safety barriers such as temporary fencing, berms, or similar facilities where required or directed by RVSD. To minimize disturbance of existing roads and facilities, safety barriers shall allow for normal maintenance and operation of existing facilities and roads as determined by RVSD or its appointed Representative. The Contractor shall conduct his or her work so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to ensure the protection of persons and property.
4. Establish, implement, and maintain a written injury prevention program as required by Labor Code Section 6401.7.
5. In case of an emergency, make all necessary repairs and promptly execute such work when required by the Construction Manager.
6. Manhole entry and/or entry to any excavation greater than 5 ft deep shall be in full compliance with the confined space entry requirements of OSHA, Cal/OSHA, and RVSD. The RVSD shall have the authority to require the removal from the Project of the foreman and/or superintendent in responsible charge of the work where safety violations occur.
7. During non-working hours, all trenches in public streets shall either be backfilled and temporarily paved or shall be shored and covered with steel plates in

compliance with the requirements of local jurisdictions. The maximum length of trench excavation in advance of the pipe laying operation and the maximum amount of trench remaining open without backfill during the course of the daily pipe installations shall be in accordance with local jurisdictional agencies encroachment and excavation permit requirements or a maximum of 200 ft, whichever is more restrictive.

8. Submit for RVSD review, in accordance with the provisions of Section 6705 of the Labor Code, in advance of excavation of any trench or trenches 5 ft or more in depth, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of ground caving.

Notifications

1. Provide written notice to all private property owners along the alignment three times before work commences in the vicinity of said property. The notices will be provided 7 days before planned construction, 24 hours prior to start of work and day of construction, and will provide information on Project activities, the construction schedule, protocol for providing complaints relative to hazardous conditions and noise, and vehicle access needs.
2. If complaints are received relative to unsafe conditions, identify the source, evaluate and implement appropriate corrective measures, and notify the complainant(s) of the results.

Dewatering

1. Contractor shall submit a plan for all excavation dewatering procedures to RVSD for approval prior to performing dewatering operations as specified in the Contract Documents. The dewatering plan shall provide for:
    a. Use of appropriate equipment and means to accomplish dewatering and may include use of wells, well points, sump pumps, storage tanks, settling tanks, filters temporary pipelines for water disposal, rock or gravel placement, standby pumps and/or generators, and other means.
    b. Compliance with any permitting requirements of RVSD, Central Marin Sanitation Agency and RWQCB.
    c. A dry excavation and preservation of the final lines and grades of the bottoms of excavation with drawdown of groundwater level a minimum of 2 ft below the trench bottom and beyond excavation sidewalls where shoring is not designed to resist hydrostatic pressures.

d. Control of the rate and effect of dewatering so as to avoid settlement, subsidence, or damage to the structures or facilities adjacent to areas of proposed dewatering with repair, restoration, or replacement of facilities or structures damaged. Contractor shall establish reference points daily to quickly detect any settlement, subsidence, or damage that may develop during or following dewatering operations.

e. Demonstrated compliance with the Contractor–designed shoring and bracing method.

f. Disposal of collected groundwater. Discharge options include the sanitary sewer system or the storm drain system. Pretreatment may be required.

g. Minimal interference with vehicle or pedestrian traffic.

2. Implement Control Measures listed above for handling and disposal of contaminated soil and groundwater, if encountered.

3. Comply with the requirements of the approved WPCP.

Noise

1. During the encroachment permit process, the Contractor will coordinate with the County of Marin and RVSD on allowable work hour limitations that are consistent with the County of Marin's noise ordinance. Working hour limitations included in the Project Contract Documents will be generally limited to 7 a.m. to 6 p.m. on weekdays. Work hours beyond these referenced limits must be approved by RVSD and the County of Marin. More specific work hour limitations may be required by the County of Marin.

   a. RVSD will conduct work on Sir Francis Drake Boulevard during nighttime hours due to the high volume of daytime traffic on the roadway. Nighttime work would occur between 8 p.m. and 5 a.m. Construction noise is permitted by Marin County when activities occur between the hours of 8 a.m. to 5 p.m. Monday through Friday. Construction activities occurring outside of these hours are permitted for City and County construction projects and when written permission from the Marin County Community Development Director has been obtained showing sufficient cause.

2. Avoid the use of loud sound signals in favor of light warnings except those required by safety laws for the protection of personnel.

3. Equip internal combustion engines with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.

4. To minimize noise levels, attempt to obtain electrical power from PG&E in lieu of providing power by portable generator. If use of utility power is not practicable, generator power may be provided by sound-attenuated and enclosed electric generators. Diesel generators shall not be utilized unless they are provided with sound enclosures, as necessary to comply with local ordinances.
5. Use of radio or other music amplification devices will not be permitted in the work area.
6. Implement a vibration monitoring and correction program to protect buildings, structures, and utilities from extensive vibration during construction.
7. If noise complaints are received, identify the source, and evaluate and implement available abatement.
8. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active Project site.
9. Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active Project site during all Project construction.
10. Temporary noise control blanket barriers shall be installed in a manner to shield adjacent land uses.
11. Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem.
12. All nightwork operations shall be limited to generating no more than 90 decibels measured at 50 ft from the source of the noise.

Traffic Management

1. Contractor to prepare a traffic control plan (TCP) and submit it to RVSD and the County of Marin for review and approval at least 3 weeks prior to start of construction. The TCP shall include, at a minimum, the following provisions:
    a. Limit construction work or as otherwise required by the County.
    b. Conduct operations to reduce obstruction and inconvenience to public traffic and have under construction no greater length or amount of work than can be properly undertaken with due regard to the rights of the public.

c. Avoid blocking driveways or private roads without notifying the property owner, and access must be restored during all non-working hours.

d. Maintain safe access for pedestrian and bicyclist traffic throughout the work area at all times.

e. To the extent possible, maintain at least one lane of traffic in each direction open at all times. Traffic shall be permitted to use shoulders and the side of the roadbed opposite the one under construction. When sufficient width is available, a passageway wide enough to accommodate one lane of traffic shall be kept open at locations where construction operations are in active progress and it is safe to do so.

f. The Contractor shall be responsible for notifying police and fire departments, the school district, ambulance services, and local transit districts as to the hours and dates of closure and routes of detour at least 48 hours in advance of the detour's occurrence, and shall notify them again when the detour is discontinued.

g. The Contractor shall call local emergency services dispatcher(s) daily with the location of the work and road status.

h. Avoid blocking or obstructing fire lanes at all times. Fire hydrants on or adjacent to the work will be kept accessible to firefighting equipment at all times.

i. Utilize certified flagmen to direct vehicular traffic through the construction area and to guard all obstructions to traffic, and illuminate at night. Traffic control will include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures. These measures shall conform to the requirements set forth in the current "Manual of Traffic Controls for Construction and Maintenance Work Zones," issued by the State Department of Transportation, latest edition.

j. Install and maintain temporary bridges of approved construction (ADA compliant) across the trench at all crosswalks, intersections, and at such other points where traffic conditions make it advisable.

k. Repair excavated areas to the requirements of the County.

l. Use only approved haul routes for all construction traffic on the Project as may be stipulated by the County.

m. A maximum delay of 10 minutes shall be allowed on a roadway if it does not create a significant or dangerous area of traffic congestion away from the traffic control area. The County has the right to reduce the 10-minute traffic-related delay if traffic conditions require it in their opinion. The maximum

delay for access to a residence or business is 10 minutes. The Contractor shall have materials onsite to provide safe passage across the work zone and shall install said material when a person in a vehicle requests access to the residence or business.

n. Avoid storing or parking material or equipment where it would interfere with the free and safe passage of public traffic, and at the end of each day's work, and at all times when construction operations are suspended for any reason.

o. Immediately remove any spillage on local roadways resulting from hauling operations.

p. The Contractor may organize parking and staging independently. However, no sidewalks or private property adjacent to the site shall be used for storage of equipment and supplies unless prior written approval is obtained from the legal owner and submitted to the Construction Manager a minimum of 14 days before use of the site. Otherwise, parking and staging may be allowed only within the public right-of-way, if any, designated for such use by the Project Manager.

q. Minimize the removal of curb parking, but if necessary removal shall be in accordance with the approved TCP.

r. Coordinate with the Central Marin Police Authority and the County of Marin's Public Works Department for the location of "No Stopping" and "No Parking" signs.

s. Where construction work will disrupt the traffic signal loops at an intersection, the Contractor shall install and have operational a temporary detection system that is compatible with the traffic signal controller at that location as approved by the County of Marin. The temporary detection system for the Project will be dependent on the Contractor's work sequence. The temporary detection system is a temporary traffic control device that shall not be removed/relocated until the permanent traffic signal loops are reinstalled and accepted by local jurisdictions.

t. In the event of a declared emergency by the Central Marin Police Authority Chief of Police, the local Captain of the Highway Patrol, or the Marin County Fire Department Fire Marshal, or their Representative, the Contractor shall comply with verbal demands and immediately stop all work and reopen through traffic where work is occurring.

u. Provide, install, and maintain for the duration of the Project up to four Project signs pursuant to the requirements of local jurisdictions.

2. Contact the Marin Transit District, inform them of the construction schedule, and coordinate work in areas that may affect access to bus stops.

Ground Movement Monitoring

1. The Contractor shall provide all labor, materials, equipment, and incidentals required to install, operate, and maintain geotechnical instruments and survey monitoring points for the purpose of monitoring ground movement during construction. The Work shall include, but not limited to, installing and monitoring crack gages and settlement markers, and determining ambient vibration levels.
2. The ground movement indicator points shall provide reference points for monitoring vertical and horizontal ground and structure movement and to establish a baseline record of such movement.
3. Measurements of ground and structure movement will provide the basis for the implementation of remedial measures to prevent possible damage to structures and utilities.
4. Remedial measures, if necessary, include modifications to construction procedures, repair or replacement of damaged facilities, and restoration to original conditions of any disturbed property, structure, or utility.
5. The Contractor shall keep the Construction Manager informed of the monitoring measurements; however, it shall be the Contractor's sole responsibility to protect onsite structures and utilities and all adjacent structures and utilities within 50 ft of any excavation, pipe bursting, jack and bore, shoring, and backfill operations. Any damage caused to any of these structures or utilities by the Contractor shall be repaired and restored by the Contractor immediately and at the Contractor's expense.

Air Quality

1. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
2. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.

3. All construction equipment, diesel trucks, and generators shall be required to be equipped with Best Available Control Technology for emission reductions of oxides of nitrogen (NOx) and particulate matter (PM).
4. All contractors shall be required to use equipment that meets CARB's most recent certification standard for off-road, heavy-duty diesel engines.

Aesthetics

1. To reduce glare and light used during nighttime construction activities, RVSD will require the contractor to direct lighting onto the immediate area under construction only and to avoid shining lights toward residences, nighttime commercial properties, and oncoming traffic lanes.

Attachment E

Supplemental Biological

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (San Rafael (3712285))
 AND Taxonomic Group IS (Dune OR Scrub OR Herbaceous OR Marsh OR Riparian OR Woodland OR Forest OR Alpine OR Inland Waters OR Marine OR Estuarine OR Riverine OR Palustrine OR Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes OR Fungi)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Adela oplerella Opler's longhorn moth	G2 S2	None None		400 400	14 S:1	0	0	0	0	0	1	1	0	1	0	0
Amorpha californica var. napensis Napa false indigo	G4T2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	500 2,000	76 S:11	0	0	0	0	1	10	3	8	10	1	0
Amsinckia lunaris bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBBG-UC Berkeley Botanical Garden SB_UCSC-UC Santa Cruz		93 S:1	0	0	0	0	0	1	0	1	1	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	40 45	420 S:2	0	0	0	0	0	2	2	0	2	0	0
Arctostaphylos montana ssp. montana Mt. Tamalpais manzanita	G3T3 S3	None None	Rare Plant Rank - 1B.3 SB_UCBBG-UC Berkeley Botanical Garden	500 2,220	15 S:9	0	1	0	0	0	8	7	2	9	0	0
Arctostaphylos virgata Marin manzanita	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	200 2,625	32 S:8	0	0	0	1	0	7	7	1	8	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	80 100	155 S:2	0	0	0	0	0	2	2	0	2	0	0
Bombus caliginosus obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	100 2,500	181 S:5	0	0	0	0	0	5	5	0	5	0	0
Bombus occidentalis western bumble bee	G2G3 S1	None Candidate Endangered	USFS_S-Sensitive XERCES_IM-Imperiled	50 2,000	280 S:5	0	0	0	0	0	5	5	0	5	0	0
Calamagrostis crassiglumis Thurber's reed grass	G3Q S2	None None	Rare Plant Rank - 2B.1		15 S:1	0	0	0	0	0	1	1	0	1	0	0
Callophrys mossii marinensis Marin elfin butterfly	G4T1 S1	None None		796 796	4 S:1	1	0	0	0	0	0	0	1	1	0	0
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	G4?T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	4 7	76 S:7	0	3	0	0	1	3	2	5	6	1	0
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	G2T1 S1	None None	Rare Plant Rank - 1B.2	1,800 1,800	17 S:1	0	0	0	0	0	1	1	0	1	0	0
Cirsium hydrophilum var. vaseyi Mt. Tamalpais thistle	G2T1 S1	None None	Rare Plant Rank - 1B.2	760 2,000	14 S:7	1	4	0	0	0	2	3	4	7	0	0
Coastal Brackish Marsh Coastal Brackish Marsh	G2 S2.1	None None		15 15	30 S:1	0	0	1	0	0	0	1	0	1	0	0
Coastal Terrace Prairie Coastal Terrace Prairie	G2 S2.1	None None		400 400	8 S:1	0	0	0	0	0	1	1	0	1	0	0
Corynorhinus townsendii Townsend's big-eared bat	G3G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	150 280	635 S:2	0	1	0	0	0	1	1	1	2	0	0
Dicamptodon ensatus California giant salamander	G3 S2S3	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	84 1,300	234 S:9	2	3	0	1	0	3	2	7	9	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Dirca occidentalis western leatherwood	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	2,000 2,000	71 S:1	0	0	0	0	0	1	0	1	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	180 784	1385 S:3	0	0	2	0	0	1	0	3	3	0	0
Eriogonum luteolum var. caninum Tiburon buckwheat	G5T2 S2	None None	Rare Plant Rank - 1B.2	312 2,100	26 S:10	0	0	0	0	0	10	7	3	10	0	0
Eucyclogobius newberryi tidewater goby	G3 S3	Endangered None	AFS_EN-Endangered CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	10 10	127 S:1	0	0	0	0	1	0	1	0	0	0	1
Fissidens pauperculus minute pocket moss	G3? S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	1,000 1,000	22 S:2	0	0	0	0	0	2	2	0	2	0	0
Fritillaria lanceolata var. tristulis Marin checker lily	G5T2 S2	None None	Rare Plant Rank - 1B.1	600 600	32 S:1	0	0	0	0	0	1	1	0	1	0	0
Gilia millefoliata dark-eyed gilia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		54 S:1	0	0	0	0	0	1	1	0	1	0	0
Helianthella castanea Diablo helianthella	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		107 S:1	0	0	0	0	0	1	1	0	1	0	0
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_UCBBG-UC Berkeley Botanical Garden	492 1,400	52 S:2	0	0	0	0	0	2	2	0	2	0	0
Hesperolinon congestum Marin western flax	G1 S1	Threatened Threatened	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	1,065 1,065	27 S:2	0	1	0	0	0	1	1	1	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Holocarpha macradenia Santa Cruz tarplant	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	120 120	37 S:2	0	0	0	0	1	1	2	0	1	1	0
Horkelia tenuiloba thin-lobed horkelia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	1,100 2,100	27 S:4	1	2	0	0	0	1	2	2	4	0	0
Kopsiopsis hookeri small groundcone	G4? S1S2	None None	Rare Plant Rank - 2B.3	400 1,785	21 S:4	0	0	1	0	0	3	3	1	4	0	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority	180 180	238 S:1	0	0	0	0	0	1	1	0	1	0	0
Laterallus jamaicensis coturniculus California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	4 9	303 S:4	0	2	0	1	1	0	1	3	3	1	0
Lessingia micradenia var. micradenia Tamalpais lessingia	G2T2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	200 1,000	9 S:6	0	1	0	0	0	5	4	2	6	0	0
Melospiza melodia samuelis San Pablo song sparrow	G5T2 S2	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	5 10	41 S:3	0	1	0	0	0	2	2	1	3	0	0
Microseris paludosa marsh microseris	G2 S2	None None	Rare Plant Rank - 1B.2 SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz	500 500	38 S:2	0	0	0	0	0	2	2	0	2	0	0

Summary Table Report

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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Navarretia rosulata Marin County navarretia	G2 S2	None None	Rare Plant Rank - 1B.2	1,150 2,100	15 S:7	0	1	0	0	0	6	3	4	7	0	0
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	G3 S3.2	None None		10 15	53 S:2	0	1	1	0	0	0	2	0	2	0	0
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	G4 S2?	Endangered Endangered	AFS_EN-Endangered	130 130	23 S:1	0	0	0	0	0	1	1	0	1	0	0
Pentachaeta bellidiflora white-rayed pentachaeta	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	120 400	14 S:6	0	0	0	0	5	1	6	0	1	0	5
Plagiobothrys glaber hairless popcornflower	GH SH	None None	Rare Plant Rank - 1A		9 S:1	0	0	0	0	1	0	1	0	0	1	0
Pleuropogon hooverianus North Coast semaphore grass	G2 S2	None Threatened	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_BerrySB-Berry Seed Bank SB_RSABG-Rancho Santa Ana Botanic Garden		27 S:1	0	0	0	0	1	0	1	0	0	1	0
Polygonum marinense Marin knotweed	G2Q S2	None None	Rare Plant Rank - 3.1	5 5	32 S:2	0	0	2	0	0	0	2	0	2	0	0
Pomatiopsis binneyi robust walker	G1 S1	None None		2,040 2,040	2 S:1	0	0	0	0	0	1	1	0	1	0	0
Quercus parvula var. tamalpaisensis Tamalpais oak	G4T2 S2	None None	Rare Plant Rank - 1B.3	500 2,000	9 S:6	0	1	0	1	0	4	6	0	6	0	0
Rallus obsoletus obsoletus California Ridgway's rail	G5T1 S1	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	2 10	99 S:4	0	1	0	0	1	2	2	2	3	1	0
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	38 1,975	2468 S:11	0	2	0	0	8	1	9	2	3	1	7
Reithrodontomys raviventris salt-marsh harvest mouse	G1G2 S1S2	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	1 4	144 S:4	0	0	0	2	1	1	4	0	3	1	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Serpentine Bunchgrass	G2	None		1,000	22	0	0	0	0	0	1	1	0	1	0	0
Serpentine Bunchgrass	S2.2	None		1,000	S:1											
Sidalcea calycosa ssp. rhizomata	G5T2	None	Rare Plant Rank - 1B.2	300	34	0	0	0	0	0	1	1	0	1	0	0
Point Reyes checkerbloom	S2	None		300	S:1											
Sidalcea hickmanii ssp. viridis	G3TH	None	Rare Plant Rank - 1B.1	500	4	0	0	0	0	0	1	1	0	1	0	0
Marin checkerbloom	SH	None		500	S:1											
Spirinchus thaleichthys	G5	Candidate		0	46	0	0	0	0	0	1	0	1	1	0	0
longfin smelt	S1	Threatened		0	S:1											
Stebbinsoseris decipiens	G2	None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCSC-UC Santa Cruz	460	19	0	0	0	0	1	2	1	2	2	1	0
Santa Cruz microseris	S2	None		2,450	S:3											
Streptanthus batrachopus	G2	None	Rare Plant Rank - 1B.3	1,840	8	0	1	1	0	0	3	3	2	5	0	0
Tamalpais jewelflower	S2	None		2,200	S:5											
Streptanthus glandulosus ssp. pulchellus	G4T2	None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	500	24	3	2	0	0	0	3	6	2	8	0	0
Mt. Tamalpais bristly jewelflower	S2	None		2,200	S:8											
Trachusa gummifera	G1	None		1,130	2	0	0	0	0	0	1	1	0	1	0	0
San Francisco Bay Area leaf-cutter bee	S1	None		1,130	S:1											
Trifolium amoenum	G1	Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden SB_USDA-US Dept of Agriculture		26	0	0	0	0	0	1	1	0	1	0	0
two-fork clover	S1	None			S:1											
Tryonia imitator	G2	None	IUCN_DD-Data Deficient	0	39	0	0	0	0	1	0	1	0	0	0	1
mimic tryonia (=California brackishwater snail)	S2	None		0	S:1											
Vespericola marinensis	G2	None		25	23	0	0	0	0	0	3	3	0	3	0	0
Marin hesperian	S2	None		600	S:3											

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

37 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3], Found in Quad 3712285

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	Apr-Jul	1B.2	S2	G4T2
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	1B.2	S3	G3
Arctostaphylos montana ssp. montana	Mt. Tamalpais manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	1B.3	S3	G3T3
Arctostaphylos virgata	Marin manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	1B.2	S2	G2
Calamagrostis crassiglumis	Thurber's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	2B.1	S2	G3Q
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	1B.2	S2	G4?T2
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	Apr-Jul(Aug)	1B.2	S1	G2T1
Cirsium hydrophilum var. vaseyi	Mt. Tamalpais thistle	Asteraceae	perennial herb	May-Aug	1B.2	S1	G2T1
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
Eriogonum luteolum var. caninum	Tiburon buckwheat	Polygonaceae	annual herb	May-Sep	1B.2	S2	G5T2
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		1B.2	S2	G3?
Fritillaria lanceolata var. tristulis	Marin checker lily	Liliaceae	perennial bulbiferous herb	Feb-May	1B.1	S2	G5T2
Gilia capitata ssp. tomentosa	woolly-headed gilia	Polemoniaceae	annual herb	May-Jul	1B.1	S1	G5T1
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	1B.2	S2	G2
Grindelia hirsutula var. maritima	San Francisco gumplant	Asteraceae	perennial herb	Jun-Sep	3.2	S1	G5T1Q
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	1B.2	S2	G5T2
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	1B.1	S1	G1
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
Horkelia tenuiloba	thin-lobed horkelia	Rosaceae	perennial herb	May-Jul(Aug)	1B.2	S2	G2
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	2B.3	S1S2	G4?
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S2S3	G3?
Lessingia micradenia var. micradenia	Tamalpais lessingia	Asteraceae	annual herb	(Jun)Jul-Oct	1B.2	S2	G2T2
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	1B.2	S2	G2

Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
Navarretia rosulata	Marin County navarretia	Polemoniaceae	annual herb	May-Jul	1B.2	S2	G2
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
Plagiobothrys glaber	hairless popcornflower	Boraginaceae	annual herb	Mar-May	1A	SH	GH
Pleuropogon hooverianus	North Coast semaphore grass	Poaceae	perennial rhizomatous herb	Apr-Jun	1B.1	S2	G2
Polygonum marinense	Marin knotweed	Polygonaceae	annual herb	(Apr)May-Aug(Oct)	3.1	S2	G2Q
Quercus parvula var. tamalpaisensis	Tamalpais oak	Fagaceae	perennial evergreen shrub	Mar-Apr	1B.3	S2	G4T2
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Malvaceae	perennial rhizomatous herb	Apr-Sep	1B.2	S2	G5T2
Stebbinsoseris decipiens	Santa Cruz microseris	Asteraceae	annual herb	Apr-May	1B.2	S2	G2
Streptanthus batrachopus	Tamalpais jewelflower	Brassicaceae	annual herb	Apr-Jul	1B.3	S2	G2
Streptanthus glandulosus ssp. pulchellus	Mt. Tamalpais bristly jewelflower	Brassicaceae	annual herb	May-Jul(Aug)	1B.2	S2	G4T2
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1

Suggested Citation

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IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Marin County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. 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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse Reithrodontomys raviventris No critical habitat has been designated for this species. 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. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern Sterna antillarum browni No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Short-tailed Albatross Phoebastria (=Diomedea) albatrus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS

Green Sea Turtle Chelonia mydas — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6199

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii	Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus	Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	
Tidewater Goby Eucyclogobius newberryi	Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/57	

Insects

NAME	STATUS
Mission Blue Butterfly Icaricia icarioides missionensis	Endangered
There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/6928	
Myrtle's Silverspot Butterfly Speyeria zerene myrtleae	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6929	
San Bruno Elfin Butterfly Callophrys mossii bayensis	Endangered
There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3394	

Flowering Plants

NAME	STATUS
Marin Dwarf-flax Hesperolinon congestum	Threatened
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5363	
Santa Cruz Tarplant Holocarpha macradenia	Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6832	
Showy Indian Clover Trifolium amoenum	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6459	
White-rayed Pentachaeta Pentachaeta bellidiflora	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7782	

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

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.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

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 and/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.

Facilities

National Wildlife Refuge lands

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 AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Table E-1. Plant Species Known to Occur or Potentially Occur in Kentfield

Species	Status[a]	Habitat/ Blooming Period	Distribution and Potential for Occurrence within APE
Minute pocket moss *Fissidens pauperculus*	1B	North Coast coniferous forest (damp coastal soil)	Reported by CNDDB in the general Mt. Tamalpais State Park area. No suitable habitat in APE.
Bent-flowered fiddleneck *Amsinckia lunaris*	1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. March-June	Suitable grassland and woodland habitat absent in the APE. No potential for occurrence in APEs.
Congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	1B	Valley and foothill grasslands, sometimes roadside. April-November	Suitable habitat absent in APE. No potential for occurrence in APE.
Dark-eyed gilia *Gilia millefoliata*	1B	Found in coastal strand habitat. April-July	Suitable habitat absent in APE. No potential for occurrence in APE.
Diablo helianthella *Helianthella castanea*	1B	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. March-June	Suitable interface of chaparral, forest, woodland, and grassland habitat absent in APE. No potential for occurrence in APE.
Hairless popcornflower *Plagiobothrys glaber*	1A	Coastal salt marshes, alkaline meadows, and seeps. March-May	Suitable habitat absent in APE. Reported by CNDDB near Pickleweed inlet in 1924. No potential for occurrence in APE.
Marin checkerbloom *Sidalcea hickmanii ssp. viridis*	1B	Chaparral, typically with serpentine substrate. May-June	Suitable habitat absent in APE. Reported by CNDDB near Stinson Beach in 1976. No potential for occurrence in APE.
Marin County navarretia *Navarretia rosulata*	1B	Closed-cone coniferous forest and chaparral on serpentine. May-July	Suitable forest and chaparral habitat absent in APE. Closest CNDDB occurrence is on Mount Tamalpais, over 3 miles to the west of the Kentfield vicinity. No potential for occurrence in APE.
Marin knotweed *Polygonum marinense*	3	Coastal salt marshes, brackish water marsh, and riparian wetlands. May-August	Reported by CNDDB near the Corte Madera Creek approximately 1 mile south of the Kentfield vicinity. No potential for occurrence in APE - no suitable habitat.
Marin manzanita *Arctostaphylos virgata*	1B	Broadleafed upland forest, closed-cone coniferous forest, chaparral, North Coast coniferous forest on sandstone, or granitic substrates. January-March	Suitable chaparral and forest habitat absent in the APE. No potential for occurrence in APE.
Marin western flax *Hesperolinon congestum*	FE; ST; 1B	Serpentine barrens and serpentine grassland and chaparral. April-July	Suitable grassland habitat absent in APE. Closest CNDDB occurrence is from a record in the 1880s generally reported from the vicinity of San Rafael. No potential for occurrence in APE.
Marsh microseris *Microseris paludosa*	1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. April-June	Suitable forest, woodland, scrub and grassland habitat absent in APE. Reported by CNDDB from a general occurrence in the Corte Madera area.
Mt. Tamalpais bristly jewelflower *Streptanthus glandulosus ssp. pulchellus*	1B	Serpentine slopes. May-July (August rarely)	Suitable habitat is absent in the Kentfield area. Closest CNDDB record is from an occurrence over 3 miles southwest of APE. No potential for occurrence in APE.
Mt. Tamalpais manzanita *Arctostaphylos montana ssp. Montana*	1B	Chaparral, valley and foothill grassland/serpentinite, rocky. February-April	Suitable chaparral and grassland habitat absent in the APE. No potential for occurrence in APE.
Mt. Tamalpais thistle *Cirsium hydrophilum var. vaseyi*	1B	Serpentine seeps and streams in chaparral and woodland. May-August	Suitable seep habitat in chaparral and woodlands absent in APE. No potential for occurrence in APEs.

Table E-1. Plant Species Known to Occur or Potentially Occur in Kentfield

Species	Status[a]	Habitat/ Blooming Period	Distribution and Potential for Occurrence within APE
Napa false indigo *Amorpha californica var. napensis*	1B	Openings in broadleafed upland forest, chaparral, cismontane woodland. April-July	Suitable habitat absent in APE. No potential for occurrence in APE.
Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	1B	Freshwater marshes near the coast. April-September	Suitable habitat absent in APE. No potential for occurrence in APE.
Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	1B	Coastal salt marsh and swamps. June-October	Suitable habitat absent in APE. No potential for occurrence in APE.
San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	1B	Sandy soil on terraces and slopes in coastal bluff, coastal dunes, coastal scrub, and coastal prairie habitat. April- July (August rarely)	Suitable grassland and scrub habitat absent in APE. No potential for occurrence in APEs.
Santa Cruz microseris *Stebbinsoseris decipiens*	1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. April-May	Suitable habitat absent in APE. No potential for occurrence in APE.
Santa Cruz tarplant *Holocarpha macradenia*	FT; SE; 1B	Light, sandy soil or sandy clay, often with non-natives in coastal prairie and grasslands. June-October	Suitable habitat absent in APE. No potential for occurrence in APE.
small groundcone *Kopsiopsis hookeri*	2	Open woods, shrubby places, generally on Gaultheria shallon. April-August	Suitable forest and woodland habitat where host species is present absent in APE. No potential for occurrence in APE.
Tamalpais jewelflower *Streptanthus batrachopus*	1B	Closed-cone coniferous forest, chaparral, Talus serpentine outcrops. April-June	Suitable forest and chaparral habitat is generally limited in Kentfield vicinity. No potential for occurrence in APE.
Tamalpais lessingia *Lessingia micradenia var. micradenia*	1B	Usually on serpentine, in serpentine grassland or chaparral, often on roadsides. (June rarely) July-October	Suitable grassland habitat absent in APE. No potential for occurrence in APE.
Tamalpais oak *Quercus parvula var. tamalpaisensis*	1B	Lower montane coniferous forest. March-April	Suitable habitat is present in areas of forest and woodland. Closest CNDDB record is from an unknown location in the Mill Valley vicinity approximately 1 mile south of APE. No potential for occurrence in APE.
thin-lobed horkelia *Horkelia tenuiloba*	1B	Broadleafed upland forest, chaparral, valley and foothill grassland on sandy soils, mesic openings. May-July	Suitable forest, chaparral, and grassland habitat absent in APE. No potential for occurrence in APE.
Tiburon buckwheat Eriogonum luteolum var. caninum	1B	Serpentine soils; sandy to gravelly sites. May-September	Suitable habitat absent in APE. No potential for occurrence in APE.
two-fork clover *Trifolium amoenum*	FE; 1B	Coastal bluff scrub, valley and foothill grassland, sometimes on serpentinite. April-June	Suitable grassland and scrub habitat is generally absent from Kentfield vicinity. No potential for occurrence in APE.
western leatherwood *Dirca occidentalis*	1B	Wetland seeps and riparian areas in chaparral, foothill woodland, and forest habitats. January-March	Suitable habitat absent in APE. No potential for occurrence in APE.
white-rayed pentachaeta Pentachaeta bellidiflora	FE; ST; 1B	Cismontane woodland, valley and foothill grassland on open, dry rocky slopes and grassy areas, often on serpentinite. March-May	Suitable grassland and woodland habitat absent in APE. Several occurrences have been reported by the CNDDB less than a mile north of the Kentifled vicinity. No potential for occurrence in APE.

Table E-1. Plant Species Known to Occur or Potentially Occur in Kentfield

Species	Status[a]	Habitat/ Blooming Period	Distribution and Potential for Occurrence within APE
Marin checker lily *Fritillaria lanceolata var. tristulis*	1B	Coastal scrub, valley and foothill grassland, and coastal prairie; often on serpentine; various soils reported though usually clay. February-April	Suitable habitat absent in APE. No potential for occurrence in APE.
woolly-headed gilia *Gilia capitata ssp. tomentosa*	1B	Serpentinite, rocky, outcrops; Coastal bluff scrub; Valley and foothill grassland. May-July	Reported from CNPS inventory - Suitable habitat absent in APE. No potential for occurrence in APE.
San Francisco gumplant *Grindelia hirsutula var. maritima*	3	Sandy or serpentinite; Coastal bluff scrub; Coastal scrub; Valley and foothill grassland. June-September.	Reported from CNPS inventory - Suitable habitat absent in APE. No potential for occurrence in APE.
woolly-headed lessingia *Lessingia hololeuca*	3	Clay, serpentinite; Broadleafed upland forest; Coastal scrub; Lower montane coniferous forest; Valley and foothill grassland. June-October	Reported from CNPS inventory - Suitable habitat absent in APE. No potential for occurrence in APE.
Mt. Diablo cottonweed *Micropus amphibolus*	3	Rocky; Broadleafed upland forest; Chaparral; Cismontane woodland; Valley and foothill grassland. March-May	Reported from CNPS inventory - Suitable habitat absent in APE. No potential for occurrence in APE.
marsh microseris *Microseris paludosa*	1B	Closed-cone coniferous forest; Cismontane woodland; Coastal scrub Valley and foothill grassland. April-June	Reported from CNPS inventory - Suitable habitat absent in APE. No potential for occurrence in APE.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	1B	Mesic; Cismontane woodland; Lower montane coniferous forest; Meadows and seeps; Valley and foothill grassland; Vernal pools. April-July	Reported from CNPS inventory - Suitable habitat absent in APE. No potential for occurrence in APE.
North Coast semaphore grass *Pleuropogon hooverianus*	ST; 1B	Wet grassy, usually shady areas, sometimes in freshwater marsh, associated with forest environments. April-June	Suitable habitat absent in APE. No potential for occurrence in APE.
Thurber's reed grass *Calamagrostis crassiglumis*	2	Freshwater marsh in northern coastal scrub, freshwater wetlands and riparian wetlands. March-July	Suitable habitat absent in APE. No potential for occurrence in APE.

Notes:
APE = area of potential effect
CNDDB = California Natural Diversity Database
CNPS = California Native Plant Society

Status[a]
FE = federally endangered
ST = State threatened
1A = Presumed extinct in California
1B = Rare, threatened or endangered in California and elsewhere
2 = Rare, threatened, or endangered in California, but more common elsewhere
3 = Review List: Plants about which more information is needed

Table E-2. Animal Species Known to Occur or Potentially Occur near Kentfield

Species	Status[a]	Habitat	Distribution and Potential for Occurrence within APE
Fish			
Coho salmon (Central California Coast ESU) *Oncorhynchus kisutch*	FE, SE	Coastal streams from Punta Gorda in northern California down to and including the San Lorenzo River in central California, as well as some tributaries to San Francisco Bay	Species historically occurred in Corte Madera Creek but is considered extinct in the watershed.1 Species last recorded from San Francisco Bay tributary during early-to-mid 1980s. 2 Corte Madera Creek is designated as critical habitat (San Pablo Bay hydrologic unit #18050002) and essential fish habitat for this species. No suitable habitat in APE.
Longfin smelt *Spirinchus thaleichthys*	FC; ST	Open water estuaries and bays, both in saltwater and freshwater areas	Reported from San Pablo Bay. No suitable habitat in the APE.
Tidewater goby *Eucyclogobius newberryi*	FE; SSC	Brackish shallow lagoons and lower stream reaches where water is fairly still but not stagnant	Closest CNDDB record is of an extirpated population recorded in 1961 in Corte Madera Creek. Species is considered extirpated in the region. No suitable habitat in APE.
Delta smelt *Hypomesus transpacificus*	FT	Found in the Sacramento-San Joaquin estuary in saltwater, brackish and freshwater habitats	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Amphibians and Reptiles			
California giant salamander *Dicamptodon ensatus*	SSC	Ponds, streams, drainages and associated uplands; prefers fast moving water in coastal forests and valley-foothill riparian habitats with cover.	A general occurrence is reported by the CNDDB from the Corte Madera vicinity. No suitable habitat in the APE.
Foothill yellow-legged frog *Rana boylii*	SC; SSC	Perennial streams and drainages with cobble substrate.	CNDDB does not contain any occurrence records within 2 miles of the Kentfield area. No suitable habitat in the APE.
Western pond turtle *Emys marmorata*	SSC	Ponds, streams with deep pools, drainages and associated uplands for egg laying	Generally occurs in Lagunitas Lake and Alpine Lake and other freshwater/brackish features where suitable basking areas (sandy banks and rocks) are present. No suitable habitat in the APE.
Green sea turtle *Chelonia mydas*	FT	Bays and protected shores	Reported by IPaC - West coasts of North and South America from Baja California to Peru. No suitable habitat in the APE.
California red-legged frog *Rana draytonii*	FT	Ponds, streams, drainages and associated uplands; requires areas of deep, still, and/or slow-moving water for breeding.	CNDDB does not contain any occurrence records within 2 miles of the Kentfield area. No suitable habitat in the APE.
Invertebrates			
Marin elfin butterfly *Callophrys mossii marinensis*	none	Rocky outcrops and cliffs in coastal shrub.	Reported by CNDDB near Lagunitas Lake. No suitable habitat in APE.
Obscure bumble bee *Bombus caliginosus*	none	Coastal areas from Santa Barbara County to Washington.	Reported by the CNDDB from the Mill Valley area in 1949 and 1959, Mt. Tamalpais, and other locations in Marin County. No suitable habitat in APE.
Opler's longhorn moth *Adela oplerella*	none	Typically found on serpentine grasslands where larval host plant, Platystemon californicus, is present.	Reported by the CNDDB from Ring Mountain Preserve in 1967. No suitable habitat in APE.

Table E-2. Animal Species Known to Occur or Potentially Occur near Kentfield

Species	Status[a]	Habitat	Distribution and Potential for Occurrence within APE
San Francisco Bay Area leaf-cutter bee *Trachusa gummifera*	none	A pollen-collecting bee known from grassland habitat and areas with suitable nectaring plants	Reported by the CNDDB from a general occurrence on Carson Ridge in 1962. No suitable habitat in APE.
Western bumble bee *Bombus occidentalis*	SC	Found in a variety of habitats. Once common and widespread. Species has declined precipitously, perhaps from disease	Reported from general occurrences in the Corte Madera area, and may remain in a variety of habitats. No suitable habitat in APE.
Marin hesperian *Vespericola marinensis*	none	Found in moist areas in coastal brushfields and chaparral, in riparian and mixed forest habitats	Reported by the CNDDB from the general vicinity of Fairfax, Ross, and Muir Woods. No suitable habitat in APE.
California brackishwater snail *Tryonia imitator*	none		Closest CNDDB record is of an extirpated population recorded in 1897 in the San Pablo Bay Wildlife Area. Species is considered extirpated in the region. No suitable habitat in APE.
Robust walker *Pomatiopsis binneyi*	none	Amphibious snail living in humid habitat along the Coast Range, on marshy ground and periodically flooded soil. Typically associated with perennial seeps and rivulets.	No CNDDB reported occurrences in the Kentfield Area. No suitable habitat in APE.
Mission blue butterfly *Icaricia icarioides missionensis*	FE	Found in coastal chaparral, scrub and grassland habitat where larval host plant, Lupinus spp., are present	Reported by IPaC - no CNDDB reported occurrences in the Kentfield area. No suitable habitat.
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	FE	Found in coastal prairie, coastal scrub and sand dunes where larval host plant, Viola adunca, is present	Reported by IPaC - no CNDDB reported occurrences in the Kentfield area. No suitable habitat.
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	Colonies are located on steep, north-facing slopes where larval host plant, Sedum spathulifolium, is present	Reported by IPaC - no CNDDB reported occurrences in the Kentfield area. No suitable habitat.
Birds			
California black rail *Laterallus jamaicensis coturniculus*	SC; CFP	Salt marshes bordering larger bays, also found in brackish and freshwater marshes	Reported by CNDDB from Corte Madera Marsh State Ecological Reserve and Creekside Park. No suitable habitat in APE.
California Ridgway's rail *Rallus obsoletus obsoletus*	FE; SE; CFP	Tidal salt marshes with sloughs and substantial cordgrass (Spartina sp.) cover	Reported by CNDDB from Corte Madera Marsh State Ecological Reserve and Creekside Park. No suitable habitat in APE.
Great blue heron *Ardea herodias*	none	Relatively common species, found foraging in a variety of aquatic habitats including shorelines of lakes, ponds, and drainages.	Reported by CNDDB near the Strawberry Point Tidal area. No suitable habitat in APE.
San Pablo song sparrow *Melospiza melodia samuelis*	SSC	Tidal salt marshes dominated by pickleweed; nests primarily in pickleweed and marsh gumplant.	Reported by CNDDB from Corte Madera Marsh State Ecological Reserve. No suitable habitat in APE.
California clapper rail *Rallus longirostris obsoletus*	FE	Tidal salt marshes with sloughs and substantial cordgrass (Spartina sp.) cover	Reported by CNDDB from Corte Madera Marsh State Ecological Reserve and Creekside Park. No suitable habitat in APE.
California least tern *Sterna antillarum browni*	FE	Found along the Pacific coast, foraging in shallow estuaries and lagoons, and nesting on open beaches	Reported by IPaC - No suitable habitat in the APE.

Table E-2. Animal Species Known to Occur or Potentially Occur near Kentfield

Species	Status[a]	Habitat	Distribution and Potential for Occurrence within APE
Marbled Murrelet *Brachyramphus marmoratus*	FT	Forages at sea and utilizes mature conifer forest for nesting.	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Northern spotted owl *Strix occidentalis caurina*	FT	Dense forest and woodland, with suitable prey	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Short-tailed albatross *Phoebastria (=Diomedea) albatrus*	FE	A large sea bird that nests in the Hawaiian archipelago, foraging over the open ocean	Reported by IPaC - No suitable habitat in the APE.
Western snowy plover *Charadrius nivosus nivosus*	FT	Found along the Pacific coast and nests in barren to sparsely vegetated beaches and other shoreline areas	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Mammals			
Hoary bat *Lasiurus cinereus*	none	Prefers open habitats with access to trees for cover, roosting in dense foliage	Reported by the CNDDB from a general occurrence at Phoenix Lake in 1948.
Pallid bat *Antrozous pallidus*	SSC	A variety of open arid habitats (e.g., chaparral, open woodland, deserts); primary roost sites include bridges, old buildings, and in tree hollows and/or bark; sometimes roost in caves and rock crevices	May forage over open grassland and marshland habitats, but no active roosts are known from the Ross area, north of Kentfield. The CNDDB records include occurrences from 1891 and 1961 collected at unknown locations in the vicinity of San Rafael and Ross, respectively. No suitable habitat in the APE.
Salt-marsh harvest mouse *Reithrodontomys raviventris*	FE; SE; CFP	Tidal salt marshes of San Francisco Bay and its tributaries. Requires tall, dense pickleweed for cover	Reported by CNDDB from Corte Madera Marsh State Ecological Reserve and Creekside Park, and may disperse along suitable tidal habitat along Corte Madera Creek. No suitable habitat in the APE.
Townsend's big-eared bat Corynorhinus townsendii		Roots in the open in a variety of habitats, including tree cavities, caves and old buildings. Extremely sensitive to human disturbance	Reported by CNDDB from Muir Woods. No suitable habitat in APE.

Source: Based on CNDDB occurences unless otherwise noted.

Notes:
APE = area of potential effect
CNDDB = California Natural Diversity Database
IPaC = Information for Planning and Consultation

Status[a]
CFP = California Fully Protected Species
ESU = Evolutionarily Significant Unit
FE = federally endangered
FT = federally threatened
FC = Federal candidate
SE = State endangered
ST = State threatened
SC = State candidate
SSC = California Species of Special Concern

Attachment F

RoadMod Outputs

Road Construction Emissions Model
Data Entry Worksheet

Version 9.0.0

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Laurel Grove - total project	
Construction Start Year	2020	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	3.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.80	miles
Total Project Area	0.75	acres
Maximum Area Disturbed/Day	0.01	acres
Water Trucks Used?	2	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	0.00	0.00	0.00
	Grading/Excavation	20.00	36.00	18.00
	Drainage/Utilities/Sub-Grade	0.00	0.00	0.00
	Paving	0.00	0.00	0.00
Asphalt	Grubbing/Land Clearing	0.00	0.00	0.00
	Grading/Excavation	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	0.00	0.00	0.00
	Paving	20.00	3.00	3.00

Mitigation Options

On-road Fleet Emissions Mitigation	2010 and Newer On-road Vehicles Fleet	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	20% NOx and 45% Exhaust PM reduction	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		0.30		1/1/2020
Grading/Excavation		1.20		1/11/2020
Drainage/Utilities/Sub-Grade		1.05		2/17/2020
Paving		0.45		3/20/2020
Totals (Months)	3			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation	140.00			3	420.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Grading/Excavation (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Paving (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.04	0.39	2.82	0.10	0.05	0.02	1,668.32	0.00	0.26	1,746.51
Tons per const. Period - Grading/Excavation	0.00	0.01	0.04	0.00	0.00	0.00	22.02	0.00	0.00	23.05
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.01	0.04	0.00	0.00	0.00	22.02	0.00	0.00	23.05

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving	10.00			1	10.00

2010+ Model Year Mitigation Option Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Grading/Excavation (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Paving (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.01	0.07	0.00	0.00	0.00	39.72	0.00	0.01	41.58
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.21
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.21

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values		
Miles/ one-way trip	30		Calculated Daily Trips	Calculated Daily VMT
One-way trips/day	1			
No. of employees: Grubbing/Land Clearing	5		5	150.00
No. of employees: Grading/Excavation	20		20	600.00
No. of employees: Drainage/Utilities/Sub-Grade	10		10	300.00
No. of employees: Paving	10		10	300.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Grading/Excavation (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Paving (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Grubbing/Land Clearing (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Grading/Excavation (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Draining/Utilities/Sub-Grade (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Paving (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.02	0.44	0.04	0.02	0.01	0.00	116.87	0.00	0.00	117.93
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.39

Pounds per day - Grading/Excavation	0.09	1.75	0.16	0.06	0.03	0.00	467.47	0.01	0.01	471.72
Tons per const. Period - Grading/Excavation	0.00	0.02	0.00	0.00	0.00	0.00	6.17	0.00	0.00	6.23
Pounds per day - Drainage/Utilities/Sub-Grade	0.04	0.88	0.08	0.03	0.01	0.00	233.74	0.01	0.01	235.86
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.00	0.00	0.00	0.00	2.70	0.00	0.00	2.72
Pounds per day - Paving	0.04	0.88	0.08	0.03	0.01	0.00	233.74	0.01	0.01	235.86
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00	1.17
Total tons per construction project	0.00	0.04	0.00	0.00	0.00	0.00	10.41	0.00	0.00	10.51

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated	User Override of	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Round Trips/Vehicle/Day	Round Trips/Vehicle/Day	Trips/day	Miles/Round Trip	Miles/Round Trip	Daily VMT
Grubbing/Land Clearing - Exhaust								0.00
Grading/Excavation - Exhaust	0							0.00
Drainage/Utilities/Subgrade								0.00
Paving								0.00

2010+ Model Year Mitigation Option Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Grading/Excavation (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Paving (grams/mile)	0.04	0.42	3.03	0.11	0.05	0.02	1,801.75	0.00	0.28	1,886.20
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			0.20	0.00	0.04	0.00
Fugitive Dust - Grading/Excavation			0.20	0.00	0.04	0.00
Fugitive Dust - Drainage/Utilities/Subgrade			0.20	0.00	0.04	0.00

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing

Emissions reflect reduction due to 20% NOx and 45% Exhaust PM reduction Mitigation Option Selected

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation

Emissions reflect reduction due to 20% NOx and 45% Exhaust PM reduction Mitigation Option Selected

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.60
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.01	0.04	0.06	0.00	0.00	0.00	10.06	0.00	0.00	10.11
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.21	1.31	1.90	0.04	0.04	0.01	553.45	0.18	0.01	559.42
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day

Number of Vehicles	Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation		pounds per day	0.22	1.36	1.97	0.04	0.04	0.01	564.11	0.18	0.01	570.14
Grading/Excavation		tons per phase	0.00	0.02	0.03	0.00	0.00	0.00	7.45	0.00	0.00	7.53

Drainage/Utilities/Subgrade

Emissions reflect reduction due to 20% NOx and 45% Exhaust PM reduction Mitigation Option Selected

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade		pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade		tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving

Emissions reflect reduction due to 20% NOx and 45% Exhaust PM reduction Mitigation Option Selected

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rollers	0.02	0.13	0.10	0.00	0.00	0.00	14.10	0.00	0.00	14.25
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Skid Steer Loaders	0.02	0.40	0.24	0.01	0.01	0.00	56.97	0.02	0.00	57.59
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
1.00			Model Default Tier	Sweepers/Scrubbers	0.02	0.12	0.12	0.01	0.01	0.00	15.39	0.00	0.00	15.55
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	0.06	0.65	0.46	0.02	0.02	0.00	86.46	0.03	0.00	87.39
Paving	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.43
Total Emissions all Phases (tons per construction period) =>		0.00	0.02	0.03	0.00	0.00	0.00	7.87	0.00	0.00	7.96

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors	1.00	78	1.00	8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws	11.00	81	1.00	8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators	200.00	158	7.00	8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers	32.00	80	1.00	8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders	74.00	65	2.00	8
Surfacing Equipment		263		8
Sweepers/Scrubbers	64.00	64	0.50	8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Laurel Grove - total project

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.02	0.44	0.04	0.22	0.02	0.20	0.05	0.01	0.04	0.00	116.87	0.00	0.00	117.93
Grading/Excavation	0.35	3.50	4.96	0.41	0.21	0.20	0.15	0.11	0.04	0.03	2,699.91	0.19	0.28	2,788.37
Drainage/Utilities/Sub-Grade	0.04	0.88	0.08	0.23	0.03	0.20	0.05	0.01	0.04	0.00	233.74	0.01	0.01	235.86
Paving	0.11	1.53	0.61	0.05	0.05	0.00	0.03	0.03	0.00	0.00	359.91	0.03	0.01	364.83
Maximum (pounds/day)	0.35	3.50	4.96	0.41	0.21	0.20	0.15	0.11	0.04	0.03	2,699.91	0.19	0.28	2,788.37
Total (tons/construction project)	0.01	0.07	0.07	0.01	0.00	0.01	0.00	0.00	0.00	0.00	40.51	0.00	0.00	41.73

Notes:

Project Start Year ->	2020
Project Length (months) ->	3
Total Project Area (acres) ->	1
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	No

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	150	0
Grading/Excavation	54	0	420	0	600	0
Drainage/Utilities/Sub-Grade	0	0	0	0	300	0
Paving	0	6	0	10	300	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Laurel Grove - total project

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.35
Grading/Excavation	0.00	0.05	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	35.64	0.00	0.00	33.39
Drainage/Utilities/Sub-Grade	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.70	0.00	0.00	2.47
Paving	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	0.00	0.00	1.64
Maximum (tons/phase)	0.00	0.05	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	35.64	0.00	0.00	33.39
Total (tons/construction project)	0.01	0.07	0.07	0.01	0.00	0.01	0.00	0.00	0.00	0.00	40.51	0.00	0.00	37.85

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.