

INITIAL STUDY AND PROPOSED MITIGATED NEGATIVE DECLARATION

NORTH BAY WETLAND MITIGATION BANK

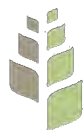
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1.0 INTRODUCTION AND PURPOSE

This Initial Study conforms with the requirements of the California Environmental Quality Act (CEQA), the State CEQA Guidelines (California Code of Regulations 15000 et. Seq.), and the regulations and policies of the San Francisco Bay Regional Water Quality Control Board (SFRWQCB, or “Water Board”). This Initial Study evaluates the potential environmental impacts as a result of development of the North Bay Wetland Mitigation Bank (proposed project), in Marin County (County), California.

The proposed project is the creation of 22.48 acres of wetland credits for a compensatory mitigation bank through re-establishment (creation) of 7.74 acres and enhancement of 14.74 acres of seasonal wetlands and reconnection of a historic floodplain along San Antonio Creek and Corda Creek. Additionally, approximately 6.36 acres of existing wetlands would be undisturbed and preserved. The proposed project purpose is to provide compensatory mitigation under the Federal Waters of the U.S. under the Clean Water Act (CWA), Section 404 and 401 and Waters of the State under the Porter-Cologne Act. The Lead Agency for the project, as defined by CEQA, is the Water Board, which has jurisdiction over CWA Section 401 Water Quality Certification and/or Waste Discharge Requirements for the project in accordance with the Porter-Cologne Water Quality Control Act. The property owner is the North Marin Land Company and the project sponsor (applicant) is North Bay Wildlife Conservation and Mitigation, LLC.

The proposed project would occur on a 120.78 acre of land (project area), that currently contains 15.81 acres of seasonal wetlands and 6.36 acres of waters. The project area is currently grazed agricultural lands, containing a mix of native and non-native species and a network of dirt ranch roads. The creation of the wetlands for the proposed project would involve excavation and grading to depths that would support seasonal wetland hydrology, revegetation of the seasonal wetlands, and reconfiguration of the ranch roads. Approximately 3,869 feet of existing road would be decommissioned and revegetated, and 1,286 feet of new road would be constructed; additionally, five armored crossings and/or grade control would be installed and four culverts would be installed or replaced on the remaining roads to improve drainage and reduce sedimentation. The proposed project is anticipated to enhance and expand red-legged frog habitat and to reduce sedimentation into existing wetlands and San Antonio and Corda creeks, thereby improving in-stream habitat for fish.

The proposed project would implement a Road Management Plan to address erosion and coarse sediment pollution from the existing ranch roads and cattle trails into adjacent aquatic resources (Pacific Watershed Associates 2017). The Road Management Plan provides management recommendations to reduce road-related erosion and sediment inputs into the project area wetlands and adjacent waters. Roads and cattle trails were categorized as “upgrade”, “reroute”, or “recommission” based on observations indicating a hydrologic connection or disconnection to streams and/or wetland areas, with the objective of disconnecting travel corridors to reduce or prevent sediment delivery to sensitive aquatic areas.

A Grazing Plan would be part of the proposed project to enhance desirable plant community structure through management of thatch, reducing invasive species cover, and minimizing fire hazards (WRA 2018b). The Grazing Plan would achieve these objectives through utilizing appropriate stocking levels and grazing duration based on area grazed, plant biomass, and annual precipitation levels.

The Water Board has determined that the proposed project is subject to environmental assessment under CEQA. This Initial Study evaluates all potential environmental impacts associated with the proposed project with emphasis on aspects of the project that may have a significant effect on the environment and identifies measures to mitigate (reduce or avoid) any such impacts to result in less than significant level. This initial study and proposed mitigated negative declaration consider the maximum amount of excavation of material, import of material, and surface disturbances. Without the mitigation proposed, the project has the potential to cause significant impacts to listed species, biological resources, water quality, air quality, and historic resources.

As such, the maximum range of habitats and acreage extents are considered for evaluation in this Initial Study. The project design and objectives take into consideration local concern and interest, and the ecological setting of the project area, to maintain the existing viewshed, landscape topography, and ecological resource habitats and functions. The project need is to provide a wetland mitigation bank to serve the north counties of the San Francisco Bay Region. The North Bay Wetland Mitigation Bank would provide compensatory mitigation for project related impacts within the proposed service area. The primary object of the proposed project is to re-establish and enhance seasonal wetlands within the project area to serve as the basis for the wetland mitigation bank development.

1.1 Project Area Location and History

The approximately 120.78 acre project area is located in the north portion of Assessor's Parcel Numbers (APNs) 125-110-01 and 125-110-02, in the northern Marin Hills, Petaluma, Marin County, California (FIGURE 1). The project area exists on a larger, approximately 1,200 acre property owned by North Marin Land Company. The project area occurs within the Petaluma U.S. Geological Survey 7.5-minute quadrangle and sits near the boundary of Marin and Sonoma counties. Private open space and rangeland owned by North Marin Land Company and the North Bay Highlands Conservation Bank and private lands bound the project area in all directions. Olompali State Historic Park is situated to the southeast of the project area. San Antonio Creek flows along the northern boundary and Corda Creek flows along the eastern boundary. The project area is situated within a critical corridor between numerous protected lands in the region. The surrounding vicinity consists of agricultural lands, including grazing lands, vineyards, and rural residential uses.

The project area has historically supported agricultural uses including cattle grazing and dairy operations over the last 60 years and was used for crop agricultural from as early as the 1950's. A channelized swale was constructed within the project area sometime before 1952, which fed into a pond before flowing into San Antonio Creek. The feature caused flows to concentrate away from the open wetland meadows and acted as a drain, lowering the groundwater table. This alteration of the natural surface flow regime and underlying hydrology led to dewatering of the pasture for improved agricultural production and reduced the historic wetland footprint in the project area.

Currently the project area is used for cattle grazing, horse pasturing, deer hunting, and private recreation. The project area contains a network of dirt roads that are currently used by farm equipment and horses and cattle. A ranch house and barns are located northeast of the project area, and an uninhabited and periodically used pool house is located south of the project area.

1.2 Project Purpose and Objectives

The primary objective of the proposed project is to develop a wetland mitigation bank through re-establishment and enhancement of seasonal wetlands within the project area. The mitigation bank will provide compensatory wetland mitigation credits for the following impacts within the approved service area:

- Unavoidable impacts to Waters of the United States, including wetlands, which result from activities authorized under Sections 404 and 401 of the Clean Water Act (CWA);
- Unavoidable impacts to Waters of the State of California which result from activities authorized under the Porter-Cologne Water Quality Control Act.

To achieve this objective, the project sponsor would also preserve the Bank project area in perpetuity through conservation easement, remove portions of the project area from cattle grazing, and implement a managed grazing regime (WRA 2018b). The proposed project would re-establish approximately 7.74 acres of seasonal wetlands through grading and enhance approximately 14.74 acres of seasonal wetlands through seeding/planting, and improve the existing ranch roads (through implementation of a Road Management Plan) to achieve sediment reduction into approximately 9.77 acres of existing wetlands. Additionally, approximately 6.36 acres of existing wetlands would be undisturbed and preserved. Wetland credits would be released incrementally on a five-year schedule post-construction (assuming Year 5 Performance Standards are met). Credit releases would be prolonged should the project not reach a specified Performance Criteria, as determined through annual monitoring and reporting.

1.3 Project Need

In fulfilling the project purpose and objectives, the proposed project would provide wetland mitigation credits for impacts to regulated wetlands and non-wetland waters and would serve the northern counties of the San Francisco Bay Area. The proposed service area was developed using a watershed approach and is based on ten-digit Hydrologic Unit Code (HUC) boundaries, HUC-8 sub-basin, and eco-region needs. The proposed project area is located in the Petaluma River – Frontal San Pablo Bay Estuaries HUC-10, which contains all of the non-tidal lands that drain into the tidal waters and wetlands of San Pablo Bay west of Sears Point. The proposed service area would include the Petaluma River HUC-10 watershed containing the mitigation bank, and the Corte Madera Creek watershed - within the same HUC-8 sub-basin and ecoregion. Additional HUC-8 sub-basin watersheds would include: the Tulucay Creek watershed, Napa Creek watershed, Conn Creek watershed, Sonoma Creek watershed, and Carneros Creek watershed – these areas were added using the sub-basin (HUC-8) and eco-region needs justifications as provided in the USACE - *South Pacific Division Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines* (2015). The proposed mitigation bank would offer credit sales for impacts to non-tidal wetlands located within HUC-10s that maintain similar habitat functions.

Mitigation banking is a third-party approach for fulfilling compensatory mitigation for unavoidable impacts on regulated aquatic resources; bank development involves preservation, restoration, enhancement, and or creation to provide functional uplift of aquatic resources. This functional uplift generates credits which are released as a bank reaches specific performance criteria. The released credits may then be sold to one or more permittees that require compensatory mitigation for impacts

to similar habitats (in the case of the North Bay Mitigation Bank – for seasonal wetlands) within a bank’s service area.

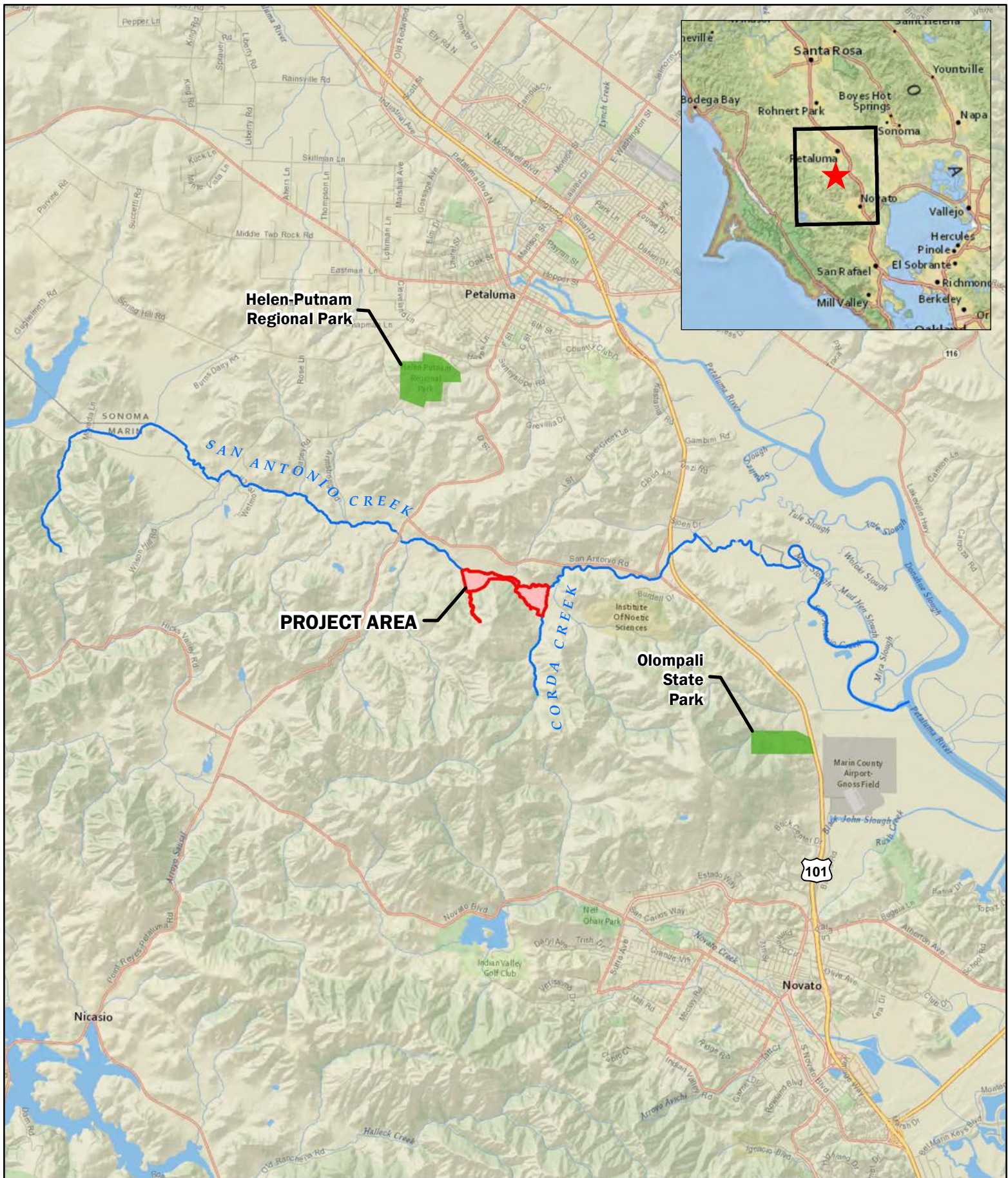
USACE issued a Final Rule in 2008 – *Compensatory Mitigation for Losses of Aquatic Resources* - which establishes a hierarchy for mitigation approaches that identifies mitigation banking as the preferred approach. Mitigation banks are considered advanced mitigation in that they protect, restore, enhance, and create aquatic resources before permitted impacts occur, thus eliminating temporal losses of these resources. The project is necessary because it would provide a compensatory wetland mitigation option for a service area that experiences high rates of growth and development associated with urban and rural uses. Moreover, the project area location is situated within an important ecological and urban interface and would result in the permanent protection of critical aquatic resources and sensitive species habitats through placement of conservation easements.

1.4 Project Permitting

The proposed project requires consultation and permit review by several federal, state, and local agencies, including the U.S. Army Corps of Engineers (USACE), Regional Water Board, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), the State Historic Preservation Office (SHPO), County, the Federal Indians of Graton Rancheria (FIGR) and the Mishewal Wappo Tribe, which are listed in [TABLE 1](#). The required permits are currently under review and would be issued or approved prior to the start of project construction.

TABLE 1: PROJECT PERMITTING AGENCIES

Agency	Regulatory Authority	Consultation Activities
USACE	Section 404 CWA permit would be required for placement of dredge or fill material into waters of the U.S.	USACE may consult with the USFWS and SHPO during permit review
Graton Rancheria Mishewal Wappo	AB 52 Consultation	Review cultural resource assessments and conduct consultation with the USACE and Regional Water Board
Regional Water Board	Section 401 CWA Water Quality Certification and/or Waste Discharge Requirements in accordance with the Porter-Cologne Water Quality Control Act	The Water Board may consult with USFWS, CDFW, and USACE during permit review. Water Board serves as the Lead Agency under CEQA
SHPO	Section 106 of the National Historic Preservation Act	Review cultural resource assessments and conduct consultation with the USACE
USFWS	Section 7 of the Endangered Species Act	Review biological resource assessment and conduct consultation with the USACE.
CDFW	Section 1600 Lake or Streambed Alteration Agreement	The CDFW may consult with USFWS during permit review.
Marin County	Department of Public Works, Grading Permit	N/A



NORTH BAY MITIGATION BANK VICINITY MAP

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
MAY 2019

FIGURE 1

Imagery/Layers: ESRI, USGS, NATGEO
NAD 1983 California State Plane Zone III



0 1 2 Miles



2.0 PROJECT SETTING

2.1 *Prehistoric and Pre-Contact History of the Area*

2.1.1 Ethnographic Setting

The Southern Patwin, or Wintu, settled the Napa River Valley beginning approximately 10,000-12,000 years ago. By the time of the arrival of the Spanish in the early 1800s, the Sonoma and Napa Valleys had been inhabited for 1,500 years by the Wappo, hunter-gatherers who feasted on the abundant salmon, shellfish, waterfowl, and game in the area. Wappo villages of thatched houses were generally located along creeks (Napa County Historical Society; Suscol Council). The Wappo were decimated by smallpox and warfare following colonization by the Spanish and forced relocations by the American military. Archaeological sites containing artifacts of both Patwin and Wappo history are found throughout Napa and Sonoma Counties.

The project area is located within the ethnographic territory of the Coast Miwok, which encompasses all of present-day Marin County and parts of Sonoma County (ESA 2013). Coast Miwok settlements were focused on estuaries and bays, or along perennial waterways. Each large village had a tribal leader but appeared to lack any broader-scale organization. The primary mechanisms for acquiring resources included hunting, fishing and, gathering and revolved around seasonal cycles during which people migrated throughout their territory to collect resources. Marine foods such as fish, crabs, clams, and kelp were collected year-round; acorns were gathered in season and store through the winter. In as early as A.D. 1600 the Miwok Indians began using clamshell disk beads as form of monetary exchange, and eventually transitioned to obsidian trading. Coast Miwok dwellings were conical, and grass covered. They maintained a powerful sense of value for property and though land was not considered owned, they protected certain fruit bearing trees, and hunting and fishing grounds (ESA 2013).

By the mid-1800s, immigration settlements, Spanish missionaries, disease, and raids disrupted the Coast Miwok culture, reducing their population and displacing native people from their villages (ESA 2013). In 1920, the Bureau of Indian Affairs put lands into a public trust for the Marshall, Bodega, Tomales, and Sebastopol Indians, which included both the Miwok and Southern Pomo. These neighboring people were put into one recognized group – the Graton Rancheria. The Rancheria Act of 1958 enacted by the U.S. government transferred tribal property into private lands, leaving the Graton Rancheria essentially landless. During the late 1950's, a group of amateur archeologists documented eight prehistoric sites along a 4-mile reach of San Antonio Creek, resulting in the delineation of the San Antonio Creek Archaeological District. Two of these sites occur within the project area, as discussed below.

2.1.2 Cultural Resource Studies

On August 2, 2012, project archaeologists from Environmental Science Associates (ESA) reviewed the cultural records for the 1,200-acre property parcel, that contains the current project area, and a half-mile radius (ESA 2013) in order to determine what known tribal cultural resources could be affected by Project. The archaeologists examined the following:

- **NWIC base maps** (USGS Petaluma and Petaluma River, California 7.5-minute topographic map), to identify recorded archaeological sites and studies within a ½-mile radius of the 1,200-acre property parcel.
- **NWIC base maps** (USGS Petaluma and Petaluma River, California 7.5-minute topographic maps), to identify recorded architectural and structural resources and studies within or immediately adjacent to the Project APE (area of direct impact).
- **Resource Inventories:** California Department of Parks and Recreation (1976), California Inventory of Historical Resources. California Department of Parks and Recreation, Sacramento; California Office of Historic Preservation (2010), Historic Properties Directory Listing for Marin County (through April 2012); California Department of Transportation (Caltrans), Historic Bridge Inventory.
- **Historic Maps:** An extensive on-line historic map collection with approximately 50 maps and views of the Marin/Sonoma County area is available online at <http://davidrumsey.com>. USGS topographic quadrangles 1914, 1940, 1955, 1964, 1969, 1981; Plat of the Rancho Olompali, 1859; Map of Marin County, California, 1873 (H. Austin); Official Map of Marin County, California, 1892 (Dodge, Geo.).

The records search and a pedestrian survey of 870 acres of the 1200-acre parcel conducted by two archaeologists, confirmed the location of the two previously recorded prehistoric sites. Additionally, the surveys resulted in the identification of a third prehistoric site and five historic era cultural resource sites within the 870-acre survey area of the property. The three prehistoric sites occur within the 120-acre proposed project area and were recommended by the ESA archaeologists for listing in the NRHP. The five historic era sites are outside of the project area and would not be affected by project construction activities. The three prehistoric sites would be entirely avoided by project construction activities, a 100-foot buffer area has been designated around these sites and no excavation or grading for re-establishment or enhancement of wetlands is proposed within the buffer.

2.2 Existing Project Area Conditions

2.2.1 Surrounding Land Uses

Surrounding lands consist primarily of agriculture including grazed land, vineyards, and other rural residential land uses. Directly south of the project area is the North Bay Highlands Conservation Bank, which offers compensatory credits for California red-legged frog (*Rana draytonii*, CRLF). The Olompali State Historic Park is situated to the southeast of the project area.

2.2.2 Site Land Uses

The proposed project area is designated in the County zoning map as “A60 Agriculture,” which is the Agriculture and Conservation land-use type designation for commercial agricultural uses and similar compatible uses (Marin County 2009). The project area has been used as rangeland, for cattle grazing and horse pasturing, for several decades. Currently, the project area lands are grazed by cattle and horses; fences bound the project area on all sides to contain livestock, which prevents access to the adjacent San Antonio and Corda creeks. Animals are watered by a trough located near the center of the project area. The vegetation communities within the project area include wetlands, forest and woodlands, grasslands, and developed areas consistent with rural agricultural and are typical of those found in the Mediterranean/Arid West climate zone of California. A majority of the project area supports grazed grasslands on gentle slopes intermixed with oak woodland communities.

The topography of the project area is generally flat to gently sloping with elevations ranging from 40 to 185 feet above mean sea level NAVD88.

2.2.3 Biological Communities

2.2.3.1 BIOLOGICAL RESOURCE STUDIES

Biological resources were evaluated at the project area and adjacent areas through site investigations, focused surveys, and database queries.

Queries were performed from the following databases:

- California Natural Diversity Database (CNDDB) (CDFW 2019)
- California Native Plant Society (CNPS) database (CNPS 2019)
- National Wetlands Inventory (NWI) (USFWS 2019)
- Consortium of California Herbarium (CCH 2011)

Field surveys of the project area/adjacent areas included:

- Delineation of wetlands and waters (WRA, Spring and Summer 2011)
- Biological Inventory (WRA, Spring and Summer 2011)
- Special-Status Plant Species Surveys/Botanical Surveys (WRA - Spring/Summer 2011, Spring/Summer/Fall 2012, Spring 2019; Great Ecology, Spring 2019)
- Special-Status Wildlife Species Surveys (WRA, 2011 and 2013)
- Noxious Weed Surveys (WRA, 2013; Great Ecology 2019)
- Wetland Assessment (WRA, Spring 2015, Summer 2016/2017, and Spring 2018)
- California Rapid Assessment Method (WRA, Spring 2018)

Information gathered from these evaluations were used to identify and assess existing conditions of biological resources at the project area and to determine potential impacts on these resources from project activities. These evaluations identified individuals or suitable habitat for multiple special-status species within or adjacent to the project area, as described below.

2.2.3.2 WATERS

The waters of the project area include ephemeral streams, intermittent streams, and perennial streams. Approximately 6.36 acre of waters were delineated within the project area during 2011

surveys (WRA 2019a). The project area is located south of San Antonio Creek, a perennial stream that flows eastward into the Petaluma River and east of Corda Creek, which flows northerly into San Antonio Creek near the northeast corner of the property area. Corda Creek is a second or third order stream, and tributary of San Antonio Creek, which flows along the eastern boundary of the project area. Corda Creek drains a five-square mile watershed, whereas San Antonio Creek drains a much larger watershed of 36.5 square miles. The streams flow throughout most of the year, and support ponding or saturation during periods of no flow.

Within the project area, *ephemeral streams* flow north across from steep hillslopes across the project area and into San Antonio Creek during or following substantial precipitation events. *Intermittent streams* occur on the west and east portions of the project area (FIGURE 2) and consist of second- and third-order streams that originate from confluences of ephemeral streams, and flow during large to moderate precipitation events. Flows may persist for several days to weeks, with somewhat rapid percolation. Late season hydrology may also be supported by some sub-surface flow. *Perennial streams* include the downstream reach of an intermittent drainage on the west margin of the project area (FIGURE 2).

Potential impacts on waters from temporary increases in sedimentation during project construction would be limited through the implementation of construction best management practices, as discussed under SECTION 3.2.1. The proposed project has been designed to reduce current levels of road related sedimentation into the drainages and streams within and adjacent to the project area through road improvements as described in SECTION 3.2.1.4. Impacts on streams would be authorized by the USACE (Section 404 of the CWA), the RWQCB (Section 401 of the CWA), and the CDFW (Section 1600 Lake or Streambed Alteration Agreement).

2.2.3.3 WETLANDS

A wetland delineation conducted in 2011 identified approximately 15.81 acres of seasonal wetlands within the project area (WRA 2019a). The wetlands of the project area include seasonal wetland swales, seasonal wetland depressions, seasonal wetland meadows, and seasonal wetland seeps that occur across the project area and ultimately drain into San Antonio and Corda creeks. These features are distinguished by their topographic position and are driven by seasonal sources of hydrology including direct precipitation, overland sheet flow, and shallow subsurface flows. The existing seasonal wetlands are intermixed within the open grasslands and along or within the small drainages that traverse through the project area (FIGURE 2). The wetlands support several vegetation alliances and are dominated by herbaceous, hydrophytic species, although generally vegetation diversity within these communities are low. Wetland functions are diminished by non-native species, impaired hydrology, and sedimentation from the adjacent dirt ranch roads. Potential impacts on wetlands from temporary increases in sedimentation during project construction would be limited through the implementation of construction best management practices, as discussed under SECTION 3.2.1. Wetland enhancement activities, including seeding and planting, would result in temporary reductions in vegetation cover but would benefit through improvement in plant diversity and native species cover. Impacts on wetlands would be authorized by the USACE (Section 404 of the CWA) and the RWQCB (Section 401 of the CWA).

2.2.3.4 FOREST AND WOODLANDS

Woodland communities are contained on steeper slopes above San Antonio Creek and Corda Creek, and along the small perennial drainage on the west edge of the project area (FIGURE 2). None of the woodland communities mapped within the project area overlap with the proposed wetland re-establishment or enhancement areas. The dominant forest and woodland communities of the project area include - *California Bay Forest (Umbellularia californica Forest Alliance)* Rank G4/G3, dominant species include California bay (*Umbellularia californica*) and coast live oak (*Quercus agrifolia*); *California Buckeye Woodland (Aesculus californica Woodland Alliance)* Rank G3/S3, dominant species include California buckeye and various oak species; and *Coast Live Oak Woodland (Quercus agrifolia Woodland Alliance)* Rank G5/S4, dominant species is coast live oak, which grows amid California bay, white oak (*Quercus garryana*), and California buckeye (*Aesculus californica*). Other more minor constituents include - *Valley Oak Woodland (Quercus lobata Woodland Alliance)* Rank G3/S3 and *Oregon White Oak Woodland (Quercus garryana Woodland Alliance)* Rank G4/S3.

Minor temporary impacts (0.27 acre) and permanent impacts (0.01 acre) on the understory of the woodland communities along an existing ranch road would occur as a result of road improvements; however, no trees would be removed or impacted by project related activities (SECTION 3.2).

Impacts on forest and woodland communities would be authorized by the CDFW (Section 1600 Lake or Streambed Alteration Agreement).

2.2.3.5 GRASSLANDS

Upland grasslands occur on neutral to gentle slopes, intermixed with seasonal wetland communities, and on steeper slopes below the wooded hillslopes south of the project area (FIGURE 2). The primary upland grassland community of the project area consists of less than five percent relative cover of native species in the herbaceous layer. Non-native dominants include slender wild oats (*Avena barata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), dogtail grass (*Cynosurus echinatus*), Mediterranean barley (*Hordeum marinum* spp. *gussoneanum*), foxtail barley (*Hordeum murinum*), perennial ryegrass (*Festuca perennis*), and medusa head (*Elymus caput-medusae*), all of which are listed as high or moderate by the California Invasive Plant Council (Cal-IPC). Native forbs include fiddleneck (*Amsinkia mensiesii*), rusty popcornflower (*Plagiobothrys nothoflavus*), long-tubed iris (*Ris macroiphon*), sun cups (*Camissonia ovata*), blue dicks (*Dichelostemma capitatum*), and California poppy (*Eschscholzia californica*). The grassland communities would be impacted by project construction for the creation of seasonal wetlands (7.74 acres); however, this vegetation community type conversion would result in creation of higher functioning habitat.

2.2.3.6 DEVELOPED

Developed areas within the project area are limited to a series of dirt ranch roads that extend through the project area laterally and one that extends vertically in the west. The roads are used infrequently, mainly for land management practices, and are accessed through a gate on the southeast corner of the project area. Improvements to the existing ranch roads, including decommission, upgrading, and rerouting sections of road, are proposed as part of the project to reduce sedimentation into aquatic resources, as described under SECTION 3.2.

2.2.3.7 WILDLIFE

Field surveys conducted within the project area and surrounding vicinity demonstrated that the level of wildlife diversity using the area is that which would be expected of relatively pristine, rural lands in coastal northern California. A range of mammal species may use the project area including bobcat (*Felix rufus*), coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*). Small mammals, such as dusky-footed woodrat (*Neotoma fuscipes annectens*) and California vole (*Microtus californicus*) may inhabit areas near small drainages. Sixty-five species of native birds were documented within and nearby the project area, and potential breeding habitat for native birds exists within woodland and grassland communities. Eight reptile and 10 amphibian species have also been observed within and nearby the project area and numerous invertebrates are likely to occur with frequency. Construction related activities may result in short-term and temporary disturbances to native wildlife due to use of earth-moving heavy equipment; however, these activities would not generate significantly more noise or disturbances than agricultural equipment, which is periodically used on the project area and are not anticipated to reduce overall use of the project area. The proposed project is anticipated to improve habitat quality for multiple species by expanding aquatic resource habitat and improving vegetation diversity.

2.2.3.8 SPECIAL-STATUS SPECIES

For the purpose of this Initial Study, the term “special-status species” refers to all plants or animals listed as threatened, endangered, proposed for listing, or sensitive under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA), plants listed as rare under the California Native Plant Protection Act; plants considered rare by the California Native Plant Society (CNPS); species that meet the definition of rare or endangered under CEQA; animals fully protected in California, and nesting raptors protected in California. A complete list of all special-status species evaluated for potential presence or use of the project area is provided in [APPENDIX B](#). The USFWS completed a Biological Opinion (BO) following formal consultation on the project with the USACE. The BO was issued on August 23, 2019 and the identified conservation measures were incorporated into the proposed project design and as mitigation measures.

Plants:

Queries of the California Herbarium Consortium (CCH) and the CNDDDB were conducted to identify potential special-status plant species that may occur within the project area ([FIGURE 3](#), [FIGURE 4](#)). Protocol-level rare plant surveys to identify special-status plant occurrences and/or habitats were conducted during spring and summer 2011 and spring, summer, and fall 2012 (WRA 2019a). Additional floristic surveys of the project area were performed in summer 2016/2017, spring 2018, and spring 2019.

Four special-status plant species were observed within an expanded survey area (larger property) but were not observed during multiple surveys of the project area and thus would not be affected by the proposed project activities.

These species include:

- Tiburon buckwheat (*Erigonum luteolum* var. *caninum*, observed on the property but outside of the project area) CNPS - List 1B
- Marin western flax (*Hesperolinon congestum*, observed on the property but outside of the project area) Federal – Threatened, State – Threatened, CNPS – List 1B
- North Coast semaphore grass (*Pleuropogon hooverianus*, observed on the property but outside of the project area) State – Threatened, CNPS – List 1B
- Lobb's buttercup (*Ranunculus lobbii*, observed on the property but outside of the project area) CNPS – List 4

Tiburon buckwheat and Marin western flax were observed within chamise chaparral, leather oak (*Quercus durata*) chaparral, purple needlegrass grassland and Idaho fescue grassland underlain by serpentine gravelly clay loams and rock outcrops. These habitats do not occur within the proposed project area.

North Coast semaphore grass was observed as a single population, located on a north-facing slope on the edge of California bay-coast live oak forest within a seasonal wetland seep, underlain by dark clay loam soils.

Lobb's buttercup was observed in vernal pools underlain by heavy, vertic clay soils south of the project area.

Wildlife

Several special-status wildlife species are known to occur within the nearby vicinity of the project area (FIGURE 5 and FIGURE 6; APPENDIX B) as identified by CNDDB queries. Project area biological resources surveys evaluated habitat potential for special-status species (WRA 2019a, WRA 2018a). Several listed wildlife species, such as salt marsh harvest mouse (*Reithrodontomys raviventris*, USFWS Endangered), and California Ridgway's (clapper) rail (*Rallus obsoletus obsoletus*, Federal - Endangered) occur in close proximity of the project area but require very specific habitat (i.e. salt and brackish marshes) that is not present in the project area. The project area is also outside of the known breeding range for several species including the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*, Federal - Threatened), California tiger salamander (*Ambystoma californiense*, Sonoma County population, Federal – Endangered), and northern spotted owl (*Strix occidentalis caurina*, Federal – Threatened). Species observed on or adjacent to the site during field surveys included:

Amphibian:

- California red-legged frog (*Rana draytonii*, observed within the project area) Federal – Threatened

Reptile:

- Western pond turtle (or Pacific pond turtle; *Actinemys marmorata*, observed in San Antonio Creek and Corda Creek, adjacent to the project area) State – Species of Special Concern

Fish

- Steelhead – central California coast Evolutionary Significant Unit (ESU) (*Oncorhynchus mykiss*, observed in San Antonio Creek, adjacent to the project area) Federal – Threatened

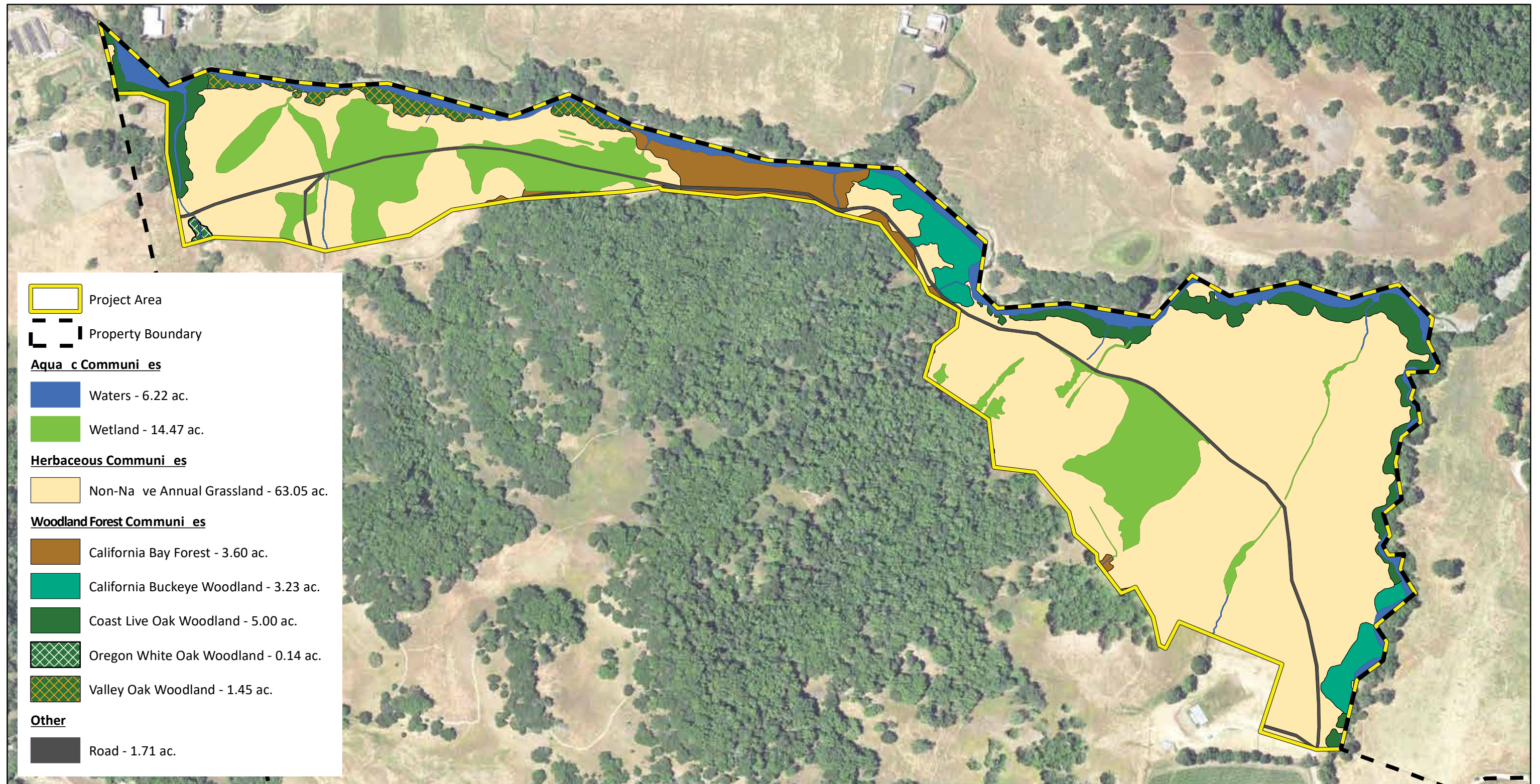
Mammals

- Pallid bat (*Antrozous pallidus*, observed on the property but outside of the project area) State – Species of Special Concern
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*, observed within the project area) State – Species of Special Concern

Birds

- Northern harrier (*Circus cyaneus*, observed within the project area) State – Species of Special Concern
- White tailed kite (*Elanus leucurus*, observed within the project area) State – Fully Protected
- Nuttall's woodpecker (*Picoides nuttallii*, observed within the project area) Federal – Conservation Concern

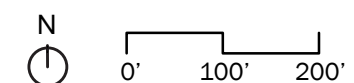
The proposed project is anticipated to result in a net benefit for the species and their habitats identified within and in proximity to the project area by improving habitat quality and function. Potential temporary impacts on these species may occur during project construction, which may include temporary losses of aquatic resource habitat during revegetation, disturbances from construction equipment and increased personnel within the project area, and temporary increases in sedimentation. The project has been designed to reduce impacts on resident and sensitive species and through implementation of protective measures as described in [SECTION 3.2](#) and [SECTION 4.5](#).

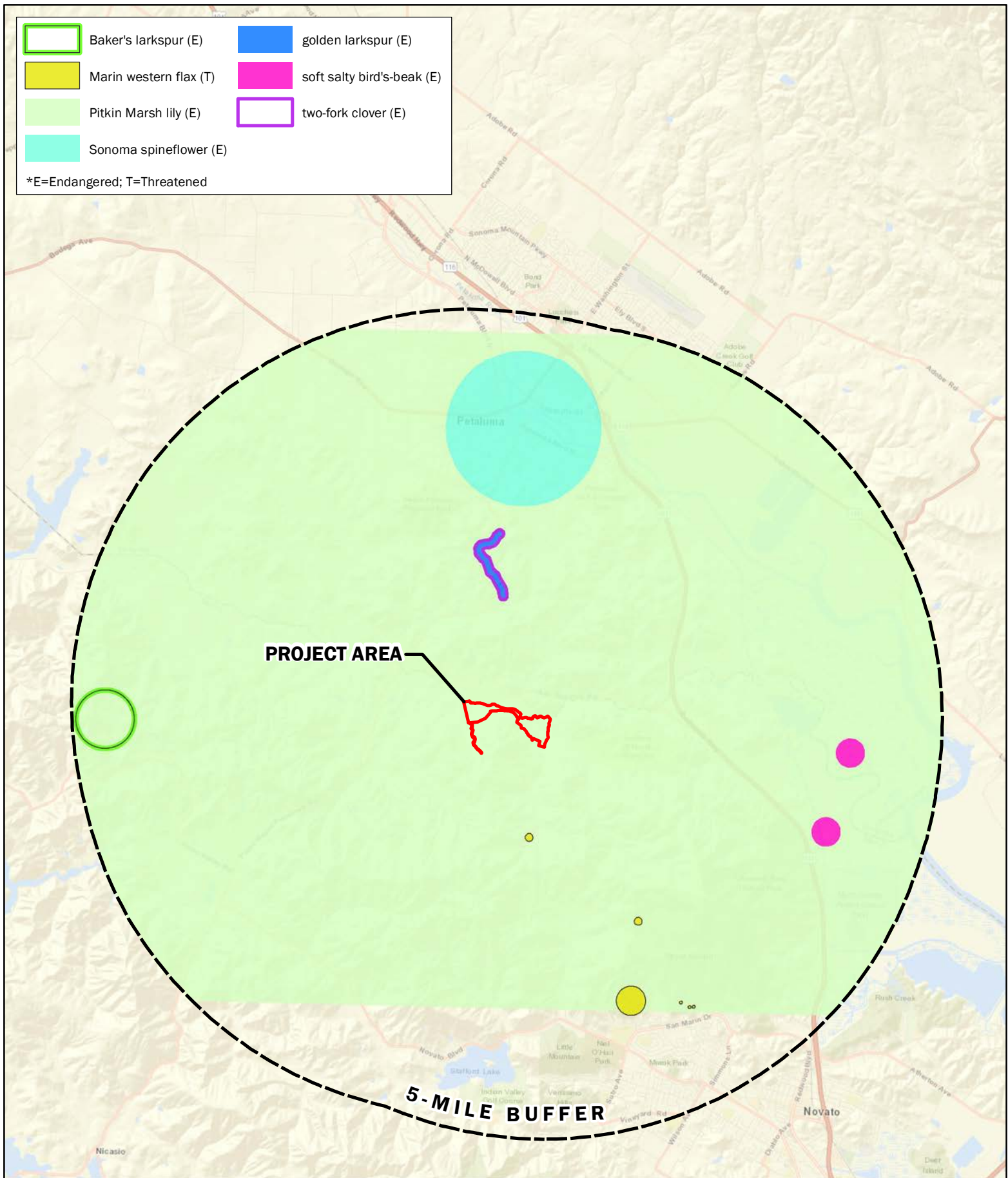


NORTH BAY MITIGATION BANK BIOLOGICAL COMMUNITIES WITHIN THE BANK PROPERTY

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
JUNE 2019

FIGURE 2
Original Figure by WRA, Inc.





NORTH BAY MITIGATION BANK USFWS LISTED PLANT SPECIES

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
MAY 2019

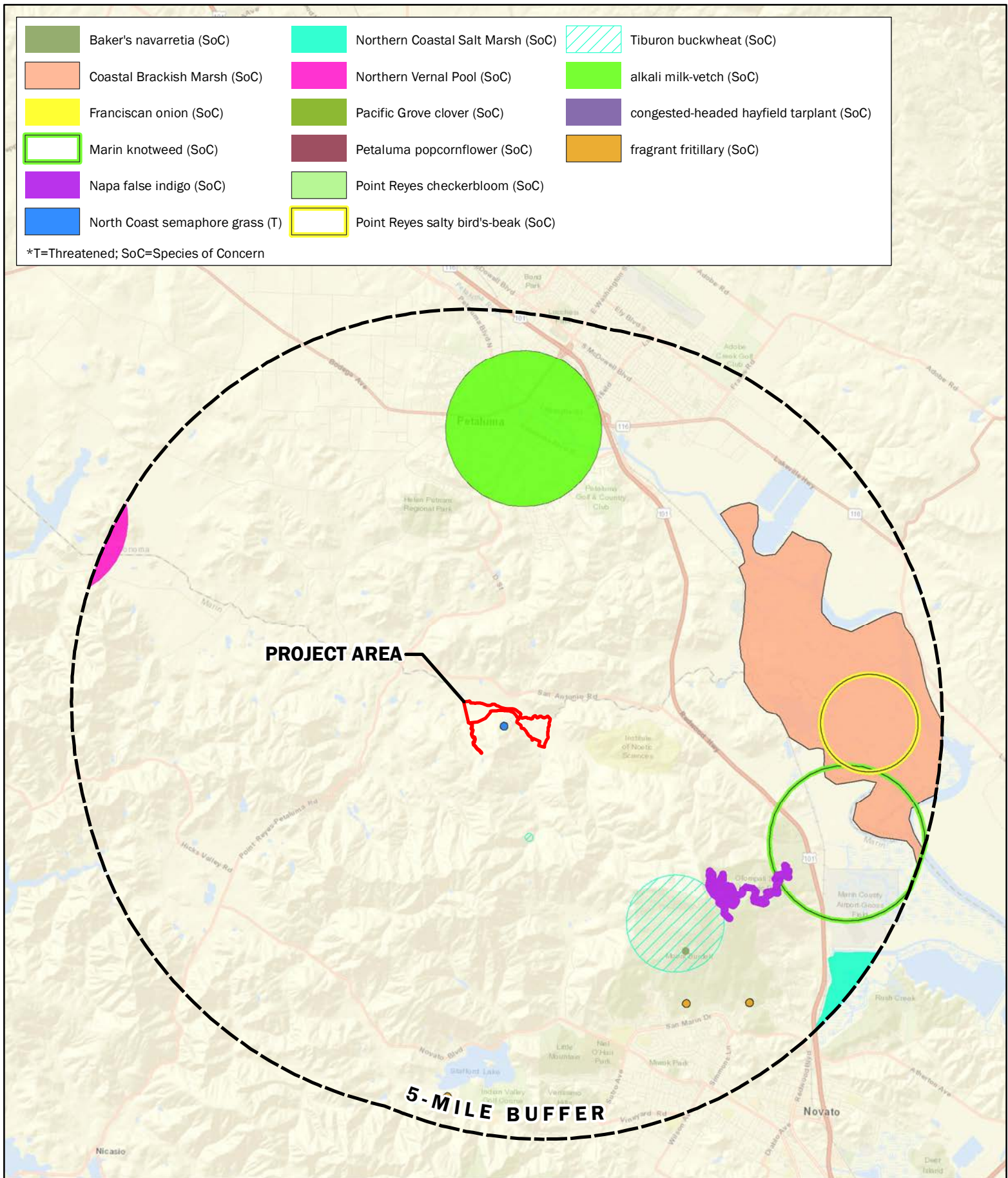
FIGURE 3

Imagery/Layers: ESRI, CNDDDB (May 2019)
NAD 1983 California State Plane Zone III



0 1 2 Miles





NORTH BAY MITIGATION BANK CDFW LISTED PLANT SPECIES

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
MAY 2019

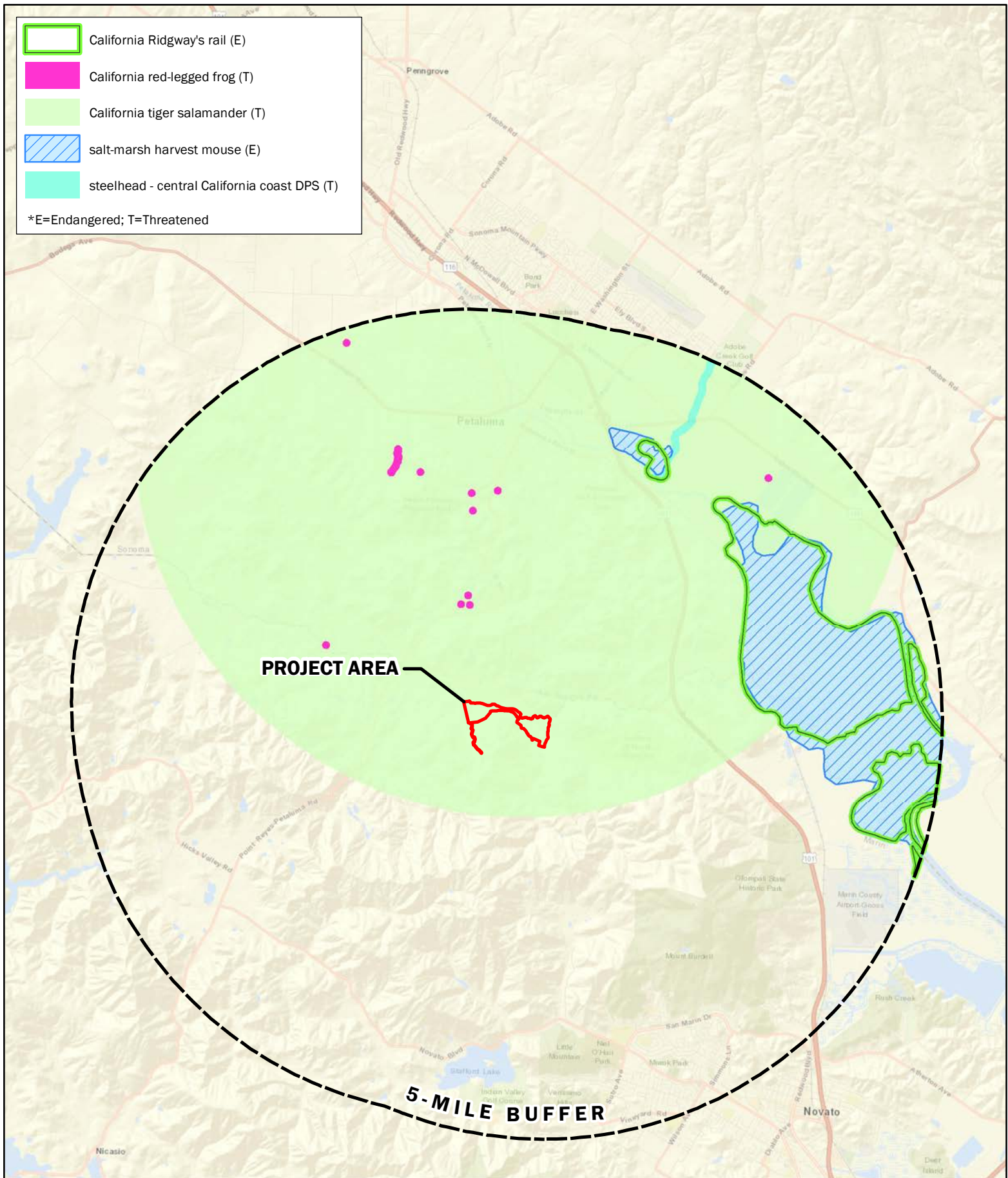
FIGURE 4

Imagery/Layers: ESRI, CNDDDB (May 2019)
NAD 1983 California State Plane Zone III



0 1 2 Miles





NORTH BAY MITIGATION BANK USFWS LISTED WILDLIFE SPECIES

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
MAY 2019

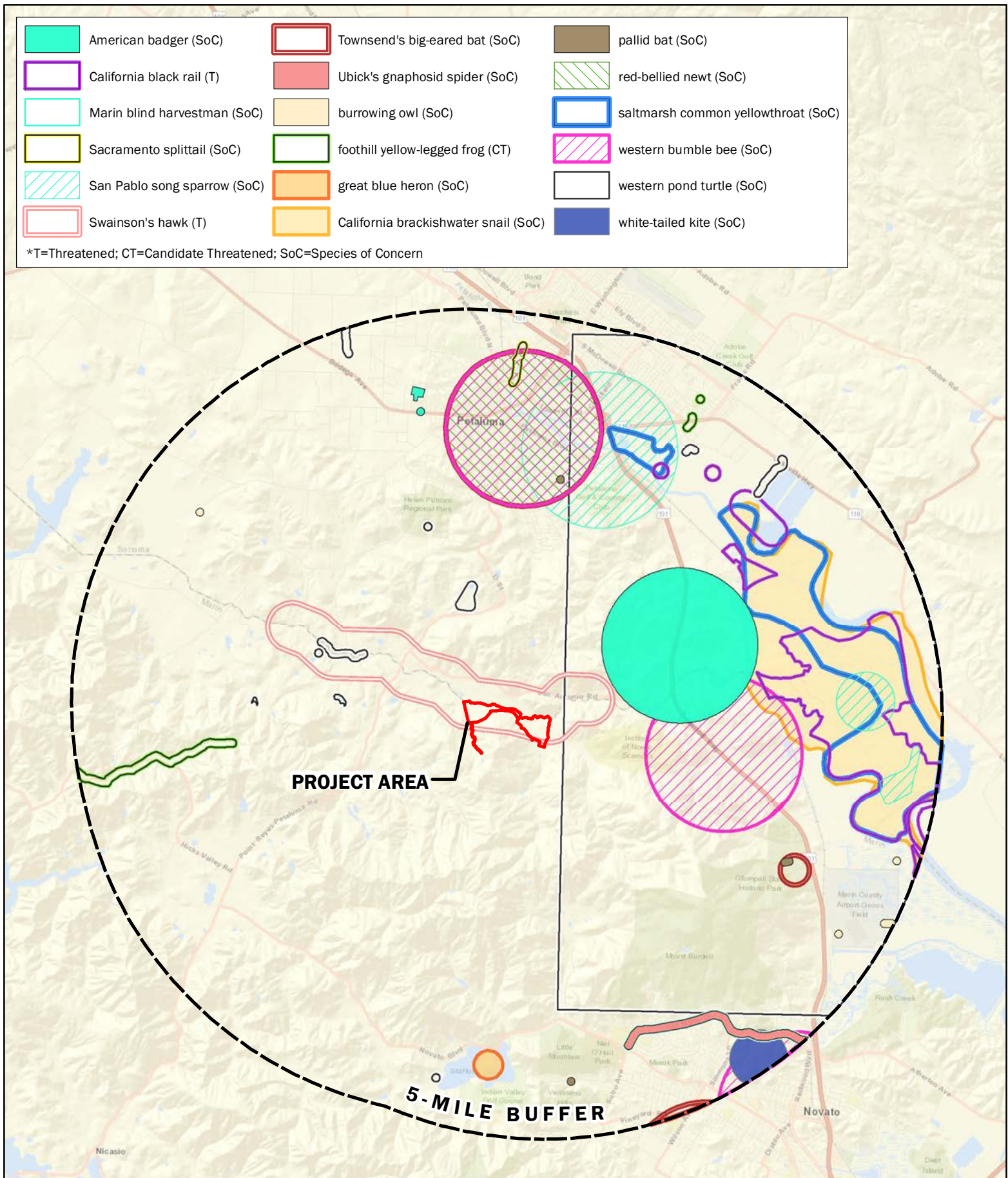
FIGURE 5

Imagery/Layers: ESRI, CNDDb (May 2019)
NAD 1983 California State Plane Zone III



0 1 2 Miles





NORTH BAY MITIGATION BANK CDFW LISTED WILDLIFE SPECIES

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
MAY 2019

FIGURE 6

Imagery/Layers: ESRI, CNDDB (May 2019)
NAD 1983 California State Plane Zone III



0 1 2 Miles



3.0 PROJECT INFORMATION

Pursuant to the California Environmental Quality Act, as amended:

- 1. Project Title:** North Bay Wetland Mitigation Bank
- 2. Lead agency name and address:** California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612
- 3. Contact person and phone number:** Elizabeth Morrison
(510) 622-2330
- 4. Project location:** 963 San Antonio Road, Petaluma, California.
Approximately two miles west of Highway 101
off San Antonio Road in Marin County.
- 5. Project sponsor's name and address:** Evan Ocheltree
North Bay Wildlife Conservation and Mitigation,
LLC
6243 River Road, Suite 7
Richmond, Virginia 23229
- 6. General plan designation:** AG1 – Agriculture
- 7. Zoning:** A60 Agriculture – Agriculture and Conservation

3.1 Other Agencies Whose Approval is Required

- USACE, Section 404 of the CWA – Nationwide Permit 27 for Aquatic Habitat Restoration
- CDFW, Section 1600 Lake or Streambed Alteration Agreement - Streambed Alteration Agreement
- Regional Water Board, SFRWQCB, Section 401 of the CWA - Water Quality Certification
- Marin County Department of Public Works Land Development Division – Grading Permit Application
- USFWS, Section 7 of the Endangered Species Act – Section 7 Consultation
- SHPO, Section 106 of the National Historic Preservation Act – Section 106 Consultation
- FIGR, Section 106 of the National Historic Preservation Act, CEQA – AB52 Tribal Consultations – Section 106 Consultation, AB52 Tribal Consultation

3.2 Project Description

Tributary channels present within the project area that now connect to the mainstem of San Antonio Creek did not historically convey their water or sediment directly to the mainstem channel. Historically, many of these tributaries terminated as small fans at the base of hillsides, and stream flows contributed to high water tables within the San Antonio Creek watershed, and base flows in the Creek's mainstem channel. Ditching of these tributaries to support agricultural practices increased drainage density within the watershed, which has perpetuated the cycle of bed incision and bank erosion observed in San Antonio Creek and its tributaries. Similar to the mainstem of San Antonio Creek, stream channel entrenchment in all valleys throughout the San Antonio Creek watershed has resulted in lowering of water tables in all of these valleys, including those making up the project area. The proposed project would re-establish more natural flow paths by spreading out water through the re-established seasonal wetlands. Benefits of the project are anticipated to include the following:

- Improved function and ecological condition of existing seasonal wetlands in the project area through reduced sediment input, non-native species removal, and native vegetation seeding and planting;
- Increased area of the seasonal wetland complex, with additional topographic heterogeneity, and increased water storage capacity to the benefit of adjacent waters;
- Increased California red-legged frog aquatic non-breeding habitat within the project area; and
- Enhanced resiliency to droughts and extreme flooding.

Construction activities to be undertaken for re-establishment of 7.74 acres and enhancement of 14.74 acres of seasonal wetlands include grading to create wetland basins and outlet swales, placement of bioengineered log structures to stabilize two outlet swales, and construction and decommissioning of roads to reduce sedimentation. Additional activities proposed include seeding and inter-seeding and exotic species removal. Following completion of construction, additional activities proposed include supplemental seeding (as needed) to achieve desired diversity and cover, a managed grazing regime, and continued exotic species control. All construction activities are proposed during summer of 2020 during the dry season (April through October) to minimize impacts on sensitive aquatic species including red-legged frogs and fisheries in that may be present in the adjacent creeks. The proposed project activities and management practices are described in further detail below.

3.2.1 Construction Activities

3.2.1.1 EXCAVATION AND GRADING

Excavation and grading would be implemented within existing upland grasslands/re-establishment areas for the creation of seasonal wetlands. A series of interconnected existing seasonal wetland meadows would be re-connected by the establishment of approximately 7.74 acres of seasonal wetlands. Re-establishment would be accomplished by excavating upland grasslands to elevations that intersect with seasonally high groundwater and in a configuration that would hold accumulated surface runoff. These features would be constructed on historic floodplain terraces that are exposed to concentrated sheet flows during rain events. Selection of re-establishment areas was based on data collection in the field and from external sources on soils and hydrology, modeling, evaluations of the contributing watershed area as compared to the size of the wetland and anticipated rainfall. The anticipated outcome is to create a wetland meadow complex composed of interconnected depressions

and swales as depicted in [FIGURE 7](#) and [FIGURE 8](#). Uplands would be excavated using skid stir excavators to depths of up to one foot deep and graded to create seasonal wetland basins designed to hold three to six inches of water and exhibit seasonal inundation or ponding ([FIGURE 9](#)). Final grades would be achieved through surface grading using graders and/or scrapers. Excavated soil would be hauled to proposed transitional and upland habitats in the project area and additional upland agricultural areas on the larger property for disposal ([FIGURE 12](#)). Field-based measurements of infiltration rates and estimates of permeability indicate appropriate conditions to support wetland hydrology are present; however, methods for influencing soil permeability, such as compacting the subbase below the topsoil, may be applied in cases where actual soil conditions warrant it as observed during construction.

Excavation of wetland basins to create 7.74 acres of wetlands is anticipated to generate 22,000 cubic yards of soil, rock, and/or aggregate material, that would be stockpiled onsite (as discussed in [SECTION 3.2.1.2](#)). Each seasonal wetland basin would drain through an earthen overflow weir and wetland swale to connect either to another seasonal wetland basin positioned at a lower topographic elevation, or directly to stream channels or riparian areas through stabilized vegetated swales and/or stabilized gullies.

The project grading plan was designed to maximize the amount of wetland re-establishment and enhancement while minimizing impacts to existing wetlands and non-wetland waters and avoiding cultural resource sites. Moreover, the timing of grading activities would take place during the dry season (between April and October) in 2020, to minimize impacts on CRLF – which may use the existing seasonal wetlands during periods of precipitation/inundation, and to reduce potential sediment exports to adjacent streams due to stormwater runoff. Additional measures would be implemented to reduce potential impacts on CRLF, which have been observed onsite, as well as on species observed adjacent to the project area in San Antonio Creek/Corda Creek, which are described in [SECTION 3.2.1.7](#) and [SECTION 4.5](#).

Grading/excavation for creation of wetland basins would result in permanent impacts on 7.74 acre of upland grasslands, due to conversion to seasonal wetland communities. Ground disturbance would be minimized to the greatest extent possible to maintain vegetative cover, maximize recovery from disturbance, and provide opportunities to establish mounds and hummocks within the wet-meadow complexes, which is a typical configuration for wetlands within and adjacent to the project area. No excavation or grading for creation of wetlands would occur within cultural resource sites or within a 100-foot buffer of these sites. Additionally, no existing seasonal wetlands would be graded or excavated for creation of the seasonal wetland basins.

3.2.1.2 MATERIAL DISPOSAL AND RE-USE, TEMPORARY HAUL ROADS

Soil excavated to re-establish seasonal wetland areas would be hauled onsite to proposed transitional and upland habitats in the project area for disposal. Temporary haul access roads are proposed, which would involve vegetation clearing ([FIGURE 12](#)); the haul roads would be revegetated with an appropriate native seed mix following construction. No material would be hauled offsite, and all internal haul trips would be less than a quarter of a mile. Construction of the project would require approximately 12 total haul trips of less than a quarter of a mile within the project area and less than half a mile from the project area for hauling 22,000 cubic yards of soil, rock and/or aggregate for permanent disposal. Excavation of the seasonal wetland cells would occur in phases, to reduce repeated trips for transport

of material. Excavators would construct one seasonal wetland cell at a time, placing excess material within the next proposed work area; approximately four inches of the excavated material would be back-filled into the constructed cell to serve as native topsoil. The remaining excess material would be excavated out with construction of the next seasonal wetland cell, thus creating a larger spoil pile as construction continues across the work area. After construction of the final wetland cell, the excess soil stockpile would be moved for disposal within the nearest permanent stockpile area (FIGURE 12). Material placed within the stockpile areas would be distributed to create natural appearing surface grades and would be reseeded with a native upland mix. These proposed permanent stockpile areas are currently uplands – these areas would be revegetated with a native upland seed mix, therefore, impacts to existing vegetation would be temporary.

3.2.1.3 SWALE STABILIZATION

Two outlet swales that would extend from the re-established wetland basins would be stabilized using a combination of bioengineering log structures and native plantings (FIGURE 7). The log structures would provide long range stability of the swale and channel inverts and would reduce continued erosion and head cutting (abrupt vertical drops). Redwood and Douglas fir or oak logs would be installed using earth moving equipment such as a skid steer loader. Native herbaceous wetland and riparian seed would be planted to help improve vegetative cover. In addition, biodegradable erosion control fabric would be installed to provide short-term stability as vegetation becomes established. Placement of the bioengineered log structures would result in minor impacts on the wetland vegetation within the swale due to installation but would improve overall conditions of the swale through stabilization and improving flow dynamics.

3.2.1.4 ROAD IMPROVEMENTS

Sediment reduction into project area seasonal wetlands and drainages would be attained by improving the ranch roads and associated infrastructure through the implementation of the Road Management Plan (Pacific Watershed Associates 2017) (FIGURE 13). Approximately 3,869 linear feet roads would be decommissioned (abandoned), roughly 9,600 linear feet of existing road would remain, and 1,286 linear feet of new road would be constructed (FIGURE 13). Roads would be upgraded or decommissioned to improve resiliency during large storm events and reduce erosion, thereby reducing future sediment delivery into the existing and restored aquatic resources on and adjacent to the project area. Two sections of road would also be rerouted to remove an existing hydrologic connection to a stream or wetland.

The following activities are proposed for road upgrades:

Culvert upgrades – the project would involve replacement or placement of existing undersized culverts on four drainage/swale crossings to accommodate 100-year peak storm flows. Either 24-inch or 18-inch corrugated metal pipe (CMP) would be installed on grade with the natural stream/channel grade. Culvert upgrades would prevent flow impediment and reduce erosion at road crossings.

Armored fill/grade control – the project would involve installation of rock and/or riprap armoring and/or grade control at five drainage or swale crossings where channelized flows are common, channel gradients are steep, and/or a culverted crossing is not feasible. Armored fill and grade control would result in permanent impacts on 0.068 acre of ephemeral streams, 0.018 acre of intermittent streams, and 0.008 acre of seasonal wetlands (swale).

Rolling dips – would be installed on low- to moderate-gradient hydrologically connected roads to disperse runoff and discharge it onto the hillslope below the road. The rolling dips would reduce year-round sediment delivery from road surfaces.

Road shaping – would change the existing geometry or orientation of the road through insloping or outsloping roads to control road surface runoff by dispersing it into a roadside ditch or onto the adjacent hillslope. Road shaping would involve surface grading and would primarily be contained within the existing road prism. Permanent impacts would occur on 0.008 acre of ephemeral streams and 0.002 acre of seasonal wetlands (swale). Potential temporary increases in sedimentation would be addressed through construction timing and avoidance measures (SECTIONS 3.2.1.6 and 3.2.1.7).

Road decommissioning - is proposed for certain stretches of road that exhibit serious erosion problems. Roads would be decommissioned through road ripping during which the road surface is disaggregated or decompacted. The roadbed would then be reseeded to restore vegetation cover.

Ditch improvements – roadside ditches would be cleaned, removed, or cut to improve and direct flow conveyance and reduce sediment delivery into aquatic resources.

Road Reroutes – Approximately 1,124 linear feet of new road would be constructed to reroute two section of the existing north pasture road that are hydrologically connected to a stream (west re-route) or wetland (east reroute) (FIGURE 13). The rerouted sections would remove the current road alignment from existing wetlands (east reroute) and to redirect the road over a culverted section of a perennial drainage (west reroute) (FIGURE 13). The rerouted road sections would involve vegetation removal within existing upland grassland and minor surface grading to achieve a road prism that would divert flows and sediments away from aquatic resource areas. Potential temporary increases in sedimentation would be addressed through construction timing and avoidance measures (SECTIONS 3.2.1.6 and 3.2.1.7). Road reroutes are anticipated to cause temporary and permanent impacts on approximately 0.3 acre of upland grasslands.

The Road Management Plan projects that the implementation of these treatments would reduce the amount of sediment entering the wetlands over the next 30 years by a total of 205 cubic yards. For context, a cubic yard of soil could be spread to cover 100 square feet. All road improvement work would occur during the dry season to minimize transport of sediments during construction and to reduce the likelihood of encountering red-legged frogs during project construction.

3.2.1.5 UTILITY RELOCATION

The project area contains an electrical line and water line that service a pool and pool house situated roughly 400 feet south of the southeast corner of the project area. The water and electrical lines traverse through the eastern portion of the project area and currently follow separate alignments. As part of the proposed project, these utility lines would be relocated along the same alignment paralleling the eastern boundary of the project area above Corda Creek (FIGURE 13).

Because the existing water and electrical lines only service the pool house and do not extend offsite, temporary disruption of service for relocation of these utilities would not impact adjacent resident's'

access to water and electricity. Placement of the new utilities lines would result in temporary impacts on approximately 0.02 acre of upland grasslands.

3.2.1.6 CONSTRUCTION TIMING

Project construction would occur entirely within the dry season (between April and October 2020) to reduce potential impacts on CRLF and would be dependent upon complete concurrence by the authorizing agencies. Construction is anticipated to begin in summer 2020. Construction duration is expected to be between six and eight weeks, depending on weather conditions. Mobilization of construction equipment would occur prior to project implementation and would occur during one mobilization event. Following completion of onsite excavation and grading, reseeding would occur following completion of construction and planting would occur in early fall, prior to the start of the wet season/growing season.

All construction activities would cease one half hour before sunset and could not begin prior to one half hour after sunrise to limit disturbances on CRFL and other primarily nocturnal wildlife species. The construction crew would likely consist of up to ten workers at a time. Construction workers and other associated work staff would park only in designated staging areas located within the project area (FIGURE 12).

3.2.1.7 CONSTRUCTION AVOIDANCE MEASURES AND GENERAL BEST MANAGEMENT PRACTICES

The following avoidance measures and best management practices (BMPs) would be implemented during project construction to minimize impacts on the environment:

- The construction limit of disturbance would be clearly identified and marked in the field and no mechanized ground disturbance would occur outside of the disturbance footprint.
- Prior to initiating project construction activities, the project area would be surveyed by a qualified biological monitoring for the presence of sensitive species identified as having potential to occur on the project area and those previously identified on the project area – including red legged frogs.
- Should project construction occur during the nesting bird season (February through August), a nesting bird survey would also be completed, and nest areas would be avoided until hatchlings have fledged.
- Existing wetlands and non-wetland waters would not be impacted by surface grading and would be preserved, and construction activities would be prohibited within these areas. Additionally, surface excavation and grading would not occur within cultural resources areas or within 100-feet of these areas. Excavation and grading would also avoid impacts to existing trees and woodland areas. No trees would be removed for project construction.
- Project-specific Worker Environmental Awareness Program (WEAP) training would be developed and implemented by a qualified biologist and attended by all Project construction personnel prior to beginning work in the project area. Construction workers would be provided with training in identification of sensitive species and habitats, and of the location and importance of existing wetlands and waters prior to beginning construction activities.
- All construction equipment would be parked in designated staging areas; fueling and maintenance of equipment would be performed only in these areas (FIGURE 12). All staging areas would be located a minimum of 100 feet away from wetlands and streams.

- A hazardous materials management/fuel spill containment plan would be developed and implemented by the construction contractor and given to all contractors working on the project, with at least one copy of the plan located on site at all times. The spill containment plan would be developed following EPA guidance for Spill Prevention, Control, and Containment, and would include measures such as providing secondary containment (e.g., drip pans, sorbent material).
- All construction routes and boundaries will be clearly demarcated in the field; movement of heavy equipment would be restricted to access roads and within the disturbance footprint to minimize habitat disturbance.
- Erosion control and sediment detention devices (e.g., silt fences) would be in place during construction and following construction, as necessary, to minimize fine sedimentation and siltation, and to detain sediment-laden water on-site. These devices would be placed at all locations where sediment input is likely to occur, including around soil stockpile material to prevent runoff from transporting sediments into sensitive habitats.
- All disturbed soils would undergo erosion control treatment, including temporary seeding and sterile straw mulch, prior to October 15 and following completion of construction work. Erosion control blankets or staked tarps shall be installed over disturbed soils on all gradients of over 30 percent.
- The potential for wildfires would be reduced by parking vehicles away from vegetation to the extent feasible and by the use of shields, protective mats, and other fire prevention methods when welding, grinding, or conducting other activities that are likely to create a fire hazard. The project area would have adequate sources of water, shovels, and fire extinguishers available for immediate use. All vehicles and heavy equipment used in the project area shall have on-board fire extinguishers. During the dry season, vehicles would never be parked or idled so that the undercarriage is in contact with vegetation.
- The project area would remain free and clear of debris and discarded materials. All food-related trash such as wrappers, cans, bottles, and food scraps would be contained in sealed containers and removed weekly.

Construction activities also would temporarily generate fugitive dust from earthmoving and equipment use. The proposed project would implement the following BAAQMD's *CEQA Air Quality Guidelines* to reduce the impact of dust on the environment:

- All exposed surfaces (e.g. parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. Water trucks would be refilled using well water collected at the onsite well.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

- A publicly visible sign shall be posted with the telephone number and person to contact with the project contractor regarding dust complaints. This person shall respond and take corrective action with 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

3.2.2 Planting Plan

The seasonal wetland re-establishment and enhancement areas would be seeded or planted, depending on the species to ensure the establishment of native wetland vegetation. All proposed wetland re-establishment areas would be at least 50 feet beyond the edge of the existing and proposed ranch roads. A mixture of native shrubs and grasses would be also seeded within the vegetated buffer to add additional buffering the road from the proposed wetlands. The proposed pre-treatment and seeding/planting activities are described below.

3.2.3.1 PRE-TREATMENT

Prior to seeding the enhancement area wetlands, the following activities would be implemented to improve native plant establishment.

- "Flash" grazing (brief period of grazing with high concentration of livestock) during the growing season to decrease vegetation cover and biomass;
- Repeated mowing/weed whipping towards the end of the 2020 growing season before seed is set;
- Targeted shallow tilling towards the end of the 2020 growing season before seed set; and
- Pre-emergent herbicides and species-specific herbicides applied at seasonally appropriate times (when wetlands are dry)

3.2.3.2 WETLAND REVEGETATION/ENHANCEMENT PLANTINGS

Seasonal wetlands would either be seeded or planted with containerized plants to ensure the establishment of native wetland vegetation following establishment of final grades and project area preparation. If seed is used, it would be sown with drill seeders where slopes and access allow. Where slopes or access makes drill seeding infeasible, seed would be hand-sown and raked or pressed into the soil with a sheeps-foot roller to improve seed-soil contact. Seed would be sown in late summer prior to the early fall rains to improve chances of germination.

If possible, seed stock would be collected from the project area or within the immediate watershed to maintain local genetics; local nursery stock would also be used depending on availability.

The wetland planting areas would be dominated by common rush (*Juncus patens*), meadow barley (*Hordeum brachyantherum*), common spikerush (*Eleocharis macrostachya*), field sedge (*Carex praeegracilis*) and several species commonly found within seasonal wetlands located within the project area and in nearby reference wetlands. Supplemental seeding may be implemented to augment establishment of diverse native wetland vegetation in the seasonal wetlands. Desired cover and density of plantings would be based on reference sites of existing seasonal wetland within the vicinity of the project area.

3.2.3.3 TRANSITIONAL UPLANDS/BUFFERS

All proposed wetland re-establishment areas would be at least 50 feet beyond the edge of the existing and proposed ranch roads. A mixture of native shrubs and grasses would be seeded within the vegetated buffer to add additional buffering between the road from the proposed wetlands. Seeding would take place in late summer/early fall, prior to the onset of the fall rains. The goal of upland seeding is to establish coverage of native vegetation.

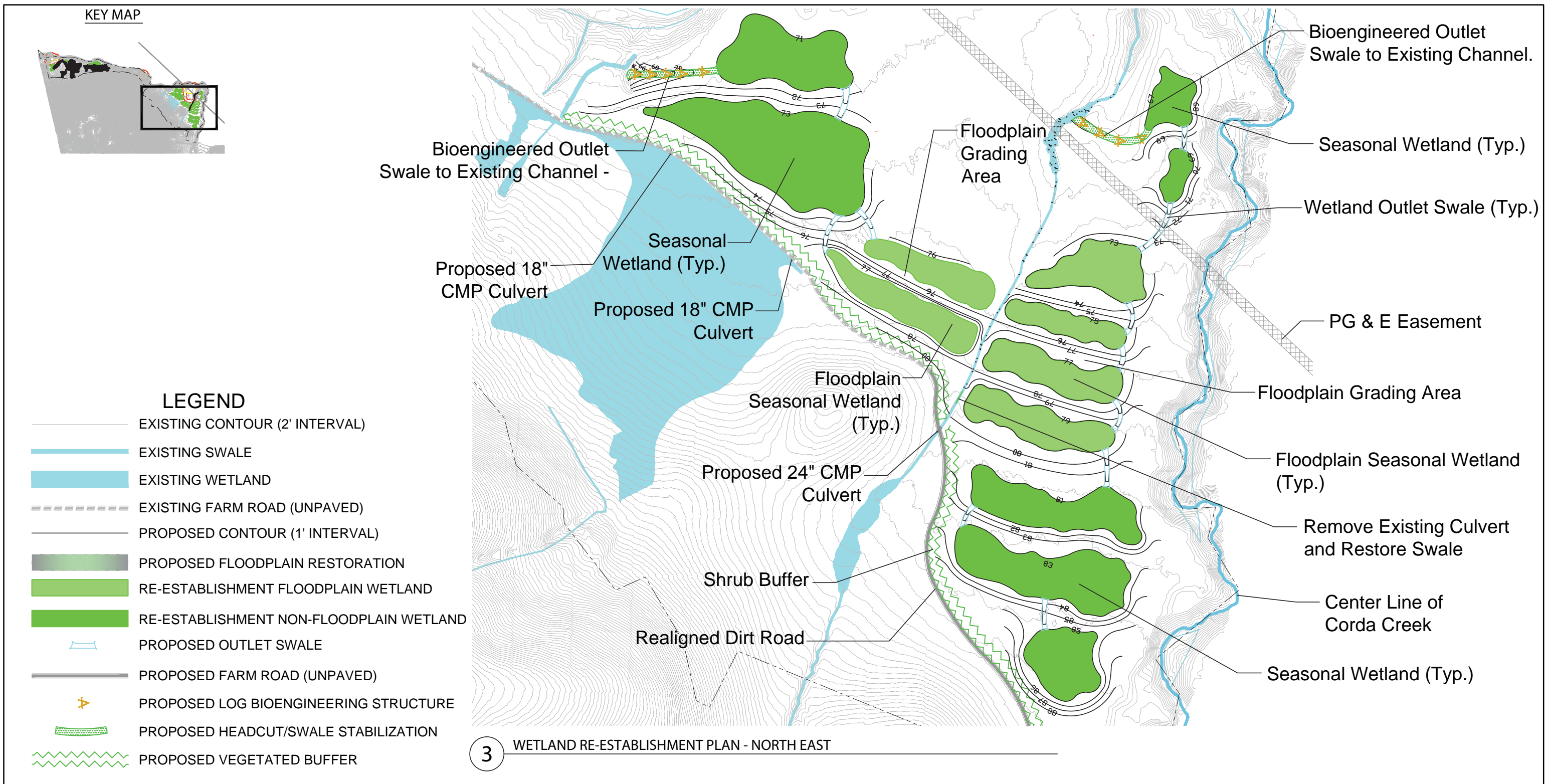
3.2.3.4 IRRIGATION

Seeding/planted seasonal wetlands would be irrigated via overhead spray for one year during the dry season until new plants have been established. The minimum amount of water to provide for plant health would be applied. All water for irrigation purposes would be sourced from a well located within the project area; no water would be used from the adjacent creeks or from municipal sources.

3.2.3.5 WEED MANAGEMENT

Noxious and problematic weed species would be controlled through mechanical and/or chemical means as deemed appropriate by a contracted professional weed control specialist for individual species control. The project sponsor would work with the certified weed control specialist and licensed applicator to eliminate Cal-IPC moderate and high-risk species within the project area. Only use of aquatic-approved and CRLF-approved herbicides would be used within the project area. Herbicide application would follow all applicable State and County ordinances. Mechanical control (mowing/hand removal) of noxious weeds and non-native species would be prioritized over chemical control, as deemed appropriate by the weed control specialist. However, certain species and dense infestations may be more effectively eliminated/controlled through herbicide application.

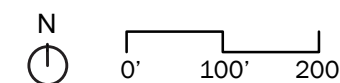
Areas that are subject to ground disturbances would be treated for weeds prior to construction according to control methods and practices identified by the weed control specialists but would be done in coordination with the USFWS. The application of any herbicides would occur by a California Licensed Qualified Applicator. Weed management activities would continue post-construction as part of interim- and long-term management of the project area, as discussion under [SECTION 3.2.3](#).

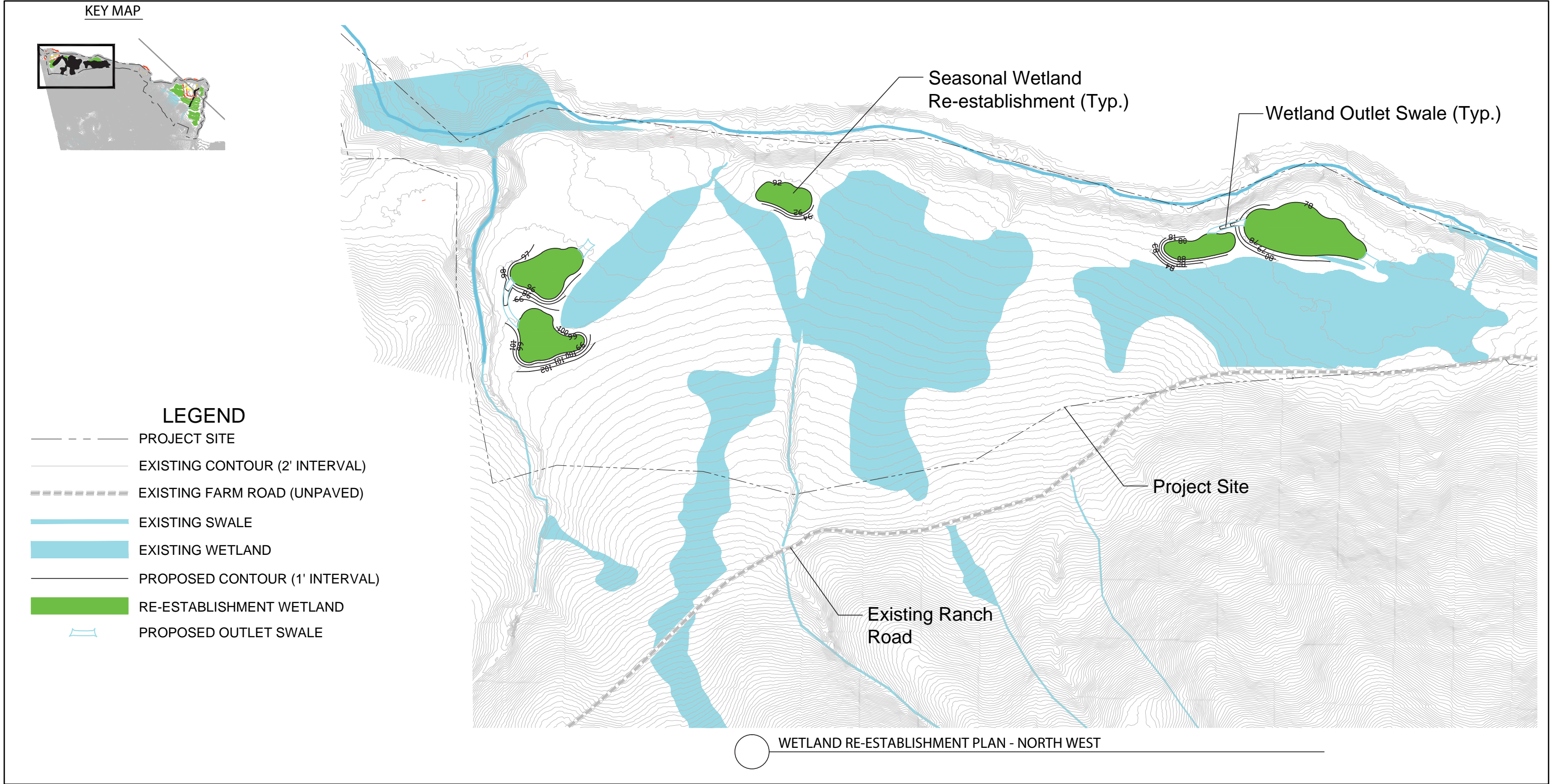


NORTH BAY MITIGATION BANK SEASONAL WETLAND RE-ESTABLISHMENT GRADING PLAN (NORTHEAST AREA)

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
JUNE 2019

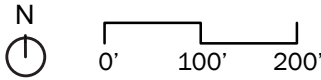
FIGURE 7
Original Figure by WRA, Inc.

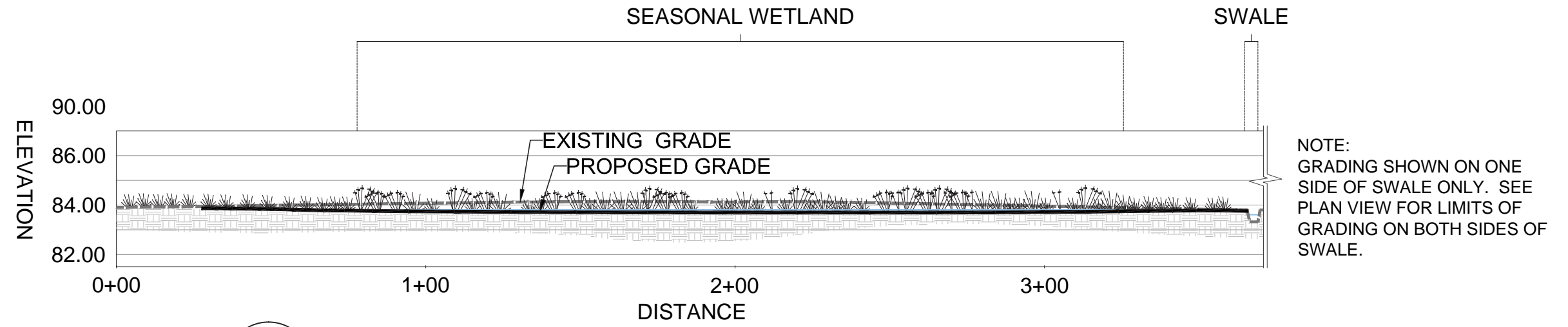




**NORTH BAY MITIGATION BANK
SEASONAL WETLAND RE-ESTABLISHMENT
GRADING PLAN (NORTHWEST AREA)**
INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
JUNE 2019

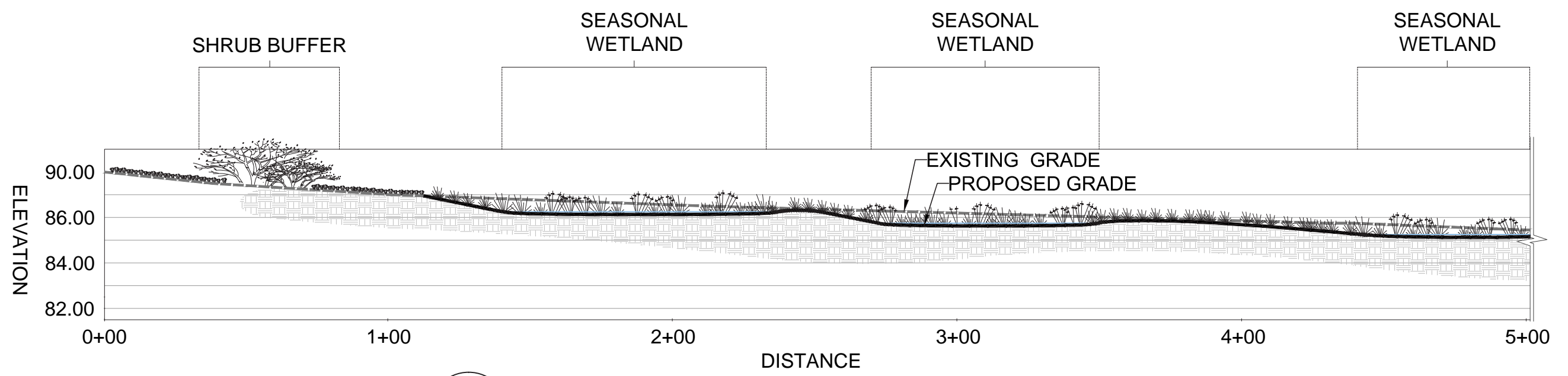
FIGURE 8
Original Figure by WRA, Inc.





1 TYPICAL SECTION - SEASONAL WETLAND CROSS SECTION

SCALE: AS SHOWN



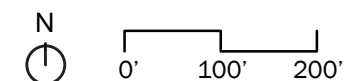
2 TYPICAL SECTION - SEASONAL WETLAND PROFILE

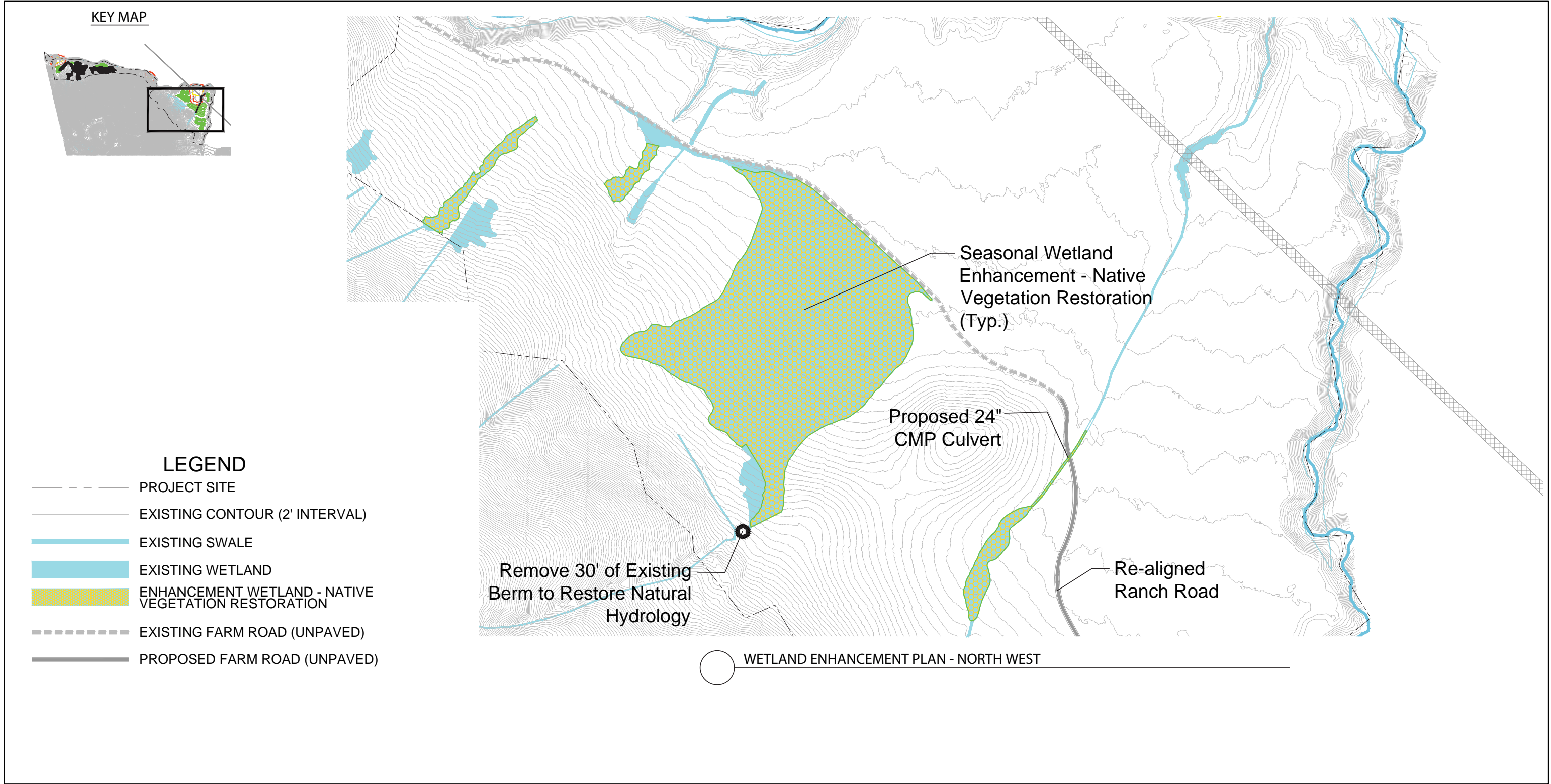
SCALE: AS SHOWN

NORTH BAY MITIGATION BANK **SEASONAL WETLAND RE-ESTABLISHMENT** **GRADING SECTIONS**

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
 JUNE 2019

FIGURE 9
 Original Figure by WRA, Inc.

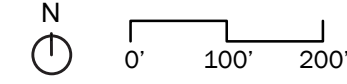


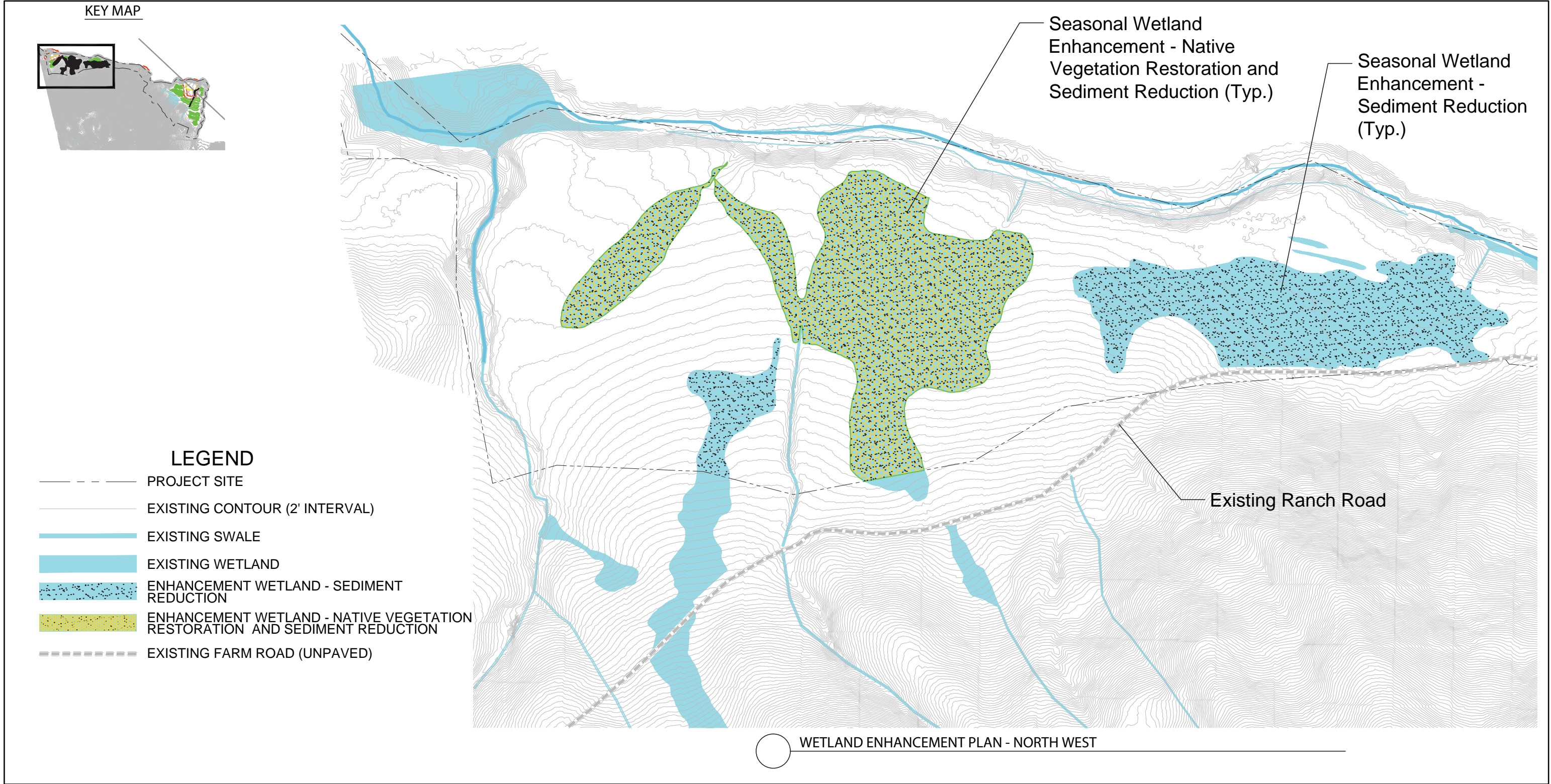


**NORTH BAY MITIGATION BANK
SEASONAL WETLAND ENHANCEMENT
PLAN (NORTHEAST AREA)**

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
JUNE 2019

FIGURE 10
Original Figure by WRA, Inc.

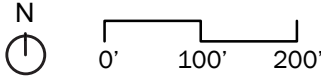


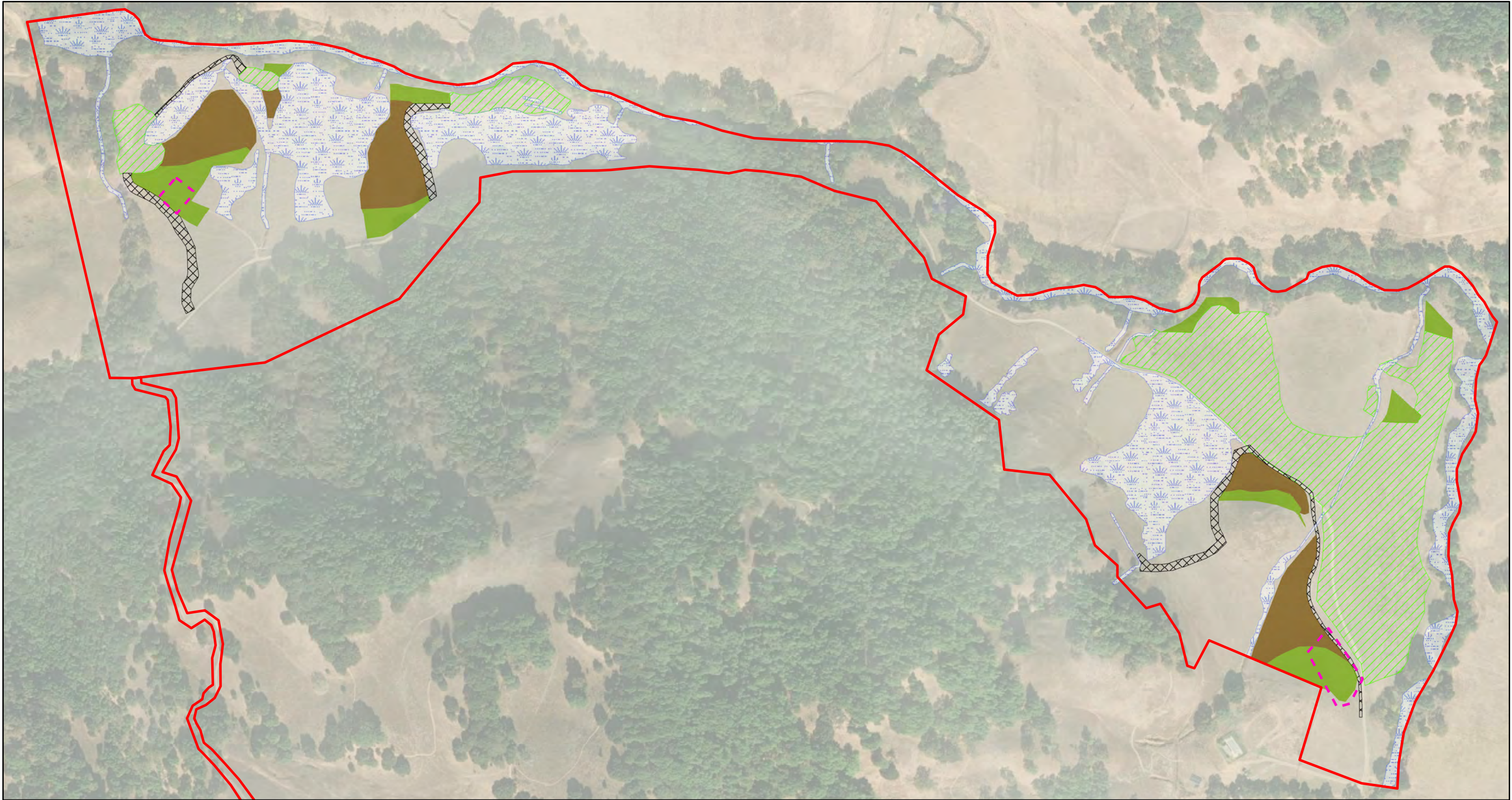


NORTH BAY MITIGATION BANK SEASONAL WETLAND ENHANCEMENT PLAN (NORTHWEST AREA)








INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
JUNE 2019

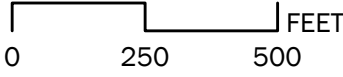
FIGURE 11
Original Figure by WRA, Inc.

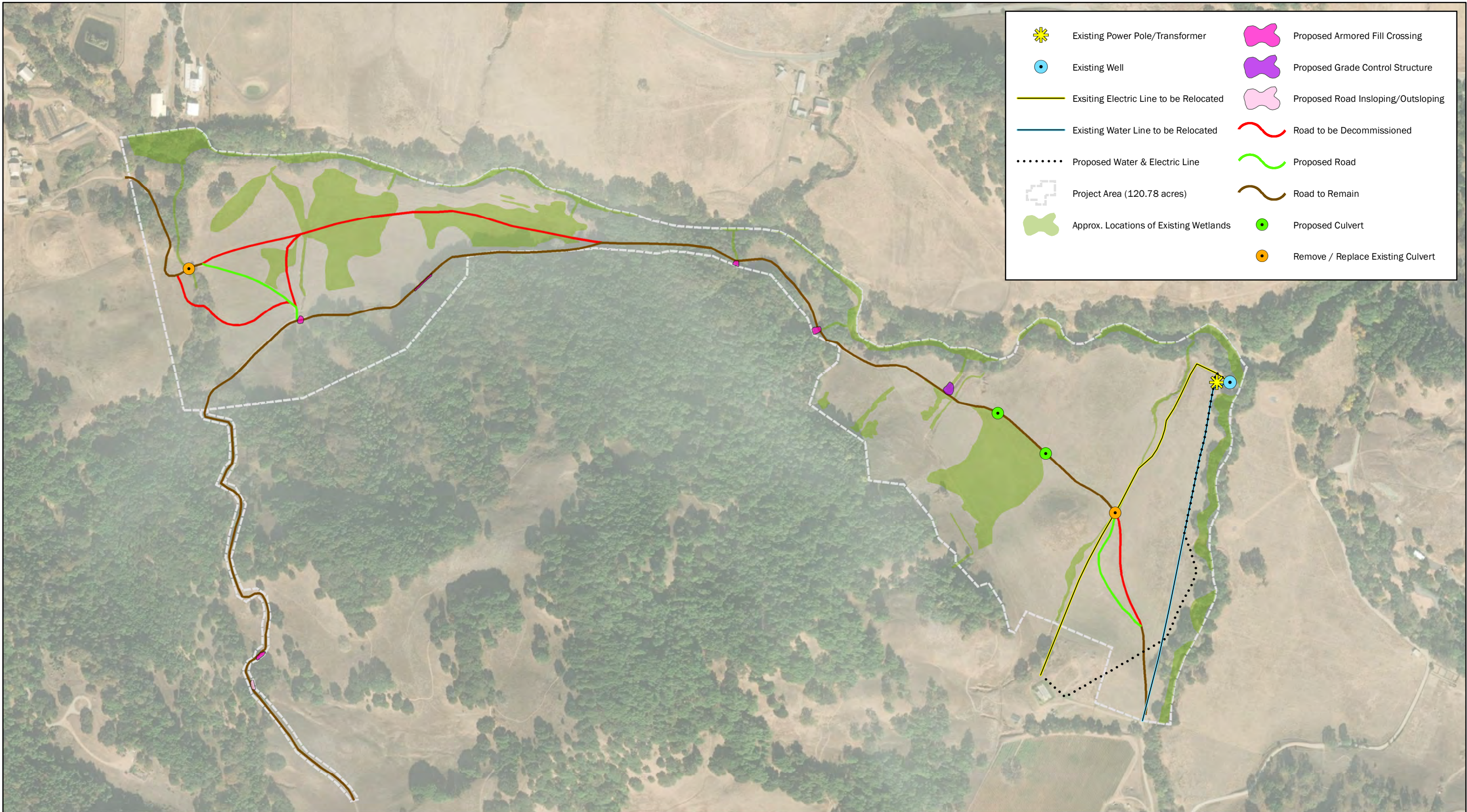




**NORTH BAY MITIGATION BANK
SOIL STOCKPILES, HAUL ROADS, & STAGING AREAS**

- | | |
|---|--|
|  Project Area (120.78 acres) |  Permanent Stockpile |
|  Proposed Staging Areas |  Temporary Stockpile |
|  Existing Wetlands |  Proposed Haul Roads |
| |  Wetland Grading Area |





NORTH BAY MITIGATION BANK ROAD AND UTILITY PLAN

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
OCTOBER 2019

Imagery/Layers: ESRI
NAD 1983 California State Plane Zone III



0 250 500 Feet



3.2.3 Management Actions

The following post-planting actions would be implemented within the wetland re-establishment and enhancement areas to ensure plant establishment is successful and that ecological functions are maintained or improved.

3.2.3.6 GRAZING PLAN

Historically, the project area was managed for agricultural uses including grazing; presently the project area is grazed by cattle and/or horses during the growing season. The current cattle lessee is Sonoma Mountain Institute, which operates a restorative grazing program to build soil and promote native plant biodiversity. Within the project area, the average annual herd size ranges between 12 and 32 animal units (AU) depending on grazing conditions. The project area pastures get an average of 40 to 60 days of rest in the growing season and 180 to 200 during the non-growing season.

In order to maintain the same benefits provided by the current grazing regime, a Grazing Plan was developed to identify appropriate grazing AUs based on time of year and annual precipitation/site conditions (WRA 2018b). To reduce cover of non-native vegetation, improve success of native wetland vegetation, reduce thatch accumulation, and improve wetland hydrology cattle grazing would continue to be implemented strategically within the project area. The proposed number of AUs would be the same as currently grazed– between 12 and 32, depending on growing conditions, for a six-month grazing program. Initially, cattle would be excluded from the restored aquatic resource areas to allow for plant establishment. Grazing would primarily occur during the wet season (winter and spring – November through April) but may also include targeted flash grazing to address invasive species or thatch accumulation. Cattle would be moved to adjacent offsite pasture areas during times when vegetation conditions are unfavorable for grazing. Annual monitoring would occur each spring to estimate available forage, and adjustments to herd size and grazing periods would be made based on prior year measurements. Other adjustments may be made during the grazing periods to ensure that stocking rates allow for low-impact grazing that would improve habitat structure, reduce thatch, minimize fire hazards, and manage invasive species. No additional impacts are anticipated from the proposed grazing regime and grazing is expected to result in net benefits for vegetation management and wetland function.

3.2.3.7 INTERIM MANAGEMENT

The interim management would begin when the mitigation bank is established and would continue until all the mitigation bank performance standards have been met. Activities implemented during the interim management period would include changing grazing practices based on site conditions, monitoring re-established and enhanced seasonal wetland sites for degrading conditions and invasive species, fence maintenance, trash removal, and other tasks as necessary.

Wetland monitoring and maintenance would entail weed monitoring and treatment, minor native vegetation re-seeding, erosion monitoring and control, and a California Rapid Assessment Method (CRAM) assessment. Invasive weeds rated “High” by the Cal-IPC would be mapped and treated as soon as possible (based on the appropriate timing and phenology of the invasive species) to prevent further infestation in the project area. Graded areas and installed structures (culverts/armored crossings) would be monitored for evidence of erosion or instability after large rain events during the first five years after construction, or until vegetation has become well established. Swales from re-

established seasonal wetlands to existing wetlands would specifically be monitored for stability and erosion. As needed, additional erosion control measures may be installed including straw wattles, silt fencing, jute netting or reseeding with a native erosion control mix. If culverts/armoring structures are observed to show signs of unexpected erosion or instability, they would be immediately inspected by a qualified hydrologist or landscape architect and any needed remedial actions would be implemented. Any remedial actions would follow the same avoidance and minimization measures applied during project construction to minimize impacts on sensitive species and habitats.

3.2.3.8 LONG TERM MANAGEMENT

The project area would be held under Conservation Easement in perpetuity. After the interim management period is complete, the project area would transition into the long-term management period. Long-term management would be the responsibility of the Property Owner. The purpose of long-term management is to ensure that the project area is managed, monitored, and maintained in perpetuity. A long-term management plan developed by the project applicant would identify objectives, priorities, and tasks to monitor, manage, maintain and report on the waters of the U.S./State, in the project area. Annual monitoring will assess the project area's condition, degree of erosion, invasion of exotic or deleterious (e.g., thatch producing) species, water quality, fire hazard, and/or other aspects that may warrant management actions.

Wetlands within the project area would be monitored, conserved, and maintained. At least one annual survey would be conducted to qualitatively monitor the general condition of the Project Area's wetland habitats. General topographic conditions, hydrology, general vegetation cover and composition, invasive species, excessive erosion, and significant impacts from cattle, would be noted, evaluated, and mapped. Swales from re-established seasonal wetlands to existing wetlands would specifically be monitored for stability and erosion. Non-native invasive species would be monitored and controlled. An annual invasive species survey would be conducted and would include mapping of observed noxious weed populations (ranked Moderate or High by Cal-IPC) in wetlands and in uplands. Weed infestations would be controlled using state-accepted control methods including, but not limited to, physical removal, chemical treatment, and alteration of the grazing regime.

4.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages:

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input checked="" type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Energy
<input checked="" type="checkbox"/>	Geology/Soils	<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials
<input checked="" type="checkbox"/>	Hydrology/Water Quality	<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources
<input type="checkbox"/>	Noise	<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services
<input type="checkbox"/>	Recreation	<input type="checkbox"/>	Transportation	<input checked="" type="checkbox"/>	Tribal Cultural Resources
<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Wildfire	<input type="checkbox"/>	Mandatory Findings of Significance

DETERMINATION:

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
<input type="checkbox"/>	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.	
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	
<input type="checkbox"/>	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.	
<input type="checkbox"/>	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.	
Signature:		Date:
Printed Name:		For:

4.1 *Evaluation of Environmental Affects*

The Environmental Checklist and discussion that follows is based on sample questions provided in the 2019 CEQA Guidelines (Appendix G) which focus on various individual concerns within 20 different broad environmental categories, such as air quality, cultural resources, land use, and traffic (and arranged in alphabetical order). The Guidelines provide specific direction and guidance for preparing responses to the Environmental Checklist. Each question in the Checklist essentially requires a “yes” or “no” reply as to whether or not the project will have a potentially significant environmental impact of a certain type, and, following a Checklist table with all of the questions in each major environmental heading, citations, information and/or discussion that supports that determination. The Checklist table provides, in addition to a clear “yes” reply and a clear “no” reply, two possible “in-between” replies, including one that is equivalent to “yes, but with changes to the project that the proponent and the Lead Agency have agreed to, no”, and another “no” reply that requires a greater degree of discussion, supported by citations and analysis of existing conditions, threshold(s) of significance used and project effects than required for a simple “no” reply. Each possible answer to the questions in the Checklist, and the different type of discussion required is discussed below:

Potentially Significant Impact. Checked if a discussion of the existing setting (including relevant regulations or policies pertaining to the subject) and project characteristics with regard to the environmental topic demonstrates, based on substantial evidence, supporting information, previously prepared and adopted environmental documents, and specific criteria or thresholds used to assess significance, that the project will have a potentially significant impact of the type described in the question.

Less Than Significant with Mitigation. Checked if the discussion of existing conditions and specific project characteristics, adequately supported with citations of relevant research or documents, determine the project clearly will or is likely to have particular physical impacts that will exceed the given threshold or criteria by which significance is determined, but that with the incorporation of clearly defined mitigation measures into the project, that the project applicant or proponent has agreed to, such impacts will be avoided or reduced to less-than-significant levels.

Less Than Significant Impact. Checked if a more detailed discussion of existing conditions and specific project features, also citing relevant information, reports or studies, demonstrates that, while some effects may be discernible with regard to the individual environmental topic of the question, the effect would not exceed a threshold of significance which has been established by the Lead or a Responsible Agency. The discussion may note that due to the evidence that a given impact would not occur or would be less than significant, no mitigation measures are required.

No Impact. Checked if brief statements (one or two sentences) or cited reference materials (maps, reports or studies) clearly show the type of impact could not be reasonably expected to occur due to the specific characteristics of the project or its location (e.g. the project falls outside the nearest fault rupture zone, or is several hundred feet from a 100-year flood zone, and relevant citations are provided). The referenced sources or information may also show the impact simply does not apply to projects like the one involved. A response to the question may also be “No Impact” with a brief explanation that the basis of adequately supported project-specific factors or general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a basic screening of the specific project).

4.2 Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
2. AESTHETICS: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.2.1 Affected Environment

The project area is situated within a rural setting in the north Marin Hills, approximately seven miles south of Petaluma town center. The surrounding visual landscape is primarily undeveloped private open space/rangelands and agricultural lands, including vineyards, grazing land, and other rural residential uses. San Antonio Creek flows east to west along the north boundary of the project area, which is contained within a deep and narrow drainage corridor flanked by dense riparian woodland. San Antonio Road parallels the creek to the north. The project area is visible in views only from the southeast access road and appears as undeveloped grassland meadows/hillslopes and-oak/bay woodlands. Views of the project area from San Antonio Road are obscured by dense riparian woodland and hillslopes. Views of San Antonio Creek and Corda Creek are also obscured by dense woodlands/riparian. The proposed project would involve surface grading and excavation within the undeveloped grassland meadows/hillslopes, resulting in temporary clearing and displacement of vegetation in graded areas during the first growing season.

4.2.2 Discussion of Impacts

a) Have a substantial adverse effect on a scenic vista?

Less than significant impact. The project area is located in the northern Marin Hills, Petaluma, Marin County, California and is bound on all sides by open space and rangeland, with scattered residences and ranch buildings; San Antonio Creek flows along the northern margin of the project area. The project area's visual character is comprised of agricultural lands, including grazing lands, vineyards, ranch complexes, and rural residential uses. There are no officially designated Marin County scenic vistas that overlook the project area. Further, the project activities, restoration and revegetation, are compatible with the existing visual environment in terms of visual character and

quality. No ridges or scenic vistas would be altered by the proposed project activities. The proposed project grading activities would temporarily result in reduced vegetation cover within the grassland/wetland meadows; this impact to the visual landscape would be present only during the first year until revegetation/germination begins during the subsequent growing season. Additionally, during the six weeks duration of project construction heavy equipment would be present within the project area. The proposed project would not result in the removal or planting of trees and/or shrubs and following revegetation of the project area, the visual landscape would resemble pre-project conditions. Therefore, the project's impact to scenic vistas would be less than significant.

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

No impact. State scenic highways refer to those highways officially designated by the California Department of Transportation (Caltrans) as scenic (Caltrans 2019). Generally, the area defined within a State scenic highway is land adjacent to and visible from the vehicular right-of-way. The dimension of a scenic highway is usually identified using a motorist's line of vision, but a reasonable boundary is selected when the view extends to the distant horizon. The scenic highway corridor extends to the visual limits of the landscape abutting the scenic highway. The project area is not located near or visible within the composite line-of-site of an officially designated State scenic highway and would not damage or remove visual resources within a State scenic highway. The proposed project activities would not impact any important historically significant building. The project area contains several oak woodland communities; however, no trees would be removed or disturbed by the proposed project activities. Therefore, the proposed project would not have any substantial adverse effect on a scenic resource within a State scenic highway.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than significant impact. The proposed project may alter the visual character of the project area and its surroundings during project construction and temporarily following construction as the project area revegetates; such temporary impacts would include the active construction site and bare, graded soil. However, once project construction is completed, the varied views to the project area from offsite properties and travelers along nearby public roadways would not be substantially degraded because the proposed project would maintain the overall open space character of the project area. Therefore, the proposed project would not result in any significant or permanent impact effect on visual character or quality onsite or in the surrounding area; temporary impacts would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No impact. The proposed project does not propose any lighting or structures that could create a significant new source of substantial light or glare, adversely impacting daytime or nighttime views in the area. No nighttime construction would occur. Therefore, the proposed project has no impact on light and glare, on a project or cumulative level.

4.3 Agriculture and Forest Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
3. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.3.1 Discussion of Impacts

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No impact. The project area is not considered Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on maps of Marin County prepared by the California Department of Conservation, Farmland Mapping and Monitoring Agency (DLRP 2019). The project area is listed as Farmland of Local Importance. The project area has been under agricultural use for several decades and currently is grazed by cattle and horses during the growing season. The proposed project would implement a managed grazing program as described under [SECTION 3.2.3.6](#).

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No impact. The project area is currently under a Williamson Act contract; however, the planned mitigation bank would be consistent with, and continue current agricultural uses (grazing) of the

project area and would prevent development on the remaining acreage. The planned use would not conflict with land use pursuant to the Williamson Act. No changes to existing zoning are anticipated and the proposed project would result in placement of the project area under permanent conservation easement.

- 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 Code section 51104(g))?**

No impact. The project area supports mature stands of California Bay Forest, California Buckeye Woodland, Coast Live Oak Woodland, Oregon White Oak Woodland, and Valley Oak Woodland. No timber harvesting or tree removal is proposed. Planned use of the project area would not conflict with or alter zoning of forest land, timberland, or timberland zoned Timberland Production.

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

No impact. The project area supports mature stands of California Bay Forest, California Buckeye Woodland, Coast Live Oak Woodland, Oregon White Oak Woodland, and Valley Oak Woodland. However, the proposed project would not result in the removal or disturbance to any tree within the project area. The planned use for the project area would not result in a reduction of forest land or conversion of forest land to non-forest use. An annual walk-through survey to qualitatively monitor the general condition of the project's habitats is incorporated into the Long-Term Management Plan (LTMP) (WRA 2017b).

- 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?**

Less than significant Impact. As a result of this project, approximately 22.48 acres (encompassing the wetland re-establishment and enhancement areas) of grazing land would be temporarily removed from rotation to allow for vegetation establishment. However, agricultural use (grazing) would be implemented for vegetation management purposes after the vegetation has established. Periodic habitat restoration may be required within the wetland establishment areas that would require temporary exclusion of grazing within the restoration areas. Overall, the loss of agricultural use of the land, which is currently in grazing use, would be less-than-significant. The potential impact on the existing environment is less than significant.

4.4 Air Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
4. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.4.1 Affected Environment

This air quality analysis is consistent with the methods described in the Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* (updated in May 2017).¹ This air quality analysis includes a review of air pollutant emissions such as carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOC) as reactive organic gases (ROG), particulate matter less than 10 micrometers (coarse or PM₁₀), and particulate matter less than 2.5 micrometers (fine or PM_{2.5}) that would be associated with the project construction activities described under [SECTION 3.2.1](#).

4.4.1.1 REGIONAL METEOROLOGY

The project area is located within the San Francisco Bay Area Air Basin (Air Basin), which encompasses Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the southern portions of Solano and Sonoma Counties. The Air Basin is characterized by complex terrain which distorts normal wind flow patterns, consisting of coastal mountain ranges, inland valleys, and bays.

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, stability, and air temperature, in combination with local surface topography (i.e. geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

¹ The Air District's June 2010 adopted thresholds of significance were challenged in a lawsuit. Although the BAAQMD's adoption of significance thresholds for air quality analysis has been subject to judicial actions, the BAAQMD's Revised Draft Options and Justification Report (October 2009) provide substantial evidence to support the BAAQMD recommended thresholds. Therefore, the BAAQMD recommended thresholds are appropriate for use in this analysis.

The west coast and southern portions of Marin County are often subject to cool marine air and substantial fog. Temperatures in these areas remain steady through the year because of the nearby ocean. Eastern Marin County is warmer and has less fog, due in large part to its distance from the ocean. Prevailing winds throughout the county are generally from the northwest, with wind speeds highest along the west coast. Annual rainfall in the vicinity of the project area is 25 inches. Most of the rainfall across the county occurs November through March (BAAQMD 2019).

Ozone and PM_{2.5} are the major regional air pollutants of concern in the Air Basin. Ozone is primarily a problem in the summer, and PM_{2.5} pollution in the winter. Along the Marin County coast and in southern Marin County, clean air from the Pacific Ocean helps to keep air pollution at a minimum. Elsewhere in Marin County, ozone rarely becomes a concern, but the hilly terrain and colder winter temperatures can trap PM_{2.5} near the surface, resulting in air quality that exceeds health standards (BAAQMD 2019).

4.4.1.2 LOCAL AIR QUALITY

The BAAQMD maintains a network of monitoring stations within the Air Basin that monitor air quality and compliance with applicable ambient standards. The monitoring station closest to the project site is in San Rafael, approximately 16 miles to the southeast of the project site; where levels of ozone, PM₁₀, PM_{2.5}, CO, nitrogen dioxide (NO₂), and SO₂ are measured.

TABLE 2. summarizes the most recent available three years of data (2015 through 2017) from the San Rafael air monitoring station. The federal PM_{2.5} standard was exceeded twice in 2015 and eight times in 2017. The State PM_{2.5} standard was exceeded twice in 2017. No other State or federal air quality standards were exceeded during the three-year period. The Bay Area is currently designated “nonattainment” for state and national (1-hour and 8-hour) ozone standards, for the state PM₁₀ standards, and for state and national (annual average and 24-hour) PM_{2.5} standards. The Bay Area is designated “attainment” or “unclassifiable” with respect to the other ambient air quality standards.

TABLE 2: AIR QUALITY DATA SUMMARY (2015 – 2017)

Pollutant	Monitoring Data by Year			
	Standard ^a	2015	2016	2017
Ozone				
Highest 1 Hour Average (ppm) ^b	0.09	0.081	0.088	0.088
Days over State Standard		0	0	0
Highest 8 Hour Average (ppm) ^b	0.070	0.070	0.067	0.063
Days over National Standard		0	0	0
Highest 8 Hour Average (ppm) ^b	0.070	0.070	0.067	0.063
Days over State Standard		0	0	0
Nitrogen Dioxide				
Highest 1 Hour Average (ppm) ^b	0.180	0.044	0.046	0.053
Days over State Standard		0	0	0
Annual Average (µg/m ³) ^b	0.030/0.053	0.011	0.009	0.010
Carbon Monoxide				
Highest 1 Hour Average (ppm) ^b	9.0	1.4	1.4	2.6
Days over State Standard		0	0	0
Highest 8 Hour Average (ppm) ^b	20	0.9	1.0	1.6
Days over State Standard		0	0	0
Particulate Matter (PM10)				
Highest 24 Hour Average (µg/m ³) ^b	50	42	27	94
Days over State Standard		0	0	2
State Annual Average (µg/m ³) ^b	20	16.1	13.8	17.7
Particulate Matter (PM2.5)				
Highest 24 Hour Average (µg/m ³) ^b	35	36.3	15.6	74.7
Days over National Standard		2	0	8
State Annual Average (µg/m ³) ^b	12	8.6	6.4	9.7
SOURCE: California Air Resources Board 2019. https://www.arb.ca.gov/adam/topfour/topfourdisplay.php				
NOTES: Values in bold are in excess of at least one applicable standard.				
a. Generally, state standards and national standards are not to be exceeded more than once per year.				
b. ppm = parts per million; µg/m ³ = micrograms per cubic meter.				
c. PM10 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.				

4.4.2 Discussion of Impacts

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

Less-than-significant with mitigation. The applicable air quality plan for the proposed project is the BAAQMD's 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 CAP) (adopted in April 2017), which provides a roadmap for BAAQMD's efforts over the next few years to reduce air pollution and protect public health and the global climate. The consistency of a project with this regional plan is primarily a question of the consistency with the population/employment assumptions utilized in developing the 2017 CAP, which were based on projections from the Association of Bay Area Governments (ABAG). The proposed project does not support population growth through the construction of new residences or development. As a result, the proposed project is consistent with the current growth projections in the 2017 CAP. In addition, determining the consistency with the 2017 CAP involves assessing whether applicable control measures

contained in the 2017 CAP are implemented. The 2017 CAP includes 85 control measures that describe specific actions to reduce emissions of air and climate pollutants from a full range of emissions sources (BAAQMD 2017).

When a public agency contemplates approving a project where an air quality plan consistency determination is required, BAAQMD recommends the agency analyze the project with respect to the following questions: (1) Does the project support the primary goals of the air quality plan; (2) Does the project include applicable control measures from the air quality plan; and (3) Does the project disrupt or hinder implementation of any 2017 CAP control measures? If the first two questions are concluded in the affirmative and the third question concluded in the negative, the BAAQMD considers the project consistent with the 2017 CAP.

As presented in the subsequent impact discussions, the proposed project would not result in new long-term operations-related emissions and construction-related emissions would be short-term and less than significant with required BMPs and mitigation incorporated; therefore, the proposed project would support the primary goals of the 2017 CAP. As mentioned above, projects that incorporate all feasible air quality plan control measures are consistent with the 2017 CAP. None of the 85 control measures in the 2017 CAP are applicable to the proposed project as the proposed project is a short-term construction project, which would reestablish and enhance wetlands. Therefore, the proposed project would not disrupt or hinder implementation of any 2017 CAP control measures. Therefore, the proposed project would have a less-than-significant impact with mitigation.

b) Result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard?

Less-than-significant with mitigation. The proposed project would result in short-term criteria pollutant emissions during construction. Construction of the proposed project would require excavators, off-highway trucks, scrapers, graders, rollers, rubber-tired loaders, skid steer loaders, and trackers/backhoes. As discussed under Section 3.2.1, the construction equipment would operate intermittently over the approximately six to eight weeks of construction. Construction of the project would require approximately 10 workers onsite. Construction of the project would require approximately 12 total haul trips for hauling import/export of 22,000 cubic yards of soil, rock and/or aggregate.

The BAAQMD *CEQA Air Quality Guidelines* recommend quantification of construction-related exhaust emissions and comparison of those emissions to significance thresholds. The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to quantify construction-related pollutant emissions. Air quality calculation details and emission estimates outputs are included in [APPENDIX A](#) and [TABLE 4](#) provides the estimated short-term construction emissions that would be associated with the proposed project and compares those emissions to the BAAQMD's thresholds for construction exhaust emissions. Consistent with BAAQMD guidance, the average daily construction period emissions (i.e. total construction period emissions divided by the number of construction days) were compared to the BAAQMD significance thresholds. Unmitigated construction would potentially result in NO_x emissions that exceed the BAAQMD threshold of significance for NO_x, while all other pollutants would be below the applicable thresholds of significance.

TABLE 3: ESTIMATED DAILY CONSTRUCTION EMISSIONS (POUNDS/DAY)

Construction Scenario	ROG	NO _x	PM10	PM2.5	CO
Unmitigated	7.3	77.3	3.2	2.9	50.2
<i>BAAQMD Significance Threshold</i>	54	54	82	54	--
Threshold Exceeded?	No	Yes	No	No	--
Mitigated	2.0	34.8	0.2	0.2	67.2
<i>BAAQMD Significance Threshold</i>	54	54	82	54	--
Threshold Exceeded?	No	No	No	No	--

Source: CalEEMod Version 2016.3.2

Note: Emission estimates are rounded to nearest pound. PM10/PM2.5 emissions are exhaust only.

As shown in **TABLE 3**, implementation of *Mitigation Measure AQ-01* would reduce NO_x emissions to below the BAAQMD threshold of significance for NO_x.

Mitigation Measure AQ-01: All off-road equipment greater than 25 horsepower and operating more than 20 total hours over the entire duration of construction activities shall have engines that meet or exceed either EPA or California Air Resources Board (CARB) Tier 4 Interim off-road emission standards.

Project construction would follow the proposed dust management BMPs following the BAAQMD's *CEQA Air Quality Guidelines*, as discussed under Section 3.2.1.7, which would reduce dust related impacts to less than significant.

After project construction, operations would consist of long-term management (including continued grazing and invasive plant management), and monitoring, as discussed under **SECTION 3.2.3**, which would generate negligible criteria pollutant emissions. Therefore, operational criteria pollutant emissions impacts would be less than significant.

Based on BAAQMD guidance, a project's emissions would have a significant cumulative impact if a project would exceed the significance thresholds. As presented in discussion b) above, short-term construction emissions associated with the proposed project would be below the BAAQMD significance thresholds and would be less than significant with implementation of *Mitigation Measure AQ-01* and BAAQMD's required BMPs (listed above), and the proposed project would not result in long-term operational emissions. Therefore, neither construction nor operation of the project would be cumulatively considerable, and this impact would be less than significant with mitigation.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact. The significance of impacts to sensitive receptors is dependent on the chance of contracting cancer from exposure to Toxic Air Contaminants (TACs) such as diesel particulate matter (DPM) or of having adverse health effects from exposure to non-carcinogenic TACs. A project is considered significant if the incremental cancer risk at a sensitive receptor exceeds 10 in a million. Health risk is evaluated for sensitive receptors within a 1,000-foot radius

of a project's impact area. The closest sensitive receptor to a project work area is a residence approximately 550 feet west of the western boundary of the project site. A few other residences are farther than 550 feet but within 1,000 feet of project work areas.

The Office of Environmental Health Hazard Assessment (OEHHA) does not recommend assessing cancer risk for projects lasting two months or less (OEHHA 2015). Since the project consists of approximately six weeks of construction, health impacts would be less than significant. Also, implementation of *Mitigation Measure AQ-01* would reduce PM10 and PM2.5 exhaust emissions by approximately 92 percent. Furthermore, the majority of project construction activities would be greater than 1,000 feet from the nearest sensitive receptors. Therefore, the project would not result in any long-term or chronic exposure to substantial pollution concentrations and the project would have a less-than-significant impact.

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

Less than significant impact. As noted in discussion b), the BAAQMD's *CEQA Air Quality Guidelines* consider fugitive dust impacts from construction to be less than significant if BAAQMD's required BMPs are employed to reduce these emissions. The proposed project would be required to implement the BMPs listed in discussion b), therefore fugitive dust impacts would be less than significant.

The BAAQMD's significance criteria for odors are subjective and are based on the number of odor complaints generated by a project. Generally, the BAAQMD considers any project with the potential to frequently expose members of the public to objectionable odors to cause a significant impact. With respect to the project, diesel-fueled construction equipment exhaust would generate some odors. However, these emissions typically dissipate quickly and would be unlikely to affect a substantial number of people. Furthermore, the construction duration is temporary and limited to approximately six weeks. After construction is complete, odors at the project site would be no different from what existed prior to construction. Therefore, odor impacts would be less than significant.

4.5 Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
5. BIOLOGICAL RESOURCES: Would the project:				
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 Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.5.1 Background

This section presents information existing biological resources and potential effects of project implementation. The existing biological resources are described under [SECTION 2.2.3](#). Biological resource surveys of the project area and vicinity were completed in 2011, 2013, and 2019 (WRA 2019a). The surveys identified four special status plant species outside of the project area, but within the project vicinity. The federally protected, threatened species California red-legged frog was observed within the project area. Several California Species of Special Concern were also observed within the project area – including San Francisco dusky-footed woodrat, northern harrier, White tailed kite (fully protected), and Nuttall's woodpecker. Two species were observed in San Antonio and Corda Creeks, adjacent to the project area - western pond turtle (California Species of Special Concern) and Steelhead – central California coast Evolutionary Significant Unit (ESU) (Federal, Threatened); and pallid bat (California Species of Special Concern) was observed south of the project area.

A Biological Opinion (BO) was issued by the USFWS on August 23, 2019, which provides measures to reduce project related impacts on CRLF. The prescribed measures from the BO informed the project

design, construction schedule, and development of construction measures, BMPs, and mitigation measures. The project has been designed to avoid impacts on biological resources to the extent possible; additionally, construction measures and BMPs would be employed to limit impacts on biological resources ([SECTION 3.2](#)). Mitigation measures are provided to reduce potential impacts to less than significant levels.

4.5.2 Regulatory Framework

4.5.2.1 ENDANGERED SPECIES ACT

The federal Endangered Species Act (ESA) was established in 1973 and provides a framework for protecting and facilitating the recovery of threatened and endangered species. The ESA designates threatened and endangered species and fully protects them from “take” without an incidental take permit administered by the USFWS under Section 10 of the ESA. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, trap, kill, trap capture, or collect, or attempt to engage in such conduct (50 Code of Federal Regulations [CFR] 17.3). The term “harm” in the definition of take means an action that actually kills or injures wildlife by significantly impairing essential behavior patterns including breeding, feeding, or sheltering (50 CFR 17.3). The term “harass” in the definition of take means an intentional or neglectful act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns, which include but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3). Section 7 of the ESA requires that federal agencies ensure that their actions are not likely to jeopardize the continued existing of listed species or destroy or adversely modify its critical habitat. Under Section 7, federal agencies are required to consult with USFWS or the National Marine Fisheries Service on any actions that may affect listed species to ensure that prudent measures will be taken to mitigate impacts on listed species. In the absence of federal involvement, as with a privately funded project with no federal permits, the USFWS or NMFS may authorize incidental take under Section 10(a).

4.5.2.2 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) administered by the USFWS, makes it unlawful to take (kill, harm, harass, etc.) any migratory bird listed in 50 CFR 10, including their nests, eggs, or products. The MBTA requires that removal of trees, shrubs, or other potential nesting habitat be conducted outside of the nesting season, general February through August, or with clearance (confirmed absence) through nesting bird surveys.

4.5.2.3 SECTION 404 OF THE CLEAN WATER ACT

The Clean Water Act (CWA) Section 404 requires that a permit be obtained from the U.S. Army Corps of Engineers prior to the discharge of dredged or fill materials into any “waters of the United States.” Waters of the United States are broadly defined by the USACE to include navigable waters, their tributaries, lakes, ponds, and wetlands (33 CFR 328). Wetlands are defined as “Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include marshes, swamps, bogs, and similar areas.”

4.5.2.4 CALIFORNIA ENDANGERED SPECIES ACT

The California Endangered Species Act (CESA) was signed into law in 1984, with the objective of protecting plant or animal species because they are of ecological, educational, historical, recreational,

aesthetic, economic, and scientific value to the people of the State. Under the CESA, the State policy is to conserve, protect, restore, and enhance endangered species and their habitats. The law is administered by the California Department of Fish and Wildlife (CDFW), which may formally designate species as rare, threatened, or endangered by official listing. The CESA prohibits the take of any species that the CDFW determines to be endangered or threatened without an incidental take permit issued in accordance with Section 10 of the ESA, provided that CDFW is notified and certifies that the incidental take statement or permit is consistent with the CESA (Fish and Game Code Section 2080.1 [a]).

4.5.2.5 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Under the California Environmental Quality Act (CEQA) Guidelines, Section 15380, defines “endangered” species of plants, fish, or wildlife as those whose survival and reproduction in the wild are in immediate jeopardy, and “rare” species as those which are in such low numbers that they could become endangered if their environment worsens. As such, a project would have a significant effect on the environment if it would substantially affect a rare or endangered species or the habitat of the species. Under CEQA, the significance of project impacts to a species must be based on analyzing actual rarity and threat of extinction despite legal status or lack thereof.

4.5.2.6 STATE OF CALIFORNIA SECTION 1600 OF THE FISH AND GAME CODE

The CDFW is responsible for protecting and conserving fish and wildlife resources, and the habitats upon which they depend. Under Section 1600 of the Fish and Game Code, the Lake and Streambed Alteration Program reviews project that would alter any river, stream, or lake and conditions projects to conserve existing fish and wildlife resources.

4.5.2.7 PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act charges the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) statewide with protecting water quality throughout California. The SWRCB and RWQCB, in conjunction with the USACE, administer Section 401 of the CWA in relation to permitting fill of federally jurisdictional waters. Additionally, beyond federal jurisdiction the SWRCB and RWQCB may exert regulatory authority over Waters of the State, which are defined in Section 13050(e) of the Porter-Cologne Water Quality Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” In cases during which a project may impact Waters of the State, the project must receive a permit for Waste Discharge Requirements or a Waiver of Waste Discharge Requirements from the RWQCB.

4.5.3 Discussion of Impacts

- a) **Have a substantial adverse effect, either directly or through habitat modification, 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 Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?**

Less than significant with mitigation. The impacts to special status plants and wildlife species and recommended mitigation measures are described individually below.

Plants. Protocol-level rare plant surveys of the project area were conducted during spring/summer 2011, spring/summer/fall 2012, and spring 2019. The nearest documented rare plant

occurrence detected during surveys was a population of North Coast semaphore grass contained within a seasonal wetland/vernal pool located approximately 0.18-mile (950 feet) south of the center of the project area. No rare plant occurrences were documented within the project area. Field surveys conducted during May 2019 confirmed the absence of rare plants within the project work areas.

Birds (special-status species). Several special-status species birds were observed onsite during biological surveys (WRA 2019a); however, there are no breeding records for these species or other special-status bird species with potential to occur within the project area. Prior to implementing project construction activities, nesting bird surveys would be conducted to verify presence/absence of any nesting birds, as discuss under *Mitigation Measure BIO-01*, which would reduce potential impacts on nesting birds to a less than significant level. Temporary impacts on special-status birds may occur during project construction due to noise and use of earth-moving equipment; however, this impact would be short in duration and the proposed construction equipment would not generate significantly more noise than agricultural equipment, which is periodically used on the project area. The proposed project would result in the enhancement of wetlands and associated vegetation communities, which would be placed under conservation easement for protection in perpetuity. Enhancement and conservation are anticipated to benefit bird species that may use the project area for foraging and resting.

Birds (non special-status species). Project related construction activities, including grading and material transport, could disturb nesting birds protected under the MBTA and/or CDFW Code and could result in the abandonment of an active nest. Construction activities are proposed to begin in the dry season in 2020, which may fall during the nesting/breeding season (typically February through August in the project area); implementation of *Mitigation Measure BIO-01* would reduce the impact to a less than significant level.

Mitigation Measure BIO-01: Construction activities are anticipated to occur during summer 2020, which may fall within the typical nesting/breeding season for migratory birds. Should project construction occur during the nesting/breeding season, the project sponsor shall have surveys conducted by a qualified biologist (e.g. experienced with nesting behavior of bird species of the region) within two weeks of commencement of construction activities. The objective of the surveys would be to locate active nests or roosts of bird species protected by the MTBA, ESA, CESA, and/or CDFW code that are present in the construction zone or within 300 feet (500 feet for raptors, and a half mile for eagles) of the construction zone. Surveys would be timed such that the last survey is conducted no more than one week prior to initiation of vegetation clearing or other construction work. If nesting birds are detected during surveys, appropriate avoidance measures shall be taken, such as establishing distance buffers or halting construction until the nest have been vacated. If no nesting birds are found during surveys, no further action would occur.

Bats. Pallid bat was detected south of the project area along Corda Creek during 2011/2012 biological surveys. It is possible bats use trees in the project area for roosting (April through September), though no roosts have been documented. Tree removal or disturbance is not proposed as part of the project activities; therefore, direct impacts on roosting bats are not anticipated. Roosting bats in the project area could be affected by construction noise; however,

the proposed construction equipment would not generate significantly more noise than agricultural equipment, which is periodically used on the project area. Should roosting bats occur within the project area; pre-construction biological surveys as implemented under *Mitigation Measure BIO-02* would identify roost locations and would monitor for potential disturbances on roosting bats, which would reduce impacts to a less than significant level

Mitigation Measure BIO-02: The name(s) and credentials of the qualified biologist(s) shall be submitted to USFWS for approval at least 15 days before construction begins. Pre-construction surveys of the entire project area shall be completed prior to and within 48 hours of the initiation of project construction by the qualified biologist(s). During the primary, first week, construction phase, an approved biologist (biological monitor) shall be present to monitor construction activities for potential impacts on sensitive species. The monitor shall be present once weekly following. Should the monitor or a construction work identify a sensitive species within a project work area, construction activities that may disturb or harm sensitive species, shall be halted or postponed in that area until the species has relocated out of the area or is no longer in distress. Should active nest sites be discovered during project construction, the nest areas shall be avoided until altricial young have left the nest, as determined by the biological monitor.

Fish. Steelhead have been documented within San Antonio Creek adjacent to the project area. The reach of San Antonio Creek along the northern boundary of the project area supports steelhead migration (December through February) and rearing (early to late spring) habitat, and potentially supports spawning (December through April) in suitable/wet years. The proposed project construction activities would not result in direct impacts on San Antonio Creek nor would the project involve in-water activities (e.g. crossing, excavating, damming) or dewatering. Fish are not anticipated to be negatively impacted by construction activities but could be indirectly impacted due to releases of sediments from ground disturbance and installation of armored crossings/culverts on tributary drainages. The proposed project would be constructed during the dry season, in summer 2020, which is outside of the typical migration, spawning, and rearing periods for steelhead. In the event that fish are present in the creek outside of their normal movement and breeding periods, temporary increases in turbidity from sediment releases could cause disturbances to fish, through reduced visibility that could inhibit feeding and reduce gill efficiency. Fish also could be harmed by the runoff of petroleum products during construction. The proposed project has been designed to reduce these impacts through implementation of the proposed project BMPs, see Section 3.2.3.7, and through implementation of *Mitigation Measures BIO-03* through *BIO-05* and *Mitigation Measure HYD-01*, which would reduce these impacts to a less than significant level.

Mitigation Measure BIO-03: The primary construction phase is anticipated to occur within a single dry season, between April and mid-October, when all seasonal wetlands and other seasonal aquatic features within the project area are dry. Any targeted mowing (using mechanized means) within the project area needed for ongoing vegetation management shall be performed only during the dry season when all seasonal wetlands within and adjacent to the project area are dry. Mechanized ground disturbance shall not be conducted outside of the disturbance footprint.

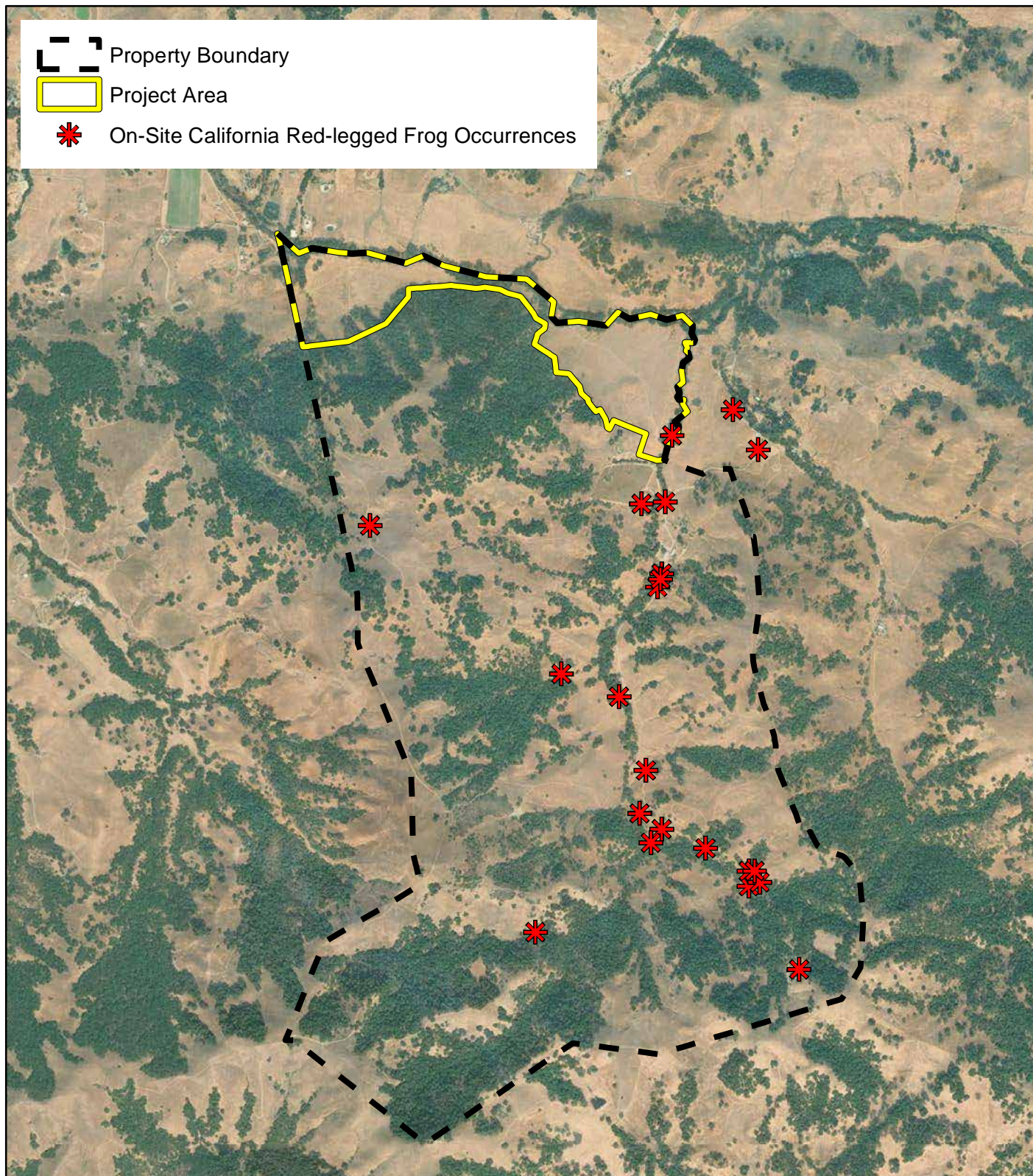
Mitigation Measure BIO-04: No work shall be conducted during rainy weather during the day or night before (defined as >0.25 inch within a 24-hour period). If such a seasonal event occurs, then work shall be suspended for a full 24-hour period before work can commence again.

Mitigation Measure BIO-05: All project related vehicle travel shall be restricted to established roads/access routes and other designated areas. All staging, fueling, and maintenance of vehicles and equipment shall be confined to designated staging areas that are located a minimum of 100 feet away from wetlands and streams.

Mitigation Measure HYD-01: Refer to Mitigation Measure HYD-01 in the Hydrology and Water Quality Section

Reptiles. Western pond turtles (or Pacific pond turtle) were incidentally observed at several locations along San Antonio Creek as well as along Corda Creek adjacent to the project area. Suitable aquatic and nesting habitat occurs directly along San Antonio Creek. Western pond turtles may use deeper pools and low velocity waters within the unnamed perennial stream on the project area; however, suitable basking habitat along the stream is generally absent. No western pond turtles have been observed within or adjacent to the unnamed drainage; therefore, it is unlikely turtles use the habitats adjacent to the drainage for breeding. Western pond turtles are known for traveling up to 400 meters (approximately 1,300 feet) for breeding if suitable upland riparian habitat is available (Reese and Welsh 1997). The proposed project activities would not directly impact San Antonio Creek or Corda Creek, or the adjacent riparian woodlands and thus are not anticipated to directly affect western pond turtle. The project area would be surveyed by a biological monitor (*Mitigation Measure BIO-02*), prior to project construction. Should the biological monitor or other project personnel identify western pond turtles or their nests within the project area, implementation of *Mitigation Measure BIO-02* would reduce potential impacts on this species to a less than significant level.

Amphibians. Dedicated surveys and opportunistic observations of CRLF occurred between 2010 and 2013 (WRA 2019a). CRLF were observed within the project area on Corda Creek; additional observations were made south of the project area on Corda Creek and at three stock ponds (FIGURE 14). Targeted surveys indicated a pond located approximately 1.2 miles south of the project area, represents a source population for the surrounding area. Two other occupied ponds located approximately 0.6 miles south of the project area (Triangle Pond and Deer Camp Pond), support adult CRLF. Breeding success at Triangle Pond is believed to be hindered by non-native predators/competitors such as American bullfrog (*Rana catesbeiana*) and largemouth bass (*Micropterus salmoides*). Deer Camp Pond supports a breeding population of CRLF. Corda Creek was assessed to provide non-breeding aquatic habitat for CRLF and presumably serves as a dispersal/movement corridor. San Antonio Creek is also considered unsuitable breeding habitat due the presence of predators (fish) and average high-water velocity during the breeding season. Most of the project area supports upland habitat for CRLF; the seasonal wetlands provide aquatic habitat but do not contain suitable hydrology (inundation depth and duration) or other habitat elements suitable for breeding, such as emergent and/or overhanging riparian vegetation.



**NORTH BAY MITIGATION BANK
ON-SITE CALIFORNIA RED-LEGGED
FROG OCCURRENCES**

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
JUNE 2019

FIGURE 14

Original Figure by WRA, Inc.



Due to a lack of suitable breeding habitat within the project area, project related activities are not anticipated to impact CRLF breeding habitat, including potential mortality of eggs and/or larvae. During the dry season, the project area presumably provides only potential dispersal/movement habitat for CRLF and would thus be temporarily unavailable for a short duration in the dry season when the primary construction phase of the project occurs. The proposed project would temporarily impact non-breeding aquatic habitat (seasonal wetlands) during project construction. Overall, the proposed project would improve habitat for CRLF through the enhancement and expansion of aquatic habitat.

Potential impacts on CRLF during construction would be minimized through the implementation of *Mitigation Measures BIO-02* through *BIO-09* which would reduce these impacts to a less than significant level.

Mitigation Measure BIO-06: Personal field gear and heavy equipment used within the project area shall be properly decontaminated prior to beginning onsite work following the procedures in the “*Declining Amphibian Task Force Fieldwork Code of Practice*” (USFWS 2019a). Procedures shall include cleaning material from equipment using boiled or treated water; cleaning field equipment such as boots with 70 percent ethanol solution; dedicating field equipment for use on the site during construction.

Mitigation Measure BIO-07: Prior to movement/mobilization of equipment, the monitor will provide environmental awareness training to all construction personnel working on the proposed project. The training shall include education on CRLF and its habitat and water quality and environmental protection measures. All construction workers shall be provided materials to assist with identification of CRLF. If CRLF is observed within or adjacent to the disturbance footprint, work shall not be initiated until all individuals observed within the surveyed area have left the area on their own accord. If a CRLF individual is detected during construction, all work in the vicinity shall halt until it has relocated on its own accord or, only if deemed necessary, a service approved biologist shall relocate the individual to an approved relocation site within the project vicinity, at least 200 feet from the disturbance footprint, and within similar riparian or aquatic habitat. Prior to handling the frog, the service approved biologist shall assure their hands are free of toxins or use latex or nitrile gloves to capture the animals. The animals shall be moved in a clean bucket containing leaf litter or a sponge moistened with non-chlorinated water. Information regarding the capture and relocation shall be recorded. If project personnel observe a CRLF individual (or candidate for such) within or adjacent to the project work area, they shall immediately stop work in the area and inform the biological monitor. Work shall cease until the individual leaves on its own accord.

Mitigation Measure BIO-08: No monofilament or plastic netting shall be used in erosion control materials, which could lead to entrapment of CRLF.

Mitigation Measure BIO-09: If project personnel observed a CRLF (or candidate for such) within or adjacent to the project work area, they would immediately stop work and inform the biological monitor. Work shall remain ceased until the frog has left the area of its own accord.

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

Less than significant impact. The proposed project would result in temporary (0.27 acre) and permanent (0.01 acre) impacts on woodland communities identified as sensitive by the CDFW due to road and associated infrastructure improvements. The proposed project activities would not result in direct impacts on, removal, or disturbances to mature live trees. All construction related impacts would be limited to understory areas due to surface grading and/or vegetation removal which may result in temporal impacts on seedling establishment. The proposed project is anticipated to result in a net benefit for these communities through native vegetation community development, the removal and control of noxious weed species, and sediment and erosion control improvements. Noxious weed surveys identified State listed weed species within and adjacent to the project area. Potential impacts to sensitive vegetation communities due to invasive vegetation encroachment during vegetation re-establishment would be reduced through implementation of weed abatement measures as described in the project description in [SECTION 3.2.3.5](#).

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

Less than significant impact. The proposed project would result in temporary impacts on approximately 14.81 acres of USACE jurisdictional wetlands as a result of seeding and planting activities for enhancement areas and permanent impacts on approximately 0.02 acre (221 linear feet) of USACE jurisdictional Waters of the U.S and 0.06 acre of RWQCB jurisdictional waters of the State due to road and infrastructure improvements. Temporary impacts to existing seasonal wetlands are proposed to re-establish high functioning seasonal wetlands, which would include vegetation community enhancement and establishment of micro- and macro-topographic features. Permanent impacts on waters of the U.S. and waters of the State are proposed due to implementation of road infrastructure improvements, including placement of stream crossing armored fill structures consisting of rock materials and replacement of degraded culverts, which would result in sediment reduction and erosion control. The proposed impacts are anticipated to result in a net benefit to jurisdictional wetlands and Waters of the U.S. through the removal of noxious weeds, native vegetation community enhancement, surface topography enhancement, and sediment reduction. Implementation of the proposed project would require recording a conservation easement, which would provide project area protection in perpetuity. The proposed impacts on wetlands and waters of the U.S and waters of the State would be temporary and would result in a net benefit to these habitats; the temporary impacts would be less than significant.

- 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?**

Less than significant impact. The proposed project would not substantially interfere with wildlife movement or corridors. Disruptions to migration within the project area may occur during project construction due to increased activity but would be temporary and would not prohibit species from accessing San Antonio Creek and/or Corda Creek. Upon completion of construction, movement

through the project area would not be impeded. Implementation of *Mitigation-Measure BIO-01* would reduce potential impacts on migrating birds during project construction. Dewatering of San Antonio Creek and/or Corda Creek would not be required during project construction; therefore, fish migration or movement would not be affected. This impact is less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as the tree preservation policy or ordinance?

No impact. Protected trees in Marin County are subject to Marin County's Native Tree Protection and Preservation Ordinance (Ordinance 3342, Chapter 22.75 of Marin County Code). Protected trees include native trees with a Diameter at Breast Height (DBH) of 6 or 10 inches depending on species (refer to Attachment 1 of Ordinance). The proposed project would not result in the removal or disturbance to any tree; therefore, the proposed project would not conflict with any local policies or ordinances.

f) Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other local, regional, or state habitat conservation plan?

No impact. No Habitat Conservation Plan, Natural Community Conservation Plan, or other local, regional, or state habitat conservation plan apply to the project area.

4.6 Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
6. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.6.1 Background

Project archaeologists completed a review of cultural records and a pedestrian cultural resource survey of the 870-acres parcel, which contains the 120-acre proposed project area. The records search confirmed the location of two previously recorded prehistoric tribal cultural resource sites within the project area and five historic era sites, located outside of the project area (ESA 2013). The pedestrian surveys identified a third prehistoric tribal cultural resource site within the project area. The tribal cultural resources are described under [SECTION 2.1](#). A discussion of potential project related impacts on tribal cultural resources and mitigation measures is provided in [SECTION 4.19](#). The project records search and pedestrian surveys did not identify other cultural archaeological sites or resources within the project area; additionally, the historic era sites are located outside of the project area and would not be impacted by project related activities.

Mitigation Measure CR-01: If signs of a previously undiscovered cultural resource such as a stone, bone, shell, ceramic, glass, or metal fragment and/or charcoal deposit or other unusual deposit, are uncovered during grading or other construction related activities, all work within 100 feet of the find shall be halted immediately. A registered professional archaeologist shall be consulted to perform an on-site evaluation and if necessary complete a Phase II or Phase III survey of the area. If the resource site or artifacts are found to be a potential tribal cultural resource; work would halt within a 100-foot radius of the discovery and the archaeologist would notify the FIGR and no soil within 100- feet of the find would be removed or disturbed until a determination could be made regarding significance of the resource. The archaeologist shall provide recommendations regarding next steps, such as data recovery or resource mitigation if the resource cannot be avoided. Any previously undocumented resources found during construction shall be recorded on appropriate forms and evaluated for significance under all applicable regulatory criteria. Recovered items that are determined to not be a Tribal Cultural Resource would be treated in accordance with current Secretary of the Interior's Standards.

a) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than significant with mitigation. The project would not cause a substantial adverse change in the significance of an archaeological resource. As mentioned above, the project design would avoid construction or disturbance of the previously identified prehistoric tribal cultural sites. Implementation of *Mitigation Measures CR-01* and *CR-02* will ensure that the significance of the archaeological resources remains unchanged

Mitigation Measure CR-01: Refer to Mitigation Measures CR-01 in the Cultural Resources Section

b) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than significant with mitigation. Under §15064.5, “In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery...there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overly adjacent human remains until...” The cultural resource surveys of the project area identified the potential for human remains to occur within one of the archaeological sites. The proposed project work, including excavation and grading, would not occur within the archaeological site boundaries. Implementation of *Mitigation Measures CR-01* and *CR-02*, and *TR-01* through *TR-03* would reduce potential impacts to a less than significant level.

Mitigation Measure CR-02: If any human remains or portions thereof are inadvertently discovered during grading or other construction activities, work shall immediately halt within a 100-foot radius of the find. The project contractor shall notify the Marin County coroner, who shall determine whether the remains are Native American, and if so the coroner shall notify the Native American Heritage Commission immediately. The Native American Heritage Commission will identify the person or persons believed to be the most likely descendants from the deceased Native Americans. The most likely descendants shall make recommendations regarding proper burial, which shall be implemented in accordance with §15064.5 of the State CEQA guidelines.

Mitigation Measure TR-01 and TR-02: Refer to Mitigation Measures TR-01 and TR-02 in the Tribal Cultural Resources section ([SECTION 4.19](#)).

4.7 Energy

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
7. ENERGY: Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.7.1 Discussion of Impacts

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than significant impact. Energy consumption during the construction phase would be minimal, temporary, and localized and would be associated with operation of grading equipment and project support vehicles. As mentioned above, under [SECTION 3.2.1.7](#), wasteful practices, such as idling machinery, would be minimized. Following completion of project activities, operational activities associated with the project would include the use of vehicle to access the project area for monitoring and to conduct maintenance activities (e.g. mechanical and/or chemical weed control, reseeding, replanting). Accordingly, no wasteful, inefficient, or unnecessary consumption of energy resources is anticipated as a result of this project.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No impact. The project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

4.8 Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
8. GEOLOGY AND SOILS: Would the project:				
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.8.1 Affected Environment

The content of this section is primarily adapted from information in the project Development Plan (WRA 2017a) and Biological Resources Inventory (WRA 2019a) as summarized under [SECTION 3.2](#) and [SECTION 2.2](#). The project area is located within the Marin Hills area of the Coast Range geologic province of California, positioned between the Santa Rosa Plain to the north, Golden Gate Strait to the south, the San Andreas Fault to the west, and San Pablo Bay to the east. The topography of the project area is generally mountainous with narrow to rounded summits and v-shaped canyons and drainages with elevations ranging from 50 to 1250 feet. The project area is situated at the northern end of the property and is bordered to the south by a relatively steep hill composed of deposits of Franciscan mélange of Cretaceous and Jurassic origin, and undivided Sonoma volcanics of Pliocene and late Miocene origin. The project area is bordered to the north by San Antonio Creek and Corda Creek to the

east. Much of the project area itself is positioned within the historic San Antonio Creek floodplain and is underlain by quaternary alluvial deposits eroded from the adjacent hillslopes and from further upstream in the San Antonio Creek watershed. The topography of the project area is generally flat to gently-sloping with elevations ranging from 40 to 185 feet NAVD88.

The USDA soil survey of Marin County (USDA 1985) indicates that the project area is composed of three soil mapping units. The soils within the wetland re-establishment areas are mapped as Blucher-Cole complex, 2 to 5 percent slopes. This soil map unit is composed of 40 percent Blucher soil series, 30 percent Cole soil series, and 30 percent other soil series. The Blucher series consists of deep, somewhat poorly drained, slow runoff, slow permeability clay loam. The Cole series consists of very deep, somewhat poorly drained, slow runoff, slow permeability clay loam. These soils formed from alluvium derived from shale, sandstone, or granite, and are located on alluvial fans and basin floors (USDA 1985). Both series are considered hydric on the California hydric soils list (USDA 2012).

Other soils within the project area, but upslope of the wetland re-establishment area, include Saurin-Bonnydoon complex, 15 to 30 percent slopes and Tocaloma-Saurin association, very steep. The Saurin-Bonnydoon complex soil map unit is composed of 50 percent of the Saurin soil series, 40 percent of the Bonnydoon soil series, and 10 percent of other soil series. The Saurin series consists of moderately deep, well drained, slow to very rapid runoff, moderate permeability clay loam. The Bonnydoon series consists of shallow, somewhat excessively-drained, high-runoff, high permeability gravelly loam. These soils formed from residuum weathered from sandstone and shale and are located on upland backslopes (USDA 1985). This series is not considered hydric on the California hydric soils list (USDA 2012).

The Tocaloma-Saurin association soil map unit is composed of 40 percent of the Tocaloma soil series, 30 percent of the Saurin soil series, and 30 percent of other soil series. The Tocaloma series consists of moderately deep, well drained, slow to very rapid runoff, moderately rapid permeability loam. The Saurin series is described above. These soils formed from residuum weathered from sandstone and shale and are located on upland backslopes (USDA 1985). This series is not considered hydric on the California hydric soils list (USDA 2012).

The project area is located between the San Andreas and Rogers Creek fault zones in the seismically active San Francisco Bay Area. Inactive, quaternary and pre-quaternary fault lines are mapped within a mile to the north and south of the project area, but the site is not located within an earthquake fault zone based on the latest Alquist-Priolo mapping data².

A 2003 report by the U.S. Geologic Survey (USGS) predicts a 62 percent probability of an earthquake of magnitude 6.7 or greater within the Bay Area by 2031 (USGS 2003). As such, seismic activity is a constant threat to humans and man-made structures in the Bay Area.

4.8.2 Discussion of Impacts

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

² California Earthquake Hazards Zone Application: <https://www.conservation.ca.gov/cgs/geohazards/eq-zapp>

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.

No impact. As discussed in the background section above, the project area is not located within an Alquist-Priolo earthquake fault rupture hazard zone. Although very strong seismic shaking can be expected in the project area in a major earthquake on a nearby fault, there are no structures (aside from ranch roads and fences) currently within the project area, nor are any proposed as part of the project, that could be potentially harmed by an earthquake. The project area would be preserved in perpetuity as a natural area under the mitigation banking agreement and conservation easement and human access would be limited to occasional visits by the landowner and property managers for monitoring and maintenance activities. The project itself would not increase the likelihood of property damage or human injury on the site, or in the surrounding areas in the event of fault rupture or strong seismic shaking.

ii) Strong seismic shaking?

No impact. See response to item (i), above.

iii) Seismic-related ground failure, including liquefaction?

Less than significant impact. See response to item (i), above. The potential for ground failure or liquefaction at the project area is low because of the high clay content of site soils. Implementation of the project could cause a slight increase in the potential for liquefaction within the project area by retaining more water within the alluvial soils along San Antonio Creek, but this condition is typical of alluvial floodplain wetlands and does not represent a hazard to humans or property given the current natural setting of the project area. Although ground failure could potentially occur at the project area in a major earthquake, the project would not result in substantial adverse effects because human use of the site would not increase and there are no proposed structures. This potential impact is less than significant.

iv) Landslides?

No impact. See response to item (i), above. There is potential for landslides along the steep hillslopes to the south of the project area. The project would not increase the likelihood of such occurrences and there will be no increased use of the site by humans under the post-project conditions.

b) Result in substantial soil erosion or the loss of topsoil?

Less than significant with mitigation. The project is specifically designed to reduce long-term erosion at the site by upgrading culverts at road crossings on several drainages, stabilizing existing headcuts in two drainage swales through the site, and spreading channelized flows through several swales across the landscape to restore seasonal wetlands, as discussed in [SECTION 3.2.1](#). Connections between wetland basins and at outflow points would be specifically designed to reduce the likelihood for erosion. The interim and long-term management plans for the site include regular inspections to identify any erosion hot spots that develop and an adaptive management framework to promptly address such issues. Implementation of the project would, therefore, reduce erosion and topsoil loss as compared to current conditions.

Construction of the project would involve ground clearing, earthmoving, and installation of grade control structures, culverts, and armoring structures. These activities would result in short-term soil disturbance and potential for erosion. Implementation of the Stormwater Pollution Prevention Plan (SWPPP), as outlined in *Mitigation Measure HYD-01* in Section - Hydrology and Water Quality, would reduce these construction-related impact to a less-than-significant level.

The freshly-graded wetland basins, swales, and road embankments will be initially devoid of vegetation and prone to erosion and soil loss. The project description includes active seeding/revegetation and installation of other erosion control measures as interim guards against soil loss during the initial site evolution period ([SECTION 3.2](#)).

Mitigation Measure HYD-01: See Mitigation Measure HYD-01 in the Hydrology and Water Quality section.

- 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?**

Less than significant impact. The project involves restoring and enhancing wetlands within a landscape unit and soil type that is appropriate for such activities, and which supports wetlands under current conditions. Landslides, lateral spreading, and liquefaction are processes that can occur naturally in alluvial systems. As discussed in item a.iii) above, the project could increase the potential for liquefaction at the project area by retaining more water in the alluvial soils along San Antonio Creek, but this increase would not be outside the range of natural conditions for this system, and would not pose a risk to the intended uses of the project site. The project would not cause a reduction in stability of the project area that would lead to an adverse impact to existing or proposed resources on or off-site.

- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

No impact. No structures are proposed as part of the project and no impacts to buildings or dwellings would occur as a result of the project. Human use of the site would not increase post-project.

- 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 waste water?**

No impact. No septic tanks or wastewater disposal systems exist on the site, nor are any included in the proposed project.

- f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

No impact. There are no documented paleontological resources or unique geologic features on the project site that could be damaged or destroyed as a result of project implementation. As mentioned above, in [SECTION 3.2](#), the project is designed to minimize or avoid erosion or other adverse impacts to prehistoric and tribal cultural resources.

4.9 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
9. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.9.1 Affected Environment

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHG) because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG has been implicated as the driving force for global climate change. The primary GHG are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), ozone, and water vapor.

While the presence of the primary GHG in the atmosphere are naturally occurring, CO₂, CH₄, and N₂O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHG include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes.

CO₂ is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO₂. CH₄ and N₂O are substantially more potent GHG than CO₂, with GWP of 25 and 310 times that of CO₂, respectively.

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons of CO₂ equivalents (CO₂e) per year. CO₂e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH₄ and N₂O have much higher GWP than CO₂, CO₂ is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO₂e.

There is international scientific consensus that human-caused increases in GHG have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity (CalEPA 2006).

In 2012, estimated GHG emissions generated by community activities in Marin County's unincorporated areas were approximately 477,000 metric tons of CO₂e, or per capita emissions of approximately 7.1 metric tons of CO₂e for the 67,000 residents in the unincorporated areas. This is a 15 percent decrease from estimated 1990 emissions, which were 561,851 metric tons of CO₂e. This amount is equivalent to the annual GHG emissions generated by approximately 100,000 passenger vehicles. Of these total emissions, on-road transportation and building energy use are the largest sources of emissions (35 percent each). The third largest source is agriculture (23 percent), followed by off-road equipment (4 percent), solid waste treatment (2 percent), wastewater treatment (1 percent), and water conveyance (0.2 percent) (Marin County 2015).

4.9.2 Discussion of Impacts

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

Less than significant impact. Equipment used during the project would generate GHG emissions during the approximately six weeks of construction. As no threshold has been established for construction-related emissions, construction emissions from the project are compared to the BAAQMD's brightline threshold for operations, which is 1,100 metric tons of CO₂e per year. The CalEEMod Version 2016.3.2 was used to quantify construction-related pollutant emissions. Project construction would generate approximately 156 metric tons of CO₂e during the approximately six weeks of construction, which is considerably below the significance threshold of 1,100 metric tons of CO₂e per year. After project construction, operations would consist of long-term management and monitoring, which would generate negligible GHG emissions from the monitoring technician's vehicle trip to the project area from Marin County/San Rafael is approximately 40 miles roundtrip. Estimated emissions from such trips is 17.6 kilograms of CO₂e year (EPA 2018), assuming a single monitoring event is needed. Therefore, operational GHG emissions impacts over the life of the project are expected to be less than significant.

GHG emissions calculation details and emission estimates outputs are included in [APPENDIX A](#).

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

Less than significant impact. In 2015, the Marin County Board of Supervisors adopted the *Marin County Climate Action Plan (2015 Update)*. The proposed project is a short-term construction project that would reestablish and enhance wetlands. The proposed project would not conflict with the *Marin County Climate Action Plan (2015 Update)*. The proposed project would also not conflict with goals and policies contained in the *Marin Countywide Plan* or BAAQMD's *2017 Clean Air Plan: Spare the Air, Cool the Climate*. Therefore, there is not expected to be any conflict with applicable plans for the purpose of reducing greenhouse gas emissions.

4.10 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
10. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.10.1 Affected Environment

The project area is located immediately adjacent to San Antonio Creek on land historically used for agriculture and livestock grazing. Potential hazardous materials associated with agricultural and livestock operations may exist on or near the project area but would be removed prior to construction. Hazardous materials that may have been used on the project area include vehicle fuel (gasoline and diesel), herbicides, and pesticides. Construction of the proposed project would not involve the use or transport of any hazardous materials, aside from fuels and lubricants for construction equipment.

4.10.2 Discussion of Impacts

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No impact. The proposed project involves limited surface grading within the upper soil surface (top six inches) and revegetation and does not propose removal of materials from the project area. No

hazardous materials are to be transported, used, or disposed of at the project area as part of the proposed project.

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?

Less than significant impact. During construction of the proposed project, small amounts of hazardous materials such as vehicle fuel and lubricants would be used for construction equipment within designated staging areas. As described above in [SECTION 3.2.1.7](#), BMPs will be implemented to reduce the risk of fuel spills or leaks, and to address any spills that do happen promptly and effectively. Accordingly, the proposed project will not result in any reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No impact. The closest school to the project area is Union Elementary School, which is located at 5300 Red Hill Road in Petaluma, approximately one-mile (5,500 feet) northwest of the project area. Acutely hazardous materials will not be handled during the project and, other than the greenhouse gas emissions from construction equipment, the proposed project will not generate hazardous emissions.

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 the public or the environment?

No impact. None of the properties or parcels that make up the project area are listed on the Hazardous Waste and Substances Site List (California Department of Toxic Substances Control [CDTSD]) (CalEPA 2019).

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?

No impact. The project area is not within the area outlined in the Marin County Airport Land Use Plan (Marin County 1991).

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No impact. The proposed project involves ecological restoration and enhancement on existing agricultural lands adjacent to San Antonio Creek and would not require temporary or permanent public road closures. The project would result in the decommissioning of onsite access roads that serve only the current property users and would not impact emergency access to or within the general project area vicinity. Therefore, the project would not interfere with any adopted emergency response or evacuation plans.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than significant with mitigation. The project area is not located within the designated wildland-urban interface based on the Marin County Fire Department Wildland Urban Interface mapper (FIREsafe Marin 2019). The proposed construction activities would involve earthwork, removal of vegetation, and revegetation efforts during the dry season. Use of large equipment and creation of vegetation thatch from vegetation removal would temporarily increase onsite fire hazards, which would be reduced to a less-than-significant level through the implementation of *Mitigation Measures WF-01* through *WF-03*. Following completion of construction, the proposed project would result in a reduced risk of wildland fires in the area due to the expansion of aquatic resources onsite.

Mitigation Measure WF-01 through WF-03: Refer to Mitigation Measure WF-01 through WF-03 in the Wildfire Section ([SECTION 4.21](#)).

4.11 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
11. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.11.1 Affected Environment

Content of this section is primarily adapted from information in the project Development Plan (WRA 2017a) and Biological Resources Inventory (WRA 2019a) as summarized under [SECTION 3.2](#) and [SECTION 2.2](#). The project area is located within the San Pablo Bay HUC (18050002) watershed. The climate of the project area is the typical Mediterranean climate of northern coastal California: warm-hot dry summers and cool wet winters. Precipitation falls predominantly as rain between November and March with an annual average of 24.93 inches (WRA 2019a). The project area is located immediately south of San Antonio Creek ([FIGURE 1](#)), a perennial stream that flows into the Petaluma River (a direct tributary to San Pablo Bay) approximately 3.75 miles to the east. Corda Creek, a nearly perennial tributary to San Antonio Creek, forms the eastern boundary of the project area. Several ephemeral and intermittent streams, which drain areas of the adjacent hillslopes to the south, cross

the site and connect to existing wetland basins, or directly to San Antonio Creek (FIGURE 2).

The mainstem of San Antonio Creek drains a 36.5 square mile watershed within the Marin Hills, consisting primarily of agricultural and open space land uses. The reach of San Antonio Creek adjacent to the project area is a deeply incised, meandering, low gradient stream with typical riffle-run pool complexes and patchy riparian vegetation. Corda Creek drains a 5 square mile agriculture and open space watershed contained almost entirely within the project area. The creek consists of low gradient reaches near its confluence with San Antonio Creek that increase to medium gradient in the upstream reaches. Flows in Corda Creek tend to be flashy, with relatively low base flow and large flows immediately following rain events (WRA 2017a).

Ephemeral streams within the project area consist of first- and second-order streams originating in steep uplands, with water flowing during or immediately following substantial precipitation events. These one- to two-foot-wide streams are typically confined in steep gullies and draws, and contain beds comprised of rubble, sand, and/or upland vegetation. The intermittent streams originate from confluences of ephemeral streams, with water flowing during and following large-to-moderate precipitation events. Flows appear to last only several days to several weeks with percolation rates somewhat rapid into the porous substrate. Additionally, it is likely that sub-surface in-flow provides a substantial portion of the hydrology of these streams, particularly later in the season. These two-foot or greater wide streams are typically on high to moderate gradient slopes, and contain beds comprised of cobble and gravel mixed with sands and silts. (WRA 2017a).

Wetland meadows, seeps, and swales exist across the project area and ultimately drain into Corda Creek and San Antonio Creek (FIGURE 2). Hydrologic inputs into these wetlands appear to include precipitation, surface runoff, and shallow subsurface flow. Groundwater monitoring within the project area indicates the presence of near-surface groundwater across much of the site, providing suitable conditions for wetland re-establishment with shallow grading.

The natural hydrology of the project area was substantially altered in the 1940s-1950s by the construction of a channelized swale through the eastern half of the project area (FIGURE 7). The effect of the channelized swale has been to concentrate flows away from the meadow and lower the groundwater table by acting as a drain. This alteration of the natural surface flow pattern and hydrology dewatered the pasture for improved agricultural production, but also reduced the natural wetland footprint that would otherwise exist on the site. Prior to farming interventions, water likely spread out over the meadow via sheet flow and supported a higher density of wetlands (WRA 2017a).

The Regional Water Board has identified the following Beneficial Uses for San Antonio Creek in the current Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) (RWQCB 2017). The Basin Plan sets narrative and numeric water quality objectives for a wide range of physical, chemical, and biological properties to protect these beneficial uses:

- Cold Freshwater Habitat
- Warm Freshwater Habitat
- Wildlife habitat
- Water Contact Recreation
- Non-Contact Water Recreation
- Fish migration – *potential beneficial use*

- Fish Spawning – *potential beneficial use*

4.11.2 Discussion of Impacts:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than significant with mitigation. In the long-term, the project has been designed to improve surface and groundwater quality by implementing erosion control measures at existing problem areas, and by slowing and spreading flows across the landscape and through a series of wetland basins, thus allowing for natural sediment and pollutant removal to take place before water is discharged to Corda and San Antonio creeks. A detailed discussion of the erosion control benefits of the project is provided in [SECTION 3.2.1](#) and item VI(b) in the Geology and Soils section.

Construction activities associated with project implementation could cause short-term, temporary impacts to water quality. However, the risk of such impacts will be minimized by conducting project construction in the dry season (September to mid-October 2019 or between April and October 2020), and by implementing BMPs as described in [SECTION 3.2.1.7](#). Accordingly, the impacts of the project are expected to be less than significant.

Following project construction, the risk of erosion of graded areas will be minimized by the re-seeding and revegetation of the project area, as well as by installation of other interim erosion control measures (e.g., biodegradable erosion control fabric in swales and along road slopes) as guards against soil loss during the initial site evolution period ([SECTION 3.2.1.7](#)).

Mitigation Measure HYD-01: A Stormwater Pollution Prevention Plan (SWPPP) that includes BMPs for minimizing stormwater runoff, erosion, and potential water quality impacts associated with construction activities shall be developed by a qualified SWPPP preparer. A Spill Prevention Plan shall be developed as part of the SWPPP, or as a separate document, and shall include BMPs for minimizing the potential for release of construction-related contaminants into the environment, and protocols for spill cleanup. The BMPs implemented under the SWPPP and Spill Prevention Plan are incorporated into the proposed project activities and shall include, but are not limited to:

- Staging of construction equipment in designated upland areas when not in use and refueling or maintenance of equipment only in upland areas, away from aquatic habitats to prevent the introduction of hazardous chemicals into the water.
- Demarcating the limit of construction disturbance in the field and demarcating the boundaries of wetlands and other sensitive habitats outside this footprint for avoidance/preservation.
- Establishing designated equipment access routes across the site to minimize disturbance outside the construction footprint.
- Training for all contractors in implementation of stormwater BMPs for protection of water quality.
- As necessary, installing silt fence, straw wattles, or alternative around the perimeter of impact areas during excavation to prevent sediment runoff into the seasonal wetlands and non-wetland waters.
- Stockpiling excavated soils in designated upland areas, installing sediment fencing, straw

wattles, or other sediment barrier around the stockpiles to prevent runoff, and covering stockpiles during storms or periods of high winds to prevent runoff/blowoff.

- Stabilizing slopes with sterile straw, fiber rolls, hydroseeding, and/or soil binders after finish grading.

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

No impact. The project would increase shallow groundwater recharge within the project area by slowing and spreading surface flows across the landscape and through a series of wetland basins, thus allowing more time for infiltration into the soils.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would:

i) Result in substantial erosion or siltation on- or off-site?

Less than significant with mitigation. See discussion in item a), above. The project would, in the long term, reduce the potential for soil erosion from the project area and siltation in downstream waters by slowing and spreading flows across the landscape and through a series of wetland basins, thus allowing for natural sedimentation to occur before water is discharged to Corda Creek and San Antonio Creek.

Implementation of *Mitigation Measure HYD-01* would reduce possible construction-related erosion and sedimentation impacts to a less-than-significant level.

Mitigation Measure HYD-01: Refer to Mitigation Measure HYD-01 above.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less than significant impact. The project would reduce the rate and amount of runoff from the site by slowing and spreading flows across the landscape and through a series of wetland basins. Water flowing off the upstream watershed would be retained within the project area longer than under current conditions, therefore reducing peak flows into San Antonio and Corda creeks during and following storm events and reducing downstream flooding risks. Surface water retention (i.e., “flooding”) on the project area would increase post-project, but this is a necessary and desired condition for restoring and enhancing wetlands and would not pose a risk to on-site resources or land uses.

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?

No impact. Stormwater systems currently do not exist on the project area and the proposed project would not add underground stormwater systems. As described in the project description, culverts are proposed at several drainage road crossings to improve storm driven flows and reduce sediment deposition. The culvert crossings would not connect with other stormwater infrastructure and would allow unimpeded flows to continue to San Antonio Creek. As described in the analyses above, the project involves enhancement of natural habitats, which would decrease runoff and would not be a source of polluted runoff.

iv) Impede or redirect flood flows?

Less than significant impact. The proposed project would redirect flows from the upstream watershed into the created wetland basins, thereby reducing peak flows into San Antonio and Corda creeks during storm/flood events. The project would therefore help to reduce flood hazards to downstream areas, providing a net flood control benefit to the greater watershed.

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

Less than significant impact. The project area sits within and adjacent to the historic floodplain of San Antonio Creek. As such, portions of the site area within the currently delineated FEMA 100-year flood zone. Floodplain wetlands, by nature, are regularly inundated during flood events. As the watershed contributing to the project wetlands is in a natural (undeveloped) state, there would be little to no risk for pollutant release from project area inundation.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No impact. Water quality objectives for San Antonio Creek and Corda Creek are governed by the San Francisco Bay Basin Plan (RWQCB 2017). The project would not conflict or obstruct implementation of the Basin Plan, and should, in fact, help achieve several of the water quality objectives set forth in therein by restoring natural habitats and processes within the watershed.

4.12 Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
12. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.1 Discussion of Impacts

a) Physically divide an established community?

No impact. The project area is not located within an established community; the lands surrounding the project area are largely rural with a dispersed population and the project area is bounded on all sides by open space and rangeland. The surrounding vicinity consists of agricultural lands, including grazing lands, vineyards, and other rural residential uses.

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?

No impact. The proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental impact. The proposed project would result in the re-establishment and enhancement of sensitive aquatic resources anticipated to result in a net benefit to the surrounding environment. Establishment of a conservation easement on the project area would require compliance with any land use plan, policy, or regulations designed to avoid or mitigate environmental impacts.

4.13 Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
13. MINERAL RESOURCES: Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.13.1 Affected Environment

The project area is situated within the Franciscan Geologic Complex. More specifically, the project area falls within a Meta-Graywacke rich area likely formed during the Jurassic and Cretaceous Periods (Marin County 2009).

No mineral resources of value to the county or residents of the state are known to occur within the project area (Marin County, 2009) and review of the Division of Oil, Gas, and Geothermal Resources (DOGGR) mapping data indicates that no wells or permits exist within the project area and no oil/gas field boundary is mapped within the project area or nearby vicinity. Additionally, the project area is not located within a Mineral Resource Zone (DOGGR 2019). In accordance with the proposed conservation easement deed, the Corda Land Co. currently maintains ownership of potential minerals and mineral interests and would maintain one-half interest in minerals/mineral interests within the project area following completion of the proposed project.

4.13.2 Discussion of Impacts

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?

No impact. The proposed project would involve shallow surface excavations to intersect with seasonally high groundwater and create grades that promote wetland establishment. The proposed project would use onsite cut and fill materials to complete construction. As state above, no mineral resources of value to the County or residents of the state are known to occur within the project area.

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?

No impact. The project area is not located within or immediately adjacent to a mineral resource recovery site outlined in the Marin Countywide Plan (2009). The closest mineral resource recovery site is the Redwood Landfill Quarry, located approximately 2.25 miles east of the project area (California Division of Mines and Geology 2017). Therefore, project construction and implementation would have no impact on a locally important mineral resource recovery site.

4.14 Noise

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
14. NOISE: Would the project 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.14.1 Affected Environment

4.14.1.1 NOISE DESCRIPTORS

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound pressure level has become the most common descriptor used to characterize the “loudness” of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Decibels are measured using different scales, and it has been found that A-weighting of sound levels best reflects the human ear’s reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. All references to decibels (dB) in this report will be A-weighted unless noted otherwise. The noise descriptor used in this evaluation is the equivalent A-weighted sound level over a given time period (Leq); The Leq is the average noise level during a time period. **TABLE 4** identifies decibel levels for common sounds.

4.14.1.2 REGULATORY FRAMEWORK

Marin Countywide Plan

The Noise Section (3.10) of the Built Environment Element of the Marin Countywide Plan (Marin County 2009) contains policies and programs intended to maintain appropriate noise levels and protect noise-sensitive land uses in the County. Because the project is habitat restoration, the only substantial noise impact would be construction noise, which is addressed by the Marin County Municipal Code.

Marin County Municipal Code

The Marin County Municipal Code Section 6.70.030(5) establishes allowable hours of operation for construction-related activities (Marin County 2017).

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, President's 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 the Municipal Code provided written notice is given to the community development director within forty-eight 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.

TABLE 4: TYPICAL NOISE LEVELS

Noise Level (dB)	Outdoor Activity	Indoor Activity
90+	Gas mower at 3 ft., jet flyover at 1,000 ft.	Rock band
80-90	Diesel truck at 50 ft.	Loud television at 3 ft.
70-80	Gas lawn mower at 100 ft., noisy urban area	Garbage disposal at 3 ft., vacuum at 10 ft.
60-70	Commercial area	Normal speech at 3 ft.
40-60	Quiet urban daytime, traffic at 300 ft.	Large business office, dishwasher next room
20-40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10-20		Broadcast / recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing

Source: Modified from Caltrans Technical Noise Supplement (Caltrans 2013a)

4.14.1.3 SIGNIFICANCE THRESHOLDS

For checklist items the following thresholds are evaluated. Temporary construction noise impacts would be significant if construction conflicts with the construction regulations in Marin County, or if vibration from construction activities could cause damage to buildings.

4.14.1.4 EXISTING NOISE SOURCES AND LEVELS

To quantify existing ambient noise levels, RCH group conducted six short-term (5 to 10 minutes) noise measurements. Short term measurements were conducted within the project area and vicinity; see [FIGURE 15](#). Measurements were made using Metrosonics db 308 Sound Level Meters calibrated before and after the measurements.

The noise measurements are summarized in [TABLE 5](#). In general, the project area is a very quiet location. The predominant sources of noises in the vicinity of the project were birds, wind, and distant traffic noise from San Antonio Road.

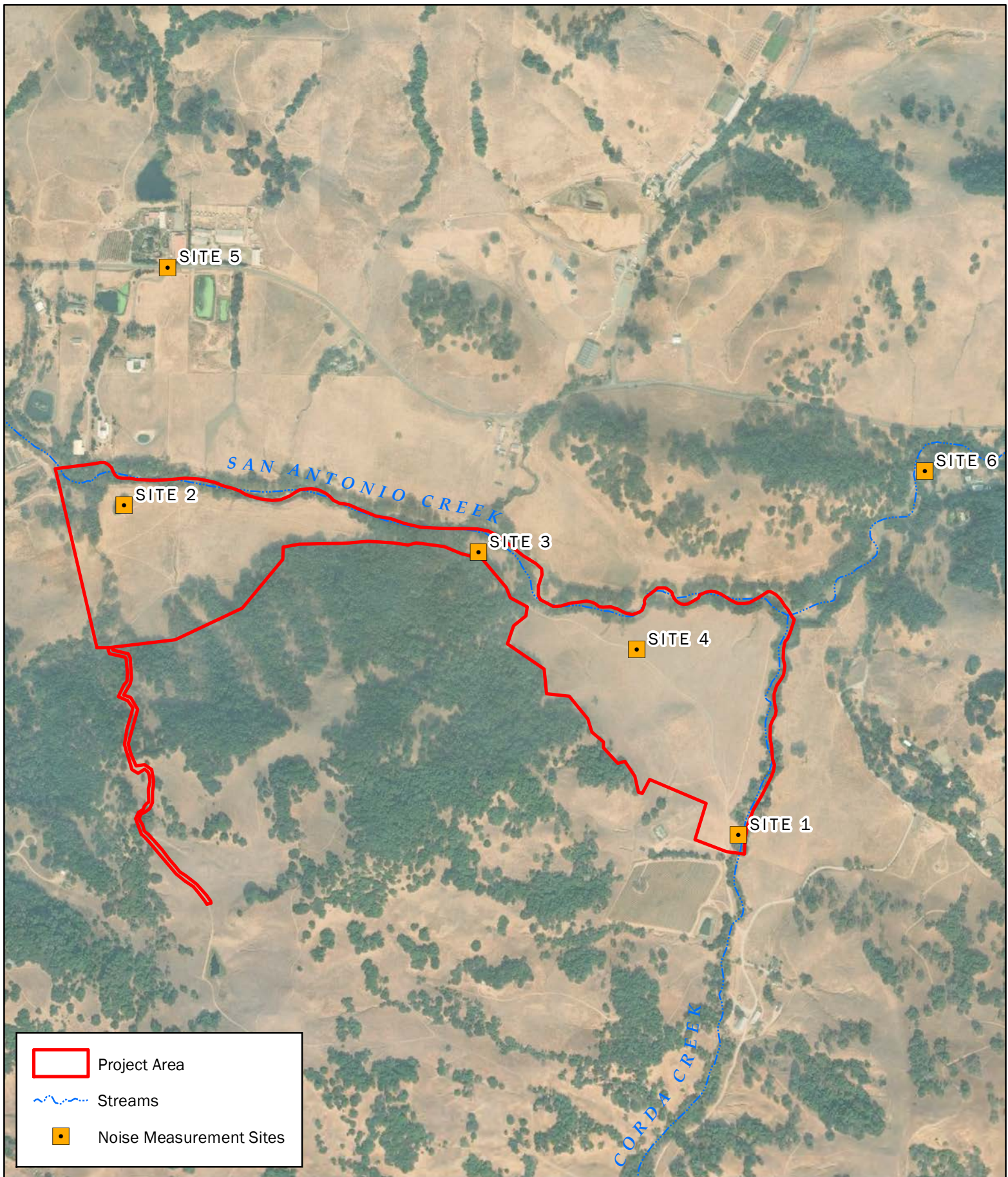
4.14.1.5 EXISTING SENSITIVE RECEPTORS

Noise sensitive receptors (land uses associated with indoor and/or outdoor activities that may be subject to stress and/or significant interference from noise) typically include residential dwellings, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Noise sensitive receptors in the project vicinity include existing residences that are located near the project area and along access roads to the project area. The closest sensitive receptor to construction equipment noise would be 550 feet west of construction on the western portion of the project area.

TABLE 5: EXISTING NOISE LEVELS IN THE PROJECT AREA

Location	Time Period- Thursday June 6, 2019	Noise Levels (dB)	Noise Sources
Site 1: 50 feet north of project area eastern entrance gate	12:10 - 12:20 p.m.	5-min Leq's: 44, 46	Birds chirping, perched in the trees nearby 44 dB. Wind gusting 47 dB.
Site 2: Western portion of project area, approximately 300 feet south of north project boundary	12:54 - 1:04 p.m.	5-min Leq's: 45, 47	Birds chirping overhead 47 dB. Distant traffic noise 45 dB. Distant construction equipment being used 50 dB
Site 3: Middle area of the project area where the boundary narrows, 150 feet south of San Antonio Creek	1:30 - 1:40 p.m.	5-min Leq's: 46, 46	Distant traffic noise 48 dB, birds chirping overhead 46 dB.
Site 4: Eastern field on project area	1:49 - 1:59 p.m.	5-min Leq's: 45, 48	Gusting winds 53 dB, 55 dB. Birds in the background 45 dB.
Site 5: Side road 50 feet south of San Antonio Road	2:37 - 2:47	5-min Leq's 62, 62	Flowing traffic on road 70 dB. Large truck 76 dB. Total vehicle count: 57
Site 6: Easement 500 feet south of San Antonio Road	2:23 - 2:28 p.m.	5-min Leq 49	Distant traffic from San Antonio Road 46 dB. Car driving on access road 47 dB. Birds chirping on trees overhead 52 dB.

Source: RCH Group 2019



NORTH BAY MITIGATION BANK NOISE MEASUREMENT SITES

INITIAL STUDY AND MITIGATION NEGATIVE DECLARATION
MAY 2019

FIGURE 15

Imagery/Layers: ESRI, USGS
NAD 1983 California State Plane Zone III



0 650 1,300 Feet



4.14.2 Discussion of Impacts:

- 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?**

Less than significant impact. Potential noise impacts associated with the project would be related to noise from construction. The project would occur entirely within a single dry season and is expected to take six weeks to complete. The project area has been historically used for agricultural purposes, and noise from agricultural equipment would periodically be part of the noise environment in this agricultural area. The project would not result in any substantial changes in noise after construction is complete.

Construction Noise Impacts

The use of onsite equipment and heavy trucks during construction would result in increases in ambient noise levels in the project vicinity. During this phase, construction would include grading, bulldozing, excavating, and other related construction activities.

Construction activities would require the use of numerous pieces of noise-generating equipment, such as excavating machinery (e.g. bulldozer, backhoes, excavators, front loaders, etc.) and other construction equipment (e.g. graders, trucks, etc.). The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction. The maximum noise levels 50 feet for various types of construction equipment that could be used during construction are provided in TABLE 6.

TABLE 6: TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT (LMAX)

Construction Equipment	Noise Level (dB, Lmax at 50 feet)
Backhoe	78
Dozer	82
Backhoes	78
Excavator	81
Flat Bed Truck	74
Scraper	84
Grader	85
Front End Loader	79

Source: *Federal Highway Administration (FHWA) Roadway Construction Noise Model User's Guide* 2006.

As described in the noise regulatory setting, the Marin County Municipal Code Section 6.70.030(5) establishes allowable hours of operation for construction-related activities. Because the project would operate in compliance with the Marin County Municipal Code approved construction hours, the project would not exceed noise standards in Marin County and project compliance with the Marin County Municipal Code would result in a less-than-significant impact from noise.

b) Would the project result in excessive groundborne vibration or groundborne noise levels?

Less than significant impact. Construction activities have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. In most cases, vibration induced by typical construction equipment does not result in adverse effects on people or structures (Caltrans 2013b). Project construction would utilize typical construction equipment and would not generate significant sources of vibration such as pile driving or blasting. Vibrational effects from typical construction activities are only a concern within 25 feet of existing structures (Caltrans 2002). The nearest building would be approximately 380 feet north of the closest construction activity and at this distance construction equipment vibration would have no effect on the building. Therefore, vibration impacts would be a less than significant 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 of public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No impact. The project is not located within the vicinity of an area covered by an airport land use plan or a private airstrip. The closest airport, Marin County Airport (or Gnos field), is approximately 5.5 miles southeast of the project area. Therefore, the proposed project would not expose construction workers to excessive aircraft noise levels and the proposed project would result in no impact.

4.15 Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
15. POPULATION AND HOUSING: Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.15.1 Discussion of Impacts

a) Induce substantial unplanned population growth in an area, either directly or indirectly?

No impact. As stated in the Introduction and Purpose section, the proposed project is a wetland mitigation bank involving seasonal wetland re-establishment and enhancement. The project does not involve construction of any new buildings or extension of infrastructure, and therefore would not induce substantial population growth. Following completion of project construction, the project area would be placed under conservation easement, which would restrict development/land use changes.

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

No impact. The project area is situated within zoned agricultural lands and adjacent lands are managed for agriculture with low density farm structures and residences. No residences or structures are proposed, nor would structures or residences be displaced by the project activities and project purpose.

4.16 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
16. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.16.1 Discussion of Impacts

- a) **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services.**

No impact. The proposed project would result in the re-establishment and enhancement of environmentally sensitive resources and would not require altered services or facilities and would therefore not result in substantial adverse physical impacts to government facilities. Further, given the location of the project area, there are minimal public services required. The project would not involve the construction of new residential or commercial facilities; nor does the project physically alter governmental facilities including but not limited to fire protection facilities, sheriff facilities, schools, or parks. Please see the discussion in [SECTION 4.21](#) regarding wildfires. Public services in the region would not be impacted by the project and may maintain acceptable service ratios, response time or other performance objectives. Therefore, the project has no impact on public services.

4.17 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
17. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.17.1 Discussion of Impacts

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No impact. No neighborhood parks exist near the project area. The nearest regional park, Helen Putnam Regional Park, is approximately eight miles northwest of the project area. The nearest state park is Olompali State Historic Park, approximately 14 miles southeast of the project area. The proposed project would not build or deconstruct current park spaces, nor would it interrupt viewshed from any parks. It also would not increase demand or usage at any parks. Therefore, the project would not increase the use of existing neighborhood or regional parks or other recreational facilities or have an impact on the deterioration rate of those facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No impact. The proposed project is wetland re-establishment and enhancement for the purpose of developing a wetland mitigation bank. No recreational facilities exist onsite or are planned for the project area as part of the proposed project.

4.18 Transportation

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
18. TRANSPORTATION: Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? NOTE: While public agencies may immediately apply Section 15064.3 of the updated Guidelines, statewide application is not required until July 1, 2020. In addition, uniform statewide guidance for Caltrans projects is still under development. The PDT may determine the appropriate metric to use to analyze traffic impacts pursuant to section 15064.3(b). Projects for which an NOP will be issued any time after December 28 th , 2018 should consider including an analysis of VMT/induced demand if the project has the potential to increase VMT (see page 20 of OPR's updated SB 743 Technical Advisory), particularly if the project will be approved after July 2020.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.18.1 Affected Environment

The project area is accessible via US Highway 101 to San Antonio Road and an unnamed private access road that runs along the eastern border of the project area. Direct access to the project area is achieved via dirt roads that connect to the unnamed road along the eastern border.

4.18.2 Discussion of Impacts

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

No impact. The proposed project would not conflict with circulation programs, plans, ordinances, or policies set forth in the 2009 Marin Countywide Plan. Additionally, the project area is situated in a rural setting that does not experience high traffic volumes. The project area does not include any existing transit, bicycle, or pedestrian facilities. The proposed project would generate minimal increased traffic volumes during construction and would not result in increased traffic volumes following construction. Cut and fill soil materials would not be transported off of the property; excess vegetation material from grading/scraped areas may be transported to the nearest landfill facility for composting as discussed in [SECTION 4.20](#). Increases in traffic volume would be associated only with importing construction materials (vegetation material/seeds, erosion and sediment controls materials, small rock material, and culvert material), possibly limited transport

of excess vegetation material to an offsite landfill, equipment transport, and construction worker travel to and from the project area from nearby temporary lodging. The approximately 10 daily construction workers would not generate substantial traffic on San Antonio Road

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

No impact. The proposed project would result in a slight temporary increase of vehicular traffic associated with construction equipment and transport of workers during the construction phase. Vehicle miles traveled (VMT) would not increase or decrease following construction of the proposed project. Therefore, the project is consistent with CEQA Guidelines section 15064.3, subdivision (b).

c) Substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?

No impact. Several unimproved dirt access roads currently exist within the project area, which were historically used to support agricultural practices. The proposed project involves improvements to existing dirt roads and decommissioning of roads but would not increase hazards within the project area. Improvements to the main dirt road, including stabilization of multiple ephemeral stream crossings, would decrease hazards currently associated with project area access.

d) Result in inadequate emergency access?

No impact. The access roads within the project area were historically used to support agricultural practices and were not intended to provide emergency access or egress. Following project construction, the access roads would be used for routine project area maintenance. The proposed project would not impact emergency access along public or local roads.

4.19 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
19. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.19.1 Regulatory Framework

In September 2014, California Assembly Bill (AB) 52 added provisions to the Public Resources Code focused on impacts to tribal cultural resources under CEQA. The provisions include consultation, including by the lead agency, requirements with California Native American tribes and requires an analysis of a project's impacts on tribal cultural resources separately from archaeological resources (Public Resources Code Section 21074; 21083.09).

Any project found to have a significant impact on a Tribal Cultural Resource, the lead agency's environmental documentation must discuss whether the proposed project would have a significant impact on that resource(s) and whether feasible alternatives or mitigation measures avoid or significantly reduce the impact on the resource. Tribal Cultural Resources is defined under section 21074 of Public Resources Code as either: "1) sites, features, places, cultural landscape, sacred places, and objects with cultural value to a tribe that are listed, or determined to be eligible for listing, in the national or state register of historical resources, or listed in a local register of historic resources; or 2) a resources that the lead agency determine, in its discretion, is a tribal cultural resource."

For more information on the background of potential Tribal Cultural Resources, reference [SECTION 2.1](#).

4.19.2 Affected Environment

The project area lies within the ethnographic territory of the Coast Miwok, which encompasses all of present-day Marin County and parts of Sonoma County, from Duncan's Point on the coast to between the Sonoma and Napa rivers. Each large village had a tribal leader, but there does not appear to have been any broader-scale organization. Most Coast Miwok settlements were focused on bays and estuaries, or along perennial interior watercourses. By the mid-1800s Spanish missionization and immigrant settlement disrupted Coast Miwok culture, drastically reducing the population and displacing native people. In 1920, the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton for the Marshall, Bodega, Tomales, and Sebastopol Indians. This land was put into federal

trust and neighboring people, that included the Coast Miwok and Southern Pomo were consolidated into one recognized group: the Graton Rancheria. In 1985, the U.S. government enacted the Rancheria Act of 1958, transferring tribal property into private ownership. Tribal members continue to protect their cultural heritage and identify as the Federated Indians of Graton Rancheria (FIGR) (ESA 2013).

The project area lies within the San Antonio Creek Archaeological District – a series of eight prehistoric archaeological sites, two of which occur within the project area.

4.19.2.1 TRIBAL CULTURAL RESOURCES IDENTIFIED WITHIN PROJECT AREA

For more information on the tribal cultural resources identified within the project area, reference [SECTION 2.1](#).

4.19.2.2 CONSULTATION HISTORY

The 2013 Cultural Resources Survey Report prepared by ESA recommended that the identified resources meet the eligibility criteria for the NRHP under Criterion D and A, and potentially B (ESA 2013). The report was provided to USACE with the Section 404 permit application in December 2018. The following is a summary of project coordination relating to NHPA Section 106 Consultation and Native American Consultation:

- August 15, 2012 – archaeologist from ESA contacted Nick Tipon, Chairperson of the Sacred Sites Protection Committee for FIGR by email and letter
- April 16, 2012, Mr. Tipon responded by telephone indicating that the Tribe had concerns regarding potential impacts to cultural resources and would request a formal consultation meeting with USACE regarding the project
- 2012, Mr. Tipon met with project representatives from WRA to discuss the project. Mr. Tipon suggested that avoiding and/or capping cultural resource sites with soil would be an appropriate measure to protect cultural resource sites.
- February 2013 - Phase 1 Cultural Resource Report was transmitted to the project sponsor
- December 2018 – Cultural Resource Survey Report was transmitted to USACE with the Section 404 Nationwide Permit application
- February 1, 2019 - WRA contacted the FIGR and was put in contact with Libby Watanabe
- February 5, 2019 Buffy McQuillen contacted WRA by email requesting a phone call to discuss the project
- February 12, 2019 WRA contacted Ms. McQuillen by email providing more information about project actions and requested a site visit with the FIGR
- February 21, 2019 –USACE made the determination that the project would have “No Potential to Effect” under Appendix C.
- March 28, 2019 – USACE concurs with Cultural Resource Survey Report recommendations that resources within the revised APE met eligibility criteria for NRHP under Criterion D and A, and possibly B. USACE, based on comments provided by the SHPO, requests the following modifications to the Cultural Resources Survey Report:
 - Adjustment of the APE maps to simplify the information presented;
 - Revisions to the text to include eligibility criteria and a reference for proposed eligibility criteria for the project site under the NRHP;

- Addition of a text specifically indicating that no ground-disturbing activities would occur on or within 100 feet of the resources; and
- Information on whether or not the applicant had an agreement with FIGR for tribal monitoring or an archaeologist during all ground-disturbing activities
- April 2, 2019 – WRA provides cultural resource report supplement to USACE providing the revised APE and information to substantiate the “No Potential to Effect” determination
- April 15, 2019, USACE indicated that they were still in consultation with the FIGR THPO and had provided the applicant’s supplemental information. USACE indicated that they would be unable to complete the SHPO consultation until receiving current feedback from FIGR.
- May 8, 2019 – USACE confirms FIGR received information request regarding Tribal Consultation
- May 29, 2019 – USACE indicated they had not received follow-up from the THPO regarding tribal resources, and they were initiating SHPO consultation for a no adverse effect on historic properties. USACE indicated even if there was disagreement from the THPO, there is a 30-day response deadline and the supplement to the Cultural Resources Survey Report was sufficient for SHPO consultation needs.
- August 20, 2019 – Water Board formally notified FIGR and the Mishewal Wappo Tribe of Alexander Valley about the Project and the consultation opportunity pursuant to Public Resources Code section 21080.3.1 for the mitigation of potential project impacts to tribal cultural resources.
- August 21, 2019 – Water Board received formal request for tribal consultation from FIGR.
- October 18, 2019 – Water Board staff met and began consultation met with FIGR THPO.
- December 17, 2019 – Water Board and Corps staff met with FIGR THPO in consultation.

4.19.3 Discussion of Impacts

a) 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)

Less than significant with mitigation. Three prehistoric tribal cultural resource sites with artifacts that are part of the San Antonio Creek Archaeological District occur within the project area. These resources are recommended for listing with the NRHP. Consultation with the FIGR was initiated during 2012, and again during 2019. During February 2019, WRA contacted the FIGR providing information about the project. USACE initiated consultation with the FIGR during March 2019. The Water Board initiated consultation with the FIGR in August 2019.

As discussed in [SECTION 4.6](#), the proposed project would avoid excavation and other project related work within the known tribal cultural resource site boundaries and within the 100-foot buffer. . Additionally, following completion of project construction, the project area would be placed under conservation easement, protecting all archaeological sites within the proposed project area in perpetuity. If resources are encountered during project work, mitigation measures would require a work stoppage and an assessment of the resources. Implementation of *Mitigation Measures TR-01* through *TR-03* and *Mitigation Measure CR-01* and *CR-02* would reduce potential adverse impacts on tribal resources to a less-than-significant level.

Mitigation Measure TR-01: A registered professional archaeologist approved by the FIGR and tribal monitor will conduct a Cultural Resource Awareness Training prior to commencement of ground-disturbing activities to familiarize project supervisors, contractors, and equipment operators with the potential to encounter prehistoric artifacts or historic-era archaeological deposits, the types of archaeological material that could be encountered, and procedures to follow if subsurface archaeological resources or artifacts are observed during Project-related earth-disturbing activities construction.

Mitigation Measure TR-02: A registered professional archaeologist approved by the FIGR and tribal monitor will be on site during all grading activities. During initial grading, the registered archaeologist and tribal monitor will conduct a field survey to physically inspect the Project site for potentially significant cultural resources. The field survey will include an inspection of 100 percent of the Project site for evidence of prehistoric archaeological artifacts. If any are found, the Lead Agency and FIGR will be immediately notified of any artifacts, cultural soils, or bone fragments identified, and grading would immediately cease within 100 feet of the find until all mitigation measures have been completed.

Mitigation Measure TR-03: Should resource sites or artifacts be discovered during project construction and suspected or found to be a potential Tribal Cultural Resource; work would halt within a 100-foot radius buffer of the discovery. The discovery would be kept confidential and secured from further disturbance and would be evaluated by the registered archaeologist in consultation with the FIGR tribal monitor. Construction would not continue within 100-feet of the Tribal Cultural Resource until either mitigation measures have been agreed upon with the FIGR and Lead Agency and the mitigation is carried out, or the resource is avoided entirely. If the archaeologist in conjunction with the FIGR tribal monitor finds that the resource is not potentially significant, work would resume, and no agency notification would be required. If finds are a potentially significant Tribal Cultural Resource, the Lead Agency would consult on findings of eligibility and implement agreed upon treatment measures. If a resource is found to be a Tribal Cultural Resource, any and all recovered Tribal Cultural Resources shall be returned to the Tribe for respectful treatment and would not be curated.

Mitigation Measure CR-01: Refer to Mitigation Measures CR-01 in the Cultural Resources Section (SECTION 4.6).

- b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

Less than significant impact with mitigation. As discussed in SECTION 4.6, Cultural Resources, USACE concurs with the Cultural Resource Survey Report recommendations that the archaeological resources within the project's APE met eligibility criteria for NRHP under Criterion D and A, and possibly B. USACE initiated consultation with the SHPO for a no adverse effect on historic properties determination; as of May 29, 2019, USACE indicated they had not received follow-up from the THPO regarding tribal resources. The Water Board initiated consultation with the FIGR THPO on August 20, 2019. Under Public Resource Code 21080.3.1(a) "consultation" is

defined as a “meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties’ cultural values and, where feasible, seeking agreement. Consultation between government agencies and Native American tribes shall be conducted in a way that is mutually respectful of each party’s sovereignty. Consultation shall also recognize the tribe’s need for confidentiality with respect to places that have traditional tribal cultural significance.” Further “effective consultation is an ongoing process, not a single event.” Please see discussion above regarding anticipated impacts to these resources. Implementation of *Mitigation Measures TR-01* through *TR-03* would reduce potential adverse impacts on tribal resources to a less-than-significant level.

Mitigation Measure TR-01 through TR-03: Refer to Mitigation Measures TR-01 through TR-03 above

If human remains are found within the project area during construction or the archaeological work, the procedures described in *Mitigation Measure CR-02*, provided in the Cultural Resources Section ([SECTION 4.6](#)), would be implemented.

4.20 Utilities and Service System

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
20. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.20.1 Background

The project area contains a natural gas pipeline easement owned and operated by Pacific Gas and Electric (PG&E) which intersects the northeastern portion of the project area. The PG&E pipeline would not be relocated as part of the proposed project and the easement would remain in place. PG&E also maintains an easement across the project area that allows them to erect and maintain a single line of poles and wires, as well as the right to ingress and egress. The project area also contains electrical and water lines that solely service a pool and pool house situated directly south of the project area. These utility lines only service these private facilities and do not extend offsite. Overhead utilities within the project area are limited and occur only along the north boundary. No overhead utilities would be relocated as part of the proposed project.

4.20.2 Discussion of Impacts

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

Less than significant impact. The proposed project would involve the relocation of an existing water pipeline and electrical line on the eastern portion of the project area. The water and electrical lines traverse through the eastern portion of the project area and service a pool and pool house just outside of the project area. The electrical line and water line currently follow separate

alignments and would be relocated along the same alignment paralleling the eastern boundary of the project area above Corda Creek. Because the existing water and electrical lines only service the pool house and do not extend offsite, temporary disruption of service for relocation of these utilities would not impact adjacent residents' access to water and electricity. The proposed project would involve the placement of corrugated metal pipe culverts at existing drainage crossing locations to improve stormwater conveyance and reduce sediment transport into San Antonio Creek, which would result on temporary impacts on ephemeral drainages that convey storm flows. The placement of the culverts is expected to result in a net benefit for ecological resources within the project vicinity.

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

No impact. A private water well exists near the northeast corner of the project area. The revegetation areas would be irrigated to ensure successful germination and establishment using water from this well. Additionally, the well water would be used for particulate dust management and fire management, which would be filled into water trucks. No additional water would be hauled from offsite sources and no water from the onsite drainages or adjacent creeks would be used. No municipal water would be used during or after project construction for site maintenance.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No impact. No wastewater utilities exist within the project area and no new wastewater utilities are proposed for the project area; therefore, the proposed project would not result in an increase in wastewater for the local wastewater treatment provider.

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?

No impact. Construction of the project is anticipated to generate approximately 22,000 cubic yards (CY) of excess soil material. Excess soil material would be stockpiled onsite and redistributed within several onsite permanent disposal locations as shown on [FIGURE 12](#), in addition to other permanent stockpile areas in upland agricultural lands located on the larger property and near to the project area. No soil material would be hauled off the property. Project construction would also result in generation of excess vegetation material, as solid waste, from surface scraping; all of this material would be buried in soil stockpile areas onsite. No soil or vegetation material would be hauled off the property.

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

No impact. All solid wastes produced during construction of the proposed project would be disposed of onsite.

4.21 Wildfire

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
21. WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.21.1 Affected Environment

The project area is located in the northern Marin Hills, Petaluma, Marin County. The project area is classified as a moderate hazard severity zone within the state responsibility area (CAL FIRE 2019).

4.21.2 Discussion of Impacts

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No impact. There are no specific emergency response or emergency evacuation plans for the project area. General guidance from FIRESafe Marin (2019) includes precautions that are mirrored in the project description (e.g. parking vehicles away from vegetation, parking vehicles facing toward the exit for quick evacuation, having fire-extinguishers and other fire-fighting equipment readily available). Additionally, the project does not conflict with the Strategic Fire Plan for Marin County (Marin County Fire Department and FIRESafe Marin 2012).

b) 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?

Less than significant with mitigation. Based on National Renewable Energy Laboratory data, the project area is located in poor-to-marginal wind power resource potential zones due to the low and inconsistent wind speeds in the area (NREL 2017). Available weather gauge wind data indicate that prevailing winds in Petaluma, California tend to the west and average 5.6 to 7.4 miles per hour with max average gusts between 9.5 to 13.6 miles per hour (WillyWeather 2019). These speeds are consistent with a light breeze to moderate breeze condition. While any wind may

contribute to the exacerbation of wildfire risk, the apparent average wind speeds onsite do not appear to contribute significantly to an increased risk.

The topography of the project area is generally mountainous with narrow, rounded summits and v-shaped canyons and drainages. Elevations range from 50 to 1,250 feet above mean sea level. The dominant topographic feature is a broad south-north running canyon in the center of the project area, which meets the west-east running San Antonio Creek floodplain in the north. This canyon area presents a potential fire hazard area that could exacerbate the spread of wildfire. Although, given prevailing wind conditions are west-to-east most of the year, this is unlikely.

Implementation of *Mitigation Measures WF-01* through *WF-03* would prevent the spread of fire onsite during construction of the project, in spite of these topographic features, reducing this impact to a less than significant level.

Mitigation Measure-WF-01: Construction equipment not in use and worker vehicles shall be parked away from vegetation in designated staging areas. Parked or idling vehicles shall not be parked in areas where the undercarriage is in contact with vegetation during the dry season.

Mitigation Measure WF-02: A designated water truck shall be filled and available for immediate use onsite in the event of fire outbreak within the project area. Adequate supplies of shovels and fire extinguishers shall be readily available in the work areas.

Mitigation Measure WF-03: Construction contractors shall utilize shields, protective mats, and other fire prevention methods shall be employed when grinding or conducting other activities that may create sparks.

In the long-term, the project area would be maintained for fire control via grazing at appropriate stocking levels to reduce fuel loads throughout the grasslands.

c) 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?

Less than significant with mitigation. Infrastructure improvements for the project include the installation of armored fill creek crossings on access roads, removal of two degraded culverts and installation of new ones, installation of grade control structures within existing seasonal wetlands, installation of one pipe gate, relocation of water and electric lines that service a nearby pool and pool house, decommissioning 3,869 linear feet of ranch access roads, constructing 1,286 linear feet of new access road, and improvements to existing roads and fencing.

Installation for these infrastructure improvements may result in increased fire risk due to conducting activities that may create sparks. Once construction is complete, maintenance activities would only consist of short-term revegetation efforts, as needed, and long-term grazing, which would reduce the vegetation fuel loads and suppress noxious weed invasion. Implementation of project BMPs and *Mitigation Measures WF-01* through *WF-03* are designed to prevent the spread of fire onsite during and after construction and would reduce this impact to a less than significant level.

d) 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?

Less than significant impact. The only existing structures in the vicinity of the project area are ranch houses and barns located northeast of the project area, and the pool house located south of the project area. The proposed project would not expose these structures to increased risk of wildfires, flooding, or landslides as a result of drainage changes or runoff. To the contrary, the project would improve drainage by replacing culverts, decommissioning roads, and enhancing wetlands.

4.22 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.22.1 Discussion of Impacts

- a) Does the project have the potential to substantially 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?**

Less than significant with mitigation. As described in detail in the Checklist, the project area contains sensitive biological resources that could be temporarily affected by the proposed project. All potential impacts on these resources would be reduced to less-than-significant levels with the implementation of the proposed mitigation measures identified in this Initial Study. With implementation of these mitigation measures, the proposed project would not significantly affect local waterways or cause a fish or wildlife species 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. To the contrary, the project is expected to enhance habitat for fish and wildlife by expanding seasonal wetlands and improving the hydrology of the area.

The project will not eliminate important examples of the major periods of California history or prehistory. The project has been designed to avoid impacts to known tribal cultural resources; aspects of the project such as the capping and stabilization of resources prone to erosion, will help to preserve these resources. The implementation of mitigation measures, such as notification procedures in the event that additional tribal cultural resources are discovered during construction, is expected to reduce any other impacts to less-than-significant levels.

Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a 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)?

No impact. The proposed project will not have impacts that are individually limited, but cumulatively considerable. As described above, the project is a minor construction project that will leave the project area as open space. It is not part of a larger project or series of projects.

Nor are there other major projects nearby. Review of the Marin County Community Development Agency's current projects list shows that a single-family residence is proposed approximately 0.5 miles east of the project area, and a single-family residence is proposed, west of and adjacent to the project area (Marin County 2019). All other proposed/pending projects are greater than 3-miles from the project area. These minor projects could have some impact on biological resources as a result of habitat disturbance from noise and habitat loss due to conversion of undeveloped land to developed area. However, the impacts associated with the proposed project would be temporary and are unlikely to overlap in any substantive way with those of other nearby projects.

Therefore, the cumulative impact of the proposed project and past, present, and future likely projects would be less-than-significant.

b) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

No impact. As noted in the Checklist, the proposed project would not have any significant environmental effects on humans that could not be mitigated to a less than significant level. Specifically, there would be no potentially significant impacts associated with air quality, noise, or hazardous materials, nor would any humans be exposed to any project-related geologic or hydrologic hazards.

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APPENDIX A. AIR QUALITY DATA

Air Quality Appendix

Supporting Air Quality and Greenhouse Gas Emissions Calculations

- California Emissions Estimator Model Version 2016.3.2 Annual Emissions Output (19 pages)
- California Emissions Estimator Model Version 2016.3.2 Summer Emissions Output (15 pages)

North Bay Wetlands - Marin County, Annual

North Bay Wetlands
Marin County, Annual**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	54.14	Acre	120.78	2,358,338.40	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	69
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

North Bay Wetlands - Marin County, Annual

Project Characteristics -

Land Use - 54.14 acres to be disturbed on the 120.78 acre site

Construction Phase - approximately 6 weeks of construction

Off-road Equipment - Construction equipment list from Contractor

Grading - 54.14 acres to be disturbed

Vehicle Trips - no operations

Consumer Products - no operations

Area Coating - no operations

Landscape Equipment - no operations

Water And Wastewater - no operations

Solid Waste - no operations

Construction Off-road Equipment Mitigation - Tier 4 interim Engines mitigation

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	310.00	30.00
tblGrading	AcresOfGrading	75.00	54.14
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LotAcreage	54.14	120.78
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	4.66	0.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	WorkerTripNumber	35.00	33.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00

North Bay Wetlands - Marin County, Annual

tblWater	OutdoorWaterUseRate	64,506,800.27	0.00
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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1090	1.1596	0.7522	1.7700e-003	0.1230	0.0477	0.1707	0.0538	0.0439	0.0977	0.0000	155.2363	155.2363	0.0490	0.0000	156.4624
Maximum	0.1090	1.1596	0.7522	1.7700e-003	0.1230	0.0477	0.1707	0.0538	0.0439	0.0977	0.0000	155.2363	155.2363	0.0490	0.0000	156.4624

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0298	0.5224	1.0068	1.7700e-003	0.1230	3.5100e-003	0.1266	0.0538	3.5100e-003	0.0573	0.0000	155.2361	155.2361	0.0490	0.0000	156.4622
Maximum	0.0298	0.5224	1.0068	1.7700e-003	0.1230	3.5100e-003	0.1266	0.0538	3.5100e-003	0.0573	0.0000	155.2361	155.2361	0.0490	0.0000	156.4622

North Bay Wetlands - Marin County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	72.66	54.95	-33.85	0.00	0.00	92.64	25.87	0.00	92.00	41.31	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	8-12-2020	9-30-2020	1.2685	0.5521
		Highest	1.2685	0.5521

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0222	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0222	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003

North Bay Wetlands - Marin County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0222	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0222	0.0000	5.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/12/2020	9/22/2020	5	30	

Acres of Grading (Site Preparation Phase): 0

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Acres of Grading (Grading Phase): 54.14**Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	3	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	3	8.00	402	0.38
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Skid Steer Loaders	1	8.00	65	0.37
Grading	Scrapers	2	8.00	367	0.48
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	14	33.00	0.00	12.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

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3.2 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1190	0.0000	0.1190	0.0528	0.0000	0.0528	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1072	1.1567	0.7400	1.7200e-003		0.0476	0.0476		0.0438	0.0438	0.0000	151.3002	151.3002	0.0489	0.0000	152.5235
Total	0.1072	1.1567	0.7400	1.7200e-003	0.1190	0.0476	0.1667	0.0528	0.0438	0.0966	0.0000	151.3002	151.3002	0.0489	0.0000	152.5235

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.7500e-003	5.1000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4584	0.4584	3.0000e-005	0.0000	0.4591
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7300e-003	1.1800e-003	0.0117	4.0000e-005	3.9000e-003	3.0000e-005	3.9300e-003	1.0400e-003	2.0000e-005	1.0600e-003	0.0000	3.4777	3.4777	8.0000e-005	0.0000	3.4797
Total	1.7800e-003	2.9300e-003	0.0122	4.0000e-005	4.0000e-003	4.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.0900e-003	0.0000	3.9361	3.9361	1.1000e-004	0.0000	3.9388

North Bay Wetlands - Marin County, Annual

3.2 Grading - 2020**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1190	0.0000	0.1190	0.0528	0.0000	0.0528	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.5195	0.9946	1.7200e-003		3.4800e-003	3.4800e-003		3.4800e-003	3.4800e-003	0.0000	151.3000	151.3000	0.0489	0.0000	152.5234
Total	0.0280	0.5195	0.9946	1.7200e-003	0.1190	3.4800e-003	0.1225	0.0528	3.4800e-003	0.0562	0.0000	151.3000	151.3000	0.0489	0.0000	152.5234

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.7500e-003	5.1000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4584	0.4584	3.0000e-005	0.0000	0.4591
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7300e-003	1.1800e-003	0.0117	4.0000e-005	3.9000e-003	3.0000e-005	3.9300e-003	1.0400e-003	2.0000e-005	1.0600e-003	0.0000	3.4777	3.4777	8.0000e-005	0.0000	3.4797
Total	1.7800e-003	2.9300e-003	0.0122	4.0000e-005	4.0000e-003	4.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.0900e-003	0.0000	3.9361	3.9361	1.1000e-004	0.0000	3.9388

4.0 Operational Detail - Mobile

North Bay Wetlands - Marin County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.586103	0.042797	0.200835	0.113384	0.018054	0.005119	0.010148	0.010539	0.002013	0.003657	0.005892	0.000682	0.000777

North Bay Wetlands - Marin County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

North Bay Wetlands - Marin County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

North Bay Wetlands - Marin County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

North Bay Wetlands - Marin County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0222	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Unmitigated	0.0222	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Total	0.0222	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003

North Bay Wetlands - Marin County, Annual

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003
Total	0.0222	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.7000e-004	9.7000e-004	0.0000	0.0000	1.0300e-003

7.0 Water Detail**7.1 Mitigation Measures Water**

North Bay Wetlands - Marin County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

North Bay Wetlands - Marin County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

North Bay Wetlands - Marin County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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North Bay Wetlands - Marin County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

North Bay Wetlands - Marin County, Summer

North Bay Wetlands

Marin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	54.14	Acre	120.78	2,358,338.40	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	69
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

North Bay Wetlands - Marin County, Summer

Project Characteristics -

Land Use - 54.14 acres to be disturbed on the 120.78 acre site

Construction Phase - approximately 6 weeks of construction

Off-road Equipment - Construction equipment list from Contractor

Grading - 54.14 acres to be disturbed

Vehicle Trips - no operations

Consumer Products - no operations

Area Coating - no operations

Landscape Equipment - no operations

Water And Wastewater - no operations

Solid Waste - no operations

Construction Off-road Equipment Mitigation - Tier 4 interim Engines mitigation

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

North Bay Wetlands - Marin County, Summer

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	310.00	30.00
tblGrading	AcresOfGrading	75.00	54.14
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LotAcreage	54.14	120.78
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	4.66	0.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	WorkerTripNumber	35.00	33.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00

North Bay Wetlands - Marin County, Summer

tblWater	OutdoorWaterUseRate	64,506,800.27	0.00
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2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	7.2686	77.2959	50.2076	0.1179	8.2144	3.1783	11.3926	3.5908	2.9240	6.5148	0.0000	11,427.4851	11,427.4851	3.6044	0.0000	11,517.5951
Maximum	7.2686	77.2959	50.2076	0.1179	8.2144	3.1783	11.3926	3.5908	2.9240	6.5148	0.0000	11,427.4851	11,427.4851	3.6044	0.0000	11,517.5951

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.9901	34.8163	67.1846	0.1179	8.2144	0.2340	8.4484	3.5908	0.2339	3.8246	0.0000	11,427.4850	11,427.4850	3.6044	0.0000	11,517.5950
Maximum	1.9901	34.8163	67.1846	0.1179	8.2144	0.2340	8.4484	3.5908	0.2339	3.8246	0.0000	11,427.4850	11,427.4850	3.6044	0.0000	11,517.5950

North Bay Wetlands - Marin County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	72.62	54.96	-33.81	0.00	0.00	92.64	25.84	0.00	92.00	41.29	0.00	0.00	0.00	0.00	0.00	0.00

North Bay Wetlands - Marin County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1220	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1220	5.0000e-005	5.5600e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005	0.0000	0.0126

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1220	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1220	5.0000e-005	5.5600e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005	0.0000	0.0126

North Bay Wetlands - Marin County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	8/12/2020	9/22/2020	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 54.14

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	3	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	3	8.00	402	0.38
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Skid Steer Loaders	1	8.00	65	0.37
Grading	Scrapers	2	8.00	367	0.48
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

North Bay Wetlands - Marin County, Summer

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	14	33.00	0.00	12.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.9363	0.0000	7.9363	3.5169	0.0000	3.5169			0.0000			0.0000
Off-Road	7.1459	77.1126	49.3313	0.1148		3.1761	3.1761		2.9220	2.9220		11,118.6606	11,118.6606	3.5960		11,208.5606
Total	7.1459	77.1126	49.3313	0.1148	7.9363	3.1761	11.1124	3.5169	2.9220	6.4390		11,118.6606	11,118.6606	3.5960		11,208.5606

North Bay Wetlands - Marin County, Summer

3.2 Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.4000e-003	0.1140	0.0331	3.1000e-004	6.9800e-003	3.9000e-004	7.3600e-003	1.9100e-003	3.7000e-004	2.2800e-003		33.8875	33.8875	1.9400e-003		33.9361
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1193	0.0693	0.8432	2.7600e-003	0.2711	1.7800e-003	0.2729	0.0719	1.6400e-003	0.0735		274.9369	274.9369	6.4600e-003		275.0984
Total	0.1227	0.1833	0.8763	3.0700e-003	0.2781	2.1700e-003	0.2802	0.0738	2.0100e-003	0.0758		308.8244	308.8244	8.4000e-003		309.0344

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.9363	0.0000	7.9363	3.5169	0.0000	3.5169			0.0000			0.0000
Off-Road	1.8673	34.6330	66.3083	0.1148		0.2318	0.2318		0.2318	0.2318	0.0000	11,118.6606	11,118.6606	3.5960		11,208.5606
Total	1.8673	34.6330	66.3083	0.1148	7.9363	0.2318	8.1682	3.5169	0.2318	3.7488	0.0000	11,118.6606	11,118.6606	3.5960		11,208.5606

North Bay Wetlands - Marin County, Summer

3.2 Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.4000e-003	0.1140	0.0331	3.1000e-004	6.9800e-003	3.9000e-004	7.3600e-003	1.9100e-003	3.7000e-004	2.2800e-003		33.8875	33.8875	1.9400e-003		33.9361
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1193	0.0693	0.8432	2.7600e-003	0.2711	1.7800e-003	0.2729	0.0719	1.6400e-003	0.0735		274.9369	274.9369	6.4600e-003		275.0984
Total	0.1227	0.1833	0.8763	3.0700e-003	0.2781	2.1700e-003	0.2802	0.0738	2.0100e-003	0.0758		308.8244	308.8244	8.4000e-003		309.0344

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

North Bay Wetlands - Marin County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.586103	0.042797	0.200835	0.113384	0.018054	0.005119	0.010148	0.010539	0.002013	0.003657	0.005892	0.000682	0.000777

5.0 Energy Detail

 Historical Energy Use: N

North Bay Wetlands - Marin County, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

North Bay Wetlands - Marin County, Summer

5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1220	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126
Unmitigated	0.1220	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126

North Bay Wetlands - Marin County, Summer

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1215					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.2000e-004	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126
Total	0.1220	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1215					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.2000e-004	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126
Total	0.1220	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0119	0.0119	3.0000e-005		0.0126

7.0 Water Detail

North Bay Wetlands - Marin County, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

APPENDIX B. SPECIAL STATUS SPECIES TABLES

Appendix B. Special-status species that may occur, or are known to occur in habitats similar to those found in the Project Area. List compiled from the

U.S. Fish and Wildlife Service (USFWS) Species Lists (April 2019), California Native Plant Society (CNPS) Electronic Inventory (April 2019) and CNDDDB (April 2019) searches of the Cotati, Glen Ellen, Inverness, Novato, Petaluma, Petaluma River, Point Reyes NE, San Geronimo, and Two Rock USGS 7.5 minute quadrangles.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Mammals				
Pallid bat <i>Antrozous pallidus</i>	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Roost sites include old ranch buildings, rocky outcrops and caves within sandstone outcroppings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Unlikely. There are no buildings or suitable rocky outcrops for roosting sites for this species. A rocky cliff-face associated with historic quarrying activity contains suitable crevices, however this is a steep, north-facing slope and lacks appropriate thermal conditions for a maternity roost, although they likely forage on-site. A pallid bat maternity colony is known from nearby Olompali State Park 2.5 miles to the east (CNDDDB 2019).	No further actions are recommended.
Silver-haired bat <i>Lasionycteris noctivagans</i>	WBWG Medium	Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. This species is primarily a forest dweller, feeding over streams, ponds, and open brushy areas. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	Unlikely. The Project Area does not support any coniferous forest and is not considered optimal habitat for this species. Silver-haired bats may occasionally forage in or migrate through the Project Area. The nearest documented occurrence is approximately 6.7 miles southwest of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Hoary bat <i>Lasiurus cinereus</i>	WBWG Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires standing water to drink.	Moderate Potential. Suitable deciduous trees within the Project Area provide potential roosting sites. Potential foraging habitat is also present. The nearest documented occurrence is approximately 6.7 miles southwest of the Project Area (CNDDB 2019).	No further actions are recommended.
Western red bat <i>Lasiurus blossevillii</i>	SSC, WBWG High	Typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields. There may be an association with intact riparian habitat.	Moderate Potential. Within the Project Area, riparian corridors along San Antonio Creek and portions of the unnamed tributary to San Antonio Creek contain patches of suitable riparian roosting habitat. Additionally, suitable foraging habitat is present. The nearest documented occurrence is approximately 10.7 miles southwest of the Project Area (CNDDB 2019).	No further actions are recommended.
Fringed myotis <i>Myotis thysanodes</i>	WBWG High	Fringed myotis is associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines and large snags are important day and night roosts.	Moderate Potential. Trees and large snags within the Project Area provide potential roosting habitat for this species. Suitable foraging habitat is also present. No known occurrences of this species are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Long-eared myotis <i>Myotis evotis</i>	WBWG Medium	Long-eared Myotis is found in all brushy, woodland and forest habitats from sea level to about 9000 feet. This species prefers coniferous woodlands and forests and maternity colonies usually occur in buildings, crevices, under bark, and in snags. Caves are primarily used as night roosts.	Unlikely. Although snags and trees with exfoliating bark are present, the Project Area does not support any coniferous woodlands and is not considered optimal habitat for this species. Long-eared Myotis may occasionally forage in or migrate through the Project Area. No known occurrences of this species are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SSC, WBWG High	This species is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	Unlikely. There are no buildings, caves or mines that provide roosting sites for this species, although they likely forage on-site. A big-eared bat maternity colony is known from nearby Olompali State Park 2.5 miles to the east (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Ring-tailed Cat <i>Bassariscus astutus</i>	CFP	Found in a variety of habitats throughout the western US including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 1400m in elevation. Typically uses cliffs or large trees for shelter.	Moderate Potential. The Project Area is within the known range of this species and suitable habitat is present on-site.	No further actions are recommended.
American badger <i>Taxidea taxus</i>	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Unlikely. Although friable soils are present in pockets of grassland habitat, the Project Area is generally north facing, moist, and rocky. Slopes are steep and densely forested. Small mammal burrows are generally limited to gophers and no potential badger burrows or throw piles have been observed within the Project Area. The nearest occurrence was documented in 1949 approximately 2.7 miles northeast of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Point Reyes mountain beaver <i>Aplodontia rufa phaea</i>	SSC	The Point Reyes mountain beaver is only known to occur in western Marin County, almost entirely within Point Reyes National Seashore. It occurs on cool, moist, north-facing slopes in moderately dense coastal scrub. Burrows are typically constructed in dense thickets or in forest openings and feed on coyote brush, sword fern, cow parsnip, black berries, poison oak, California nettle, and thistle.	No Potential. The Project Area is outside the known range of this subspecies and suitable habitat is not present.	No further actions are recommended.
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	SSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	Present. Several woodrat middens have been observed in the wooded habitats within the Project Area. Additionally, this species has been observed during nocturnal surveys.	No further actions are recommended.
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE, SE, CFP	Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat. Do not burrow, build loosely organized nests. Require higher areas for flood escape.	No Potential. No pickleweed or saltmarsh habitat found within Study Area.	No further actions are recommended.
Birds				

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Golden eagle <i>Aquila chrysaetos</i>	BCC, CFP	Rolling foothills mountain areas, sage-juniper flats, desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Moderate Potential. The Project Area contain deep canyons with large trees suitable for nesting and a robust population of black-tailed jackrabbits. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019), and this species has not been documented on-site.	No further actions are recommended.
White-tailed kite <i>Elanus leucurus</i>	CFP	Year-long resident of coastal and valley lowlands; frequently found around grasslands and agricultural areas. Specific plant associations appear unimportant for nesting and roosting, but vegetation structure and prey abundance are considered important. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	Present. Suitable nesting and foraging habitat is present within the Project Area. White-tailed kites have been observed foraging on-site. The nearest documented nesting occurrence is 3.4 miles southeast of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Bald eagle <i>Haliaeetus leucocephalus</i>	SE, CFP	Frequents ocean shores, lake margins, and rivers for both nesting and wintering. Requires large bodies of water, or free-flowing rivers with abundant fish and adjacent snags or other perches. Most nests are located within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branchwork. Shows a preference for ponderosa pine. Roosts communally in winter.	Unlikely. The Project Area is outside of the known breeding range. Bald eagles may roost here in the winter, however the Project Area is several miles from a water source that would offer an abundant source of fish. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.
Northern harrier <i>Circus cyaneus</i>	SSC	Nests and forages in grassland habitats, usually in association with coastal salt and freshwater marshes. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. Breeds April to September.	Present. Suitable foraging habitat is present within the Project Area and harriers have been observed foraging on-site, although only poor quality nesting habitat is present. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.
Ferruginous hawk <i>Buteo regalis</i>	BCC	Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys and fringes of pinyon-juniper habitats. Preys on lagomorphs, ground squirrels and mice. Population trends may follow lagomorph population cycles.	Moderate Potential. The Project Area provides potential wintering habitat. Suitable foraging areas with small mammals are present and located within CDFG documented wintering habitat range. This species does not nest in California.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
American peregrine falcon <i>Falco peregrinus anatum</i>	SE, BCC, CFP	Prefers dry, open terrain, either level or hilly. Forages far afield, even to marshlands and ocean shores. Nests near wetlands, lakes, rivers, or other water; on cliffs, Project Areas, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	Unlikely. No suitable cliff or ledge sites are present for nesting, however potential foraging habitat exists within the Project Area.	No further actions are recommended.
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT, SSC, BCC	Found on sandy beaches, salt pond levees and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting. The federal listing applies only to the Pacific coastal population.	No Potential. No suitable nesting or foraging habitat present within the Project Area.	No further actions are recommended.
California clapper rail <i>Rallus longirostris obsoletus</i>	FE, SE, CFP	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	No Potential. No suitable nesting or foraging habitat present within the Project Area.	No further actions are recommended.
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST, BCC, CFP	Mainly inhabits salt marshes bordering larger bays. Occurs in tidal salt marsh heavily grown to pickleweed; also in fresh-water and brackish marshes, all at low elevation.	No Potential. No suitable nesting or foraging habitat present within the Project Area.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FC, SE, BCC	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	No Potential. Riparian habitat within the Project Area is not extensive enough to support this species.	No further actions are recommended.
Burrowing owl <i>Athene cunicularia</i>	BCC, SSC	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Unlikely. Marginal wintering habitat is present in the Study Area. No ground squirrels have been observed within the Project Area and tall grasses around small mammal burrows are not favored by this species.	No further actions are recommended.
Northern spotted owl <i>Strix occidentalis caurina</i>	FT, SSC	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. Prefers high, multistory canopy dominated by big trees, trees with cavities or broken tops, woody debris and space under canopy.	Unlikely. No old-growth fir or redwood forest is present in the vicinity of the Project Area. The nearest documented nesting occurrence is 8 miles west of the Project Area (CNDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Long-eared owl <i>Asio otus</i>	SSC	Inhabits riparian bottom lands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Moderate Potential. Suitable nesting and foraging habitat is present on-site in the dense stands of oak forest and open grassland. Long-eared owls are rare breeders in Marin County, however potential breeding habitat is present within the Project Area. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.
Short-eared owl <i>Asio flammeus</i>	SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	No Potential. No suitable habitat present within the Study Area for this species. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.
Vaux's swift <i>Chaetura vauxi</i>	SSC	Found in redwood, Douglas fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	Unlikely. Marginal nesting habitat may be present within the cavities of the large trees on-site, however, the Project Area lacks suitable coniferous forest with such cavities. This species may pass through the Project Area during migration periods. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Black swift <i>Cypseloides niger</i>	BCC, SSC	Generally found in the coastal belt of Santa Cruz and Monterey County; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above surf; forages widely.	Unlikely. No waterfalls are present within the Project Area. Species may rarely occur over the Project Area during migration periods. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.
Rufous hummingbird <i>Selasphorus rufus</i>	BCC	Breeds in transition life zone of northwest coastal area from Oregon border to southern Sonoma County. Nests in berry tangles, shrubs, and conifers. Favors habitats rich in nectar-producing flowers.	Unlikely. The Project Area is located farther south than this species' documented breeding range. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.
Nuttall's woodpecker <i>Picoides nuttallii</i>	BCC	Resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks.	Present. This species is relatively common in oak woodlands and riparian corridors within the Project Area.	No further actions are recommended.
Lewis's woodpecker <i>Melanerpes lewis</i>	BCC	Uncommon winter resident occurring in open oak savannahs, broken deciduous and coniferous habitats.	Unlikely. The Project Area is not within this species breeding range, although suitable oak savannah and grassland habitats present for wintering Lewis's woodpeckers. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Little willow flycatcher <i>Empidonax traillii brewsteri</i>	SE	Most numerous where extensive thickets of low, dense willows edge on wet meadows, ponds, or backwaters. Winter migrant.	Unlikely. Willow-riparian habitat within the Project Area is not extensive enough to support willow flycatcher nesting. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.
Purple martin <i>Progne subis</i>	SSC	Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nests are often built in a tall, isolated tree or snag.	Unlikely. The Project Area does not contain the coastal redwood habitats that this species prefers. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.
Project Area swallow <i>Riparia riparia</i>	ST	Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and banks with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean.	Unlikely. Low quality breeding habitat is present along the Project Areas of San Antonio Creek, however, the Project Area is outside of this species' documented range. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Olive-sided flycatcher <i>Contopus cooperi</i>	BCC, SSC	Nesting habitats are mixed conifer, montane hardwood-conifer, douglas-fir, redwood, red fir and lodgepole pine. Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.	Unlikely. Marginal nesting habitat may be present within the cavities of the large trees on-site, however, the Project Area lacks suitable coniferous forest. This species may pass through the Project Area during migration periods. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.
Loggerhead shrike <i>Lanius ludovicianus</i>	BCC, SSC	Generally nests in broken woodlands, savannah, pinyon-juniper, Joshua tree and riparian woodlands, desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting. Found throughout much of the state.	Moderate Potential. Suitable foraging habitat exists within the open grassland habitats. Nesting is unlikely due to the lack of chaparral habitats within the Project Area. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Yellow warbler <i>Dendroica petechia brewsteri</i>	SSC	Frequents riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. Also nests in montane shrubbery in open conifer forests.	Moderate Potential. Within the Project Area, relatively large patches of willows are present along San Antonio Creek where the overstory is comprised of Oaks, maples, buckeye and ash. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.
San Francisco [Saltmarsh] common yellowthroat <i>Geothlypis trichas sinuosa</i>	BCC, SCC	Resident of the San Francisco Bay region, in fresh and saltwater marshes with riparian forest. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Unlikely. The Project Area does not have sufficient freshwater marsh with riparian forest habitat for this species. Common yellowthroats may be detected during dispersal or migration periods, however no suitable breeding habitat is present. The nearest documented nesting occurrence is 4.2 miles northeast of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Bryant's savannah sparrow <i>Passerculus sandwichensis alaudinus</i>	SSC	Associated with the coastal fog belt, primarily between Humboldt and northern Monterey counties. Occupies low tidally influenced habitats, adjacent to ruderal areas; often found where Pickleweed communities merge into grassland. Infrequently found in drier grasslands. Builds nests in taller grasses and rushes along roads, levees, and water conveyance canals.	Unlikely. The Project Area is not located within the coastal fog belt and does not have suitable marsh habitat for this species. Savannah Sparrows may be detected during dispersal or migration periods, however no suitable breeding habitat is present. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.
Grasshopper sparrow <i>Ammodramus savannarum</i>	SSC	Found in dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting.	Moderate Potential. Grasslands within the Project Area are dominated by native annual and perennial grasses that are suitable nesting habitat for this species. No known nesting occurrences are known from within 5.0 miles of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Tricolored blackbird <i>Agelaius tricolor</i>	BCC, SSC, RP	A highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	No Potential. Aquatic emergent vegetation characterized by a dense periphery of bull rush with an open water interior is not present with in the Project Area. The nearest documented nesting occurrence is 12.8 miles north of the Project Area (CNDDB 2019).	No further actions are recommended.
Reptiles and Amphibians				
California red-legged frog <i>Rana aurora draytonii</i>	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to aestivation habitat.	Present. San Antonia Creek within the Project Area provides non- breeding aquatic habitat, and CRLF have been documented at these location. Wetland complexes provide non-breeding aquatic habitat and grassland and woodland habitats within the Project Area provide upland and dispersal habitat	No further actions are recommended.
California tiger salamander <i>Ambystoma californiense</i>	FE, ST	Populations in Santa Barbara and Sonoma counties currently listed as endangered. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Seasonal ponds and vernal pools are crucial to breeding. Adults utilize mammal burrows as aestivation habitat.	No Potential. The Project Area is south of the southern extent of the range of the Santa Rosa DPS. The nearest documented nesting occurrence is 10.3 miles north of the Project Area (CNDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Pacific pond turtle <i>Actinemys marmorata</i>	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Need basking sites and suitable (sandy Project Areas or grassy open fields) upland habitat for egg- laying.	Present. The Project Area provides suitable aquatic and nesting habitat for Pacific pond turtles and has been documented in San Antonio Creek and in pools in the lower sections of the unnamed tributary (Corda Creek) to San Antonio Creek within the Project Area.	No further actions are recommended.
Foothill yellow-legged frog <i>Rana boylei</i>	SSC	Found in or near rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	Unlikely. Within the Project Area, San Antonio Creek provides low quality habitat for FYLF. Although suitable basking habitat is present, the fine sediment input from upstream erosion has muted the cobble structure that this species requires. Additionally, non- native fish and bullfrogs are abundant along the creek which precludes presence. The unnamed tributary to San Antonio Creek is unsuitable as it has steep Project Areas and high canopy cover. No FYLF have been observed within the Project Area. The nearest documented nesting occurrence is 4.2 miles southwest of the Project Area (CNDDDB 2019).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Fishes				
Green sturgeon <i>Acipenser medirostris</i>	SSC, FT	Spawn in the Sacramento River and the Klamath River. Spawning occurs at temperatures between 8-14 degrees Celsius. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	No Potential. This species does not spawn in San Antonio Creek, and drainages within the Project Area do not support breeding habitat for this species.	No further actions are recommended.
Tomales roach <i>Lavinia symmetricus ssp.</i>	SSC	Habitat generalists. Tolerant of relatively high temperatures and low oxygen levels, however unable to tolerate very saline water.	No Potential. The Project Area is outside of this species known range, which is restricted to Walker Creek and other tributaries to Tomales Bay.	No further actions are recommended.
Sacramento Splittail <i>Pogonichthys macrolepidotus</i>	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young. Splittail are primarily freshwater fish, but are tolerant of moderate salinity and can live in water where salinity levels reach of 10-18 parts per thousand.	Unlikely. Neither the unnamed tributary nor San Antonio Creek maintain perennial flow and become intermittent during the summer. Additionally, barriers to upstream migration are present along the unnamed tributary to San Antonio Creek which would preclude this species from occurring within the Project Area.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Delta smelt <i>Hypomesus transpacificus</i>	FT, ST, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	No Potential. The drainages within the Project Area are outside of the range for this species. Additionally, the Project Area provides no suitable habitat for this species.	No further actions are recommended.
Tidewater goby <i>Eucyclogobius newberryi</i>	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	No Potential. No lagoon, estuary or suitable low flow habitat within the Project Area. Furthermore, this species is believed to be extirpated from San Francisco and San Pablo Bays.	No further actions are recommended.
Coho Salmon - central CA coast ESU <i>Oncorhynchus kisutch</i>	FE, SE, NMFS	Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen.	No Potential. San Antonio Creek is an anadromous stream, however there are no documented spawning runs for this species. Additionally, barriers to upstream migration are present along the unnamed tributary to San Antonio Creek which would preclude this species from occurring.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Steelhead - central CA coast ESU <i>Oncorhynchus mykiss</i>	FT, NMFS	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	Present. San Antonio Creek is an anadromous stream and smolting steelhead have been recorded over summering in pools within the Project Area. Barriers to upstream migration are present along the unnamed tributary to San Antonio Creek which would preclude individuals from accessing upstream spawning habitat.	No further actions are recommended.
Chinook salmon - Central Valley spring-run ESU <i>Oncorhynchus tshawytscha</i>	FT, ST, RP, NMFS	Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean	No Potential. Neither the unnamed tributary nor San Antonio Creek maintain perennial flow and become intermittent during the summer. Additionally, barriers to upstream migration are present along the unnamed tributary to San Antonio Creek which would preclude this species from occurring.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Chinook salmon - winter-run ESU <i>Oncorhynchus tshawytscha</i>	FE, SE, RP, NMFS	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	No Potential. The drainages within the Project Area, the unnamed tributary, and San Antonio Creek have unsuitable flow conditions between late-April and early-August, which is this species' spawning period. This species is not known from the San Antonio Creek watershed.	No further actions are recommended.
Chinook salmon – fall, late-fall-run ESU <i>Oncorhynchus tshawytscha</i>	SSC	Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean	Unlikely. This species is not known from the San Antonio Creek watershed and snorkel surveys conducted by WRA have not detected this species. Additionally, barriers to upstream migration are present along the unnamed tributary to San Antonio Creek which would preclude this species from occurring.	No further actions are recommended.
Invertebrates				

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Myrtle's silverspot butterfly <i>Speyeria zerene myrtleae</i>	FE, RP, SSI	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be <i>Viola adunca</i> .	No Potential. This species is generally found within three miles of the coast. The inland nature of the Project Area precludes this species from being found on the site.	No further actions are recommended.
California freshwater shrimp <i>Syncaris pacifica</i>	FE, SE, SSI, RP	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient (generally less than 1%) perennial streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winters near undercut Project Areas with exposed roots. In the summer uses leafy branches touching water.	Unlikely. This species is not known from the San Antonio Creek watershed and snorkel surveys conducted by WRA have not detected this species.	No further actions are recommended.
PLANTS				
pink sand-verbena <i>Abronia umbellata</i> var. <i>breviflora</i>	Rank 1B.1	Coastal dunes. Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	No Potential. The Project Area does not contain coastal dune or coastal strand habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Blasdale's bent grass <i>Agrostis blasdalei</i>	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms May-Jul.	No Potential. The Project Area does not contain coastal habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Franciscan onion <i>Allium peninsulare</i> var. <i>franciscanum</i>	Rank 1B.2	Cismontane woodland, valley and foothill grassland. Elevation ranges from 170 to 1000 feet (52 to 305 meters). Blooms (Apr)May-Jun.	No Potential. The Project Area does not contain serpentine clay soils. Additionally, the nearest known occurrence is greater than 12 miles northeast of the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Sonoma alopecurus <i>Alopecurus aequalis</i> var. <i>sonomensis</i>	FE, Rank 1B.1	Marshes and swamps (freshwater), riparian scrub. Elevation ranges from 15 to 1200 feet (5 to 365 meters). Blooms May-Jul.	Moderate Potential. The Project Area contains perennial wetland and riparian habitat that may support this species. However, the nearest known occurrence is greater than 11 miles west of the Project Area.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	Rank 1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland. Elevation ranges from 390 to 6560 feet (120 to 2000 meters). Blooms Apr-Jul.	High Potential. The Project Area contains woodland habitat that may support this species. The nearest documented occurrence is from Olompali SHP, adjacent to the Project Area.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
bent-flowered fiddleneck <i>Amsinckia lunaris</i>	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 5 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	Moderate Potential. The Project Area contains woodland and grassland habitat that may support this species. The nearest documented occurrence is less than seven miles west of the Project Area. Additionally, there are no documented occurrences from interior Marin County.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
coast rockcress <i>Arabis blepharophylla</i>	Rank 4.3	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 5 to 3610 feet (3 to 1100 meters). Blooms Feb-May.	Unlikely. This species is most closely associated with rocky, bluff sites within direct maritime influence not present in the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Tamalpais manzanita <i>Arctostaphylos montana</i> <i>ssp. montana</i>	Rank 1B.3	Chaparral, valley and foothill grassland. Elevation ranges from 520 to 2495 feet (160 to 760 meters). Blooms Feb-Apr.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Marin manzanita <i>Arctostaphylos virgata</i>	Rank 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest. Elevation ranges from 195 to 2295 feet (60 to 700 meters). Blooms Jan-Mar.	No Potential. The Project Area does not contain sandstone or granitic soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
coastal marsh milk-vetch <i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	Rank 1B.2	Coastal dunes (mesic), coastal scrub, marshes and swamps (coastal salt, streamsides). Elevation ranges from 0 to 100 feet (0 to 30 meters). Blooms (Apr)Jun-Oct.	No Potential. The Project Area is not located very near the coast nor contains coastal habitats.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation ranges from 0 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	No Potential. The Project Area does not contain coastal scrub or marsh habitat within coastal dunes necessary to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Sonoma sunshine <i>Blennosperma bakeri</i>	FE, SE, Rank 1B.1	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 30 to 360 feet (10 to 110 meters). Blooms Mar-May.	Unlikely. Although the Study contains seasonal wetland and grassland habitat, this species is most closely associated with vernal pool habitat on the Santa Rosa Plain, Sonoma County.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Bolander's reed grass <i>Calamagrostis bolanderi</i>	Rank 4.2	Bogs and fens, broadleafed upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps (mesic), marshes and swamps (freshwater), north coast coniferous forest. Elevation ranges from 0 to 1495 feet (0 to 455 meters). Blooms May-Aug.	Moderate Potential. The Project Area contains meadow and seep habitat that may support this species. This species is known primarily from coastal sites.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Oakland star-tulip <i>Calochortus umbellatus</i>	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 325 to 2295 feet (100 to 700 meters). Blooms Mar-May.	Unlikely. The Project Area does not contain serpentine soils. Additionally, this species was not observed during previous surveys.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
swamp harebell <i>Campanula californica</i>	Rank 1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), north coast coniferous forest. Elevation ranges from 0 to 1330 feet (1 to 405 meters). Blooms Jun-Oct.	Unlikely. This species is typically located in perennial wetland habitat coastal wetlands within direct maritime influence.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
seaside bittercress <i>Cardamine angulata</i>	Rank 2B.2	Lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 80 to 3000 feet (25 to 915 meters). Blooms (Jan)Mar-Jul.	Unlikely. The Project Area does not contain coniferous forest.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Lyngbye's sedge <i>Carex lyngbyei</i>	Rank 2B.2	Marshes and swamps (brackish or freshwater). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Aug.	Unlikely. This species is most closely associated with coastal freshwater wetlands within direct maritime influence.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Tiburon paintbrush <i>Castilleja affinis</i> var. <i>neglecta</i>	FE, ST, Rank 1B.2	Valley and foothill grassland (serpentine). Elevation ranges from 195 to 1310 feet (60 to 400 meters). Blooms Apr-Jun.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
johnny-nip <i>Castilleja ambigua</i> var. <i>ambigua</i>	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools margins. Elevation ranges from 0 to 1425 feet (0 to 435 meters). Blooms Mar-Aug.	Moderate Potential. The Project Area contains grassland habitat which may support this species.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
Humboldt Bay owl's-clover <i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms Apr-Aug.	No Potential. The Project Area does not contain coastal salt marsh habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Nicasio ceanothus <i>Ceanothus decornutus</i>	Rank 1B.2	Chaparral (maritime). Elevation ranges from 770 to 950 feet (235 to 290 meters). Blooms Mar-May.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
glory brush <i>Ceanothus gloriosus</i> var. <i>exaltatus</i>	Rank 4.3	Chaparral. Elevation ranges from 95 to 2000 feet (30 to 610 meters). Blooms Mar-Jun(Aug).	No Potential. The Project Area does not contain chaparral habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Point Reyes ceanothus <i>Ceanothus gloriosus</i> var. <i>gloriosus</i>	Rank 4.3	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub. Elevation ranges from 15 to 1705 feet (5 to 520 meters). Blooms Mar-May.	No Potential. The Project Area does not contain scrub habitat nor is located very near the coast.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Mt. Vision ceanothus <i>Ceanothus gloriosus</i> var. <i>porrectus</i>	Rank 1B.3	Closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 80 to 1000 feet (25 to 305 meters). Blooms Feb-May.	No Potential. The Project Area does not contain coniferous forests nor is located very near the coast.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Mason's ceanothus <i>Ceanothus masonii</i>	SR, Rank 1B.2	Chaparral (openings, rocky, serpentine). Elevation ranges from 750 to 1640 feet (230 to 500 meters). Blooms Mar-Apr.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Sonoma ceanothus <i>Ceanothus sonomensis</i>	Rank 1B.2	Chaparral (sandy, serpentine or volcanic). Elevation ranges from 705 to 2625 feet (215 to 800 meters). Blooms Feb-Apr.	No Potential. The Project Area does not contain chaparral habitat nor serpentine or volcanic soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	Rank 1B.2	Chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic). Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-Nov.	Unlikely. Although the Project Area contains grassland habitat, this species is most closely associated with alkali grasslands from inland sites near brackish and salt marshes in Napa and Solano counties.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Point Reyes bird's-beak <i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	No Potential. The Project Area does not contain perennial wetland habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
soft bird's-beak <i>Chloropyron molle ssp. molle</i>	FE, SR, Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms Jun-Nov.	No Potential. The Project Area does not contain perennial wetland habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Sonoma spineflower <i>Chorizanthe valida</i>	FE, SE, Rank 1B.1	Coastal prairie (sandy). Elevation ranges from 30 to 1000 feet (10 to 305 meters). Blooms Jun-Aug.	No Potential. The Project Area does not contain coastal prairie habitat underlain by sandy substrate necessary to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Bolander's water-hemlock <i>Cicuta maculata var. bolanderi</i>	Rank 2B.1	Marshes and swamps coastal, fresh or brackish water. Elevation ranges from 0 to 655 feet (0 to 200 meters). Blooms Jul-Sep.	Unlikely. Although the Project Area contains wetland habitat, this species is known from coastal sites within direct maritime influence.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Franciscan thistle <i>Cirsium andrewsii</i>	Rank 1B.2	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms Mar-Jul.	Unlikely. Although the Project Area contains elements of broadleaf upland forest and coastal scrub, this species is most closely associated with sites within direct maritime influence.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Tamalpais thistle <i>Cirsium hydrophilum var. vaseyi</i>	Rank 1B.2	Broadleafed upland forest, chaparral, meadows and seeps. Elevation ranges from 785 to 2035 feet (240 to 620 meters). Blooms May-Aug.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Baker's larkspur <i>Delphinium bakeri</i>	FE, SE, Rank 1B.1	Broadleafed upland forest, coastal scrub, valley and foothill grassland. Elevation ranges from 260 to 1000 feet (80 to 305 meters). Blooms Mar-May.	High Potential. The Project Area contains scrub and grassy sites underlain by substrate derived from shales on northwest- facing slopes that may support this species. The nearest documented occurrence is less than seven miles west of the Project Area.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
golden larkspur <i>Delphinium luteum</i>	FE, SR, Rank 1B.1	Chaparral, coastal prairie, coastal scrub. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms Mar-May.	No Potential. The Project Area does not contain chaparral habitat nor is located very near the coast.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
western leatherwood <i>Dirca occidentalis</i>	Rank 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. Elevation ranges from 80 to 1395 feet (25 to 425 meters). Blooms Jan-Mar(Apr).	High Potential. The Project Area contains woodland, and forest habitat that may support this species. The nearest documented occurrence is approximately 8 miles southwest of the Project Area.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
dwarf downingia <i>Downingia pusilla</i>	Rank 2B.2	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 0 to 1460 feet (1 to 445 meters). Blooms Mar-May.	Unlikely. This species typically occurs in vernal pools or mesic grasslands underlain by heavy clay soils, which are absent in the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
small spikerush <i>Eleocharis parvula</i>	Rank 4.3	Marshes and swamps. Elevation ranges from 0 to 9910 feet (1 to 3020 meters). Blooms (Apr)Jun-Aug(Sep).	No Potential. The Project Area does not contain coastal salt marsh habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
California bottle-brush grass <i>Elymus californicus</i>	Rank 4.3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest, riparian woodland. Elevation ranges from 45 to 1540 feet (15 to 470 meters). Blooms May-Aug(Nov).	Moderate Potential. The Project Area contains cismontane woodland and riparian woodland habitat that may support this species; however, this species is not known from east or northeast Marin County.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
streamside daisy <i>Erigeron biolettii</i>	Rank 3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest. Elevation ranges from 95 to 3610 feet (30 to 1100 meters). Blooms Jun-Oct.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Tiburon buckwheat <i>Eriogonum luteolum</i> var. <i>caninum</i>	Rank 1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 0 to 2295 feet (0 to 700 meters). Blooms May-Sep.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
bluff wallflower <i>Erysimum concinnum</i>	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Elevation ranges from 0 to 605 feet (0 to 185 meters). Blooms Feb-Jul.	No Potential. The Project Area is not located very near the coast nor contains coastal habitats.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Marin checker lily <i>Fritillaria lanceolata</i> var. <i>tristulis</i>	Rank 1B.1	Coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 45 to 490 feet (15 to 150 meters). Blooms Feb-May.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
fragrant fritillary <i>Fritillaria liliacea</i>	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 5 to 1345 feet (3 to 410 meters). Blooms Feb-Apr.	Unlikely. The Project Area does not contain clay nor serpentine soils. Additionally, this perennial species was not observed during previous surveys.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
blue coast gilia <i>Gilia capitata</i> ssp. <i>chamissonis</i>	Rank 1B.1	Coastal dunes, coastal scrub. Elevation ranges from 5 to 655 feet (2 to 200 meters). Blooms Apr-Jul.	Unlikely. Although the Project Area contains marginal coastal scrub habitat, this species is known primarily from sites in the direct coastal influence.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
woolly-headed gilia <i>Gilia capitata</i> ssp. <i>tomentosa</i>	Rank 1B.1	Coastal bluff scrub, valley and foothill grassland. Elevation ranges from 30 to 720 feet (10 to 220 meters). Blooms May-Jul.	No Potential. The Project Area does not contain coastal bluff scrub or is within the direct coastal influence to support this species nor is it directly on the coast.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
San Francisco gumplant <i>Grindelia hirsutula</i> var. <i>maritima</i>	Rank 3.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland. Elevation ranges from 45 to 1310 feet (15 to 400 meters). Blooms Jun-Sep.	No Potential. The Project Area does not contain sandy or serpentine slopes along the sea bluffs.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
congested-headed hayfield tarplant <i>Hemizonia congesta</i> <i>ssp. congesta</i>	Rank 1B.2	Valley and foothill grassland. Elevation ranges from 65 to 1835 feet (20 to 560 meters). Blooms Apr-Nov.	High Potential. The Project Area contains grassland habitat on gentle topography that may support this species. The nearest documented occurrence is less than 7.5 miles south of the Project Area.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
short-leaved evax <i>Hesperevax sparsiflora</i> var. <i>brevifolia</i>	Rank 1B.2	Coastal bluff scrub (sandy), coastal dunes, coastal prairie. Elevation ranges from 0 to 705 feet (0 to 215 meters). Blooms Mar-Jun.	No Potential. The Project Area does not contain coastal scrub or coastal dune habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Marin western flax <i>Hesperolinon congestum</i>	FT, ST, Rank 1B.1	Chaparral, valley and foothill grassland. Elevation ranges from 15 to 1215 feet (5 to 370 meters). Blooms Apr-Jul.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
water star-grass <i>Heteranthera dubia</i>	Rank 2B.2	Marshes and swamps (alkaline, still or slow-moving water). Elevation ranges from 95 to 4905 feet (30 to 1495 meters). Blooms Jul-Oct.	No Potential. The Project Area does not contain alkaline, eutrophic perennial wetland habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Point Reyes horkelia <i>Horkelia marinensis</i>	Rank 1B.2	Coastal dunes, coastal prairie, coastal scrub. Elevation ranges from 15 to 2475 feet (5 to 755 meters). Blooms May-Sep.	No Potential. The Project Area does not contain coastal dune, prairie, or coastal scrub habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
harlequin lotus <i>Hosackia gracilis</i>	Rank 4.2	Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland. Elevation ranges from 0 to 2295 feet (0 to 700 meters). Blooms Mar-Jul.	Moderate Potential. The Project Area contains woodland and grassland habitat that may support this species; however, this species is known primarily from coastal sites.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
coast iris <i>Iris longipetala</i>	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Elevation ranges from 0 to 1970 feet (0 to 600 meters). Blooms Mar-May.	Unlikely. Although the Project Area contains meadow habitat, this species is known primarily from prairie and forested habitat along the coastline within direct maritime influence.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Burke's goldfields <i>Lasthenia burkei</i>	FE, SE, Rank 1B.1	Meadows and seeps (mesic), vernal pools. Elevation ranges from 45 to 1970 feet (15 to 600 meters). Blooms Apr-Jun.	Unlikely. Although the Project Area contains vernal pool-like wetlands, this species is highly restricted to the Santa Rosa Plain and Clear Lake Plain.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
perennial goldfields <i>Lasthenia californica</i> ssp. <i>macrantha</i>	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. Elevation ranges from 15 to 1705 feet (5 to 520 meters). Blooms Jan-Nov.	No Potential. The Project Area does not contain coastal scrub or coastal dune habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms Mar-Jun.	Unlikely. Although the Project Area contains grassland and woodland habitat, this species is typically located in alkaline vernal pools, swales, and depressions not present in the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
beach layia <i>Layia carnosa</i>	FE, SE, Rank 1B.1	Coastal dunes, coastal scrub (sandy). Elevation ranges from 0 to 195 feet (0 to 60 meters). Blooms Mar-Jul.	No Potential. The Project Area does not contain coastal dune habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
legenere <i>Legenere limosa</i>	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 2885 feet (1 to 880 meters). Blooms Apr-Jun.	Unlikely. This species typically occurs in vernal pools underlain by heavy clay soils, which are absent from within the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
bristly leptosiphon <i>Leptosiphon acicularis</i>	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms Apr-Jul.	High Potential. The Project Area contains chaparral, woodland, and grassland habitat to support this species. The nearest documented occurrence is from Mt. Burdell Open Space, less than one mile southeast of the Project Area.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 325 to 1640 feet (100 to 500 meters). Blooms Mar-May.	Unlikely. The Project Area does not contain volcanic nor serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
woolly-headed lessingia <i>Lessingia hololeuca</i>	Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 45 to 1000 feet (15 to 305 meters). Blooms Jun-Oct.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Tamalpais lessingia <i>Lessingia micradenia</i> var. <i>micradenia</i>	Rank 1B.2	Chaparral, valley and foothill grassland. Elevation ranges from 325 to 1640 feet (100 to 500 meters). Blooms (Jun)Jul-Oct.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	SR, Rank 1B.1	Marshes and swamps (brackish or freshwater), riparian scrub. Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Nov.	No Potential. The Project Area does not contain coastal marsh or coastal riparian habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
coast lily <i>Lilium maritimum</i>	Rank 1B.1	Broadleafed upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, marshes and swamps (freshwater), north coast coniferous forest. Elevation ranges from 15 to 1560 feet (5 to 475 meters). Blooms May-Aug.	Unlikely. Although the Project Area contains wetland habitat, this species is closely associated with coastal habitats in the direct, maritime zone not present in the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Pitkin Marsh lily <i>Lilium pardalinum ssp. pitkinense</i>	FE, SE, Rank 1B.1	Cismontane woodland, meadows and seeps, marshes and swamps (freshwater). Elevation ranges from 110 to 215 feet (35 to 65 meters). Blooms Jun-Jul.	Unlikely. Although the Project Area contains woodland and wetland habitat, this species is closely associated with wetlands underlain by acidic, low nutrient sand substrates not present in the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Sebastopol meadowfoam <i>Limnanthes vinculans</i>	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 45 to 1000 feet (15 to 305 meters). Blooms Apr-May.	Unlikely. Although the Project Area contains grassland habitat, this species is closely associated to vernal pool and swale habitat on the Santa Rosa Plain.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Diablo cottonweed <i>Micropus amphibolus</i>	Rank 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 145 to 2705 feet (45 to 825 meters). Blooms Mar-May.	Unlikely. The Project Area contains limited bare slopes.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
marsh microseris <i>Microseris paludosa</i>	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 15 to 1165 feet (5 to 355 meters). Blooms Apr-Jun(Jul).	Moderate Potential. The Project Area contains woodland and grassland habitat that may support this species. The nearest documented occurrence is from Stony Point Road, less than eight miles north of the Project Area. Most documented occurrences from coastal prairie and grassland sites.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
northern curly-leaved monardella <i>Monardella sinuata</i> ssp. <i>nigrescens</i>	Rank 1B.2	Chaparral (scr co.), coastal dunes, coastal scrub, lower montane coniferous forest (scr co., ponderosa pine sandhills). Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms (Apr)May-Jul(Aug-Sep).	No Potential. The Project Area is not located very near the coast nor contains coastal habitats.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
cotula navarretia <i>Navarretia cotulifolia</i>	Rank 4.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 6005 feet (4 to 1830 meters). Blooms May-Jun.	High Potential. The Project Area contains woodland and grassland habitat with clay substrate that may support this species. The nearest documented occurrence is from Mt. Burdell, approximately 2 miles southeast of the Project Area.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
Baker's navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 15 to 5710 feet (5 to 1740 meters). Blooms Apr-Jul.	Unlikely. This species typically occurs in wetlands underlain by heavy clay or alkaline soils, which are absent from within the Project Area.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Marin County navarretia <i>Navarretia rosulata</i>	Rank 1B.2	Closed-cone coniferous forest, chaparral. Elevation ranges from 655 to 2085 feet (200 to 635 meters). Blooms May-Jul.	No Potential. The Project Area does not contain coniferous forest nor chaparral habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Gairdner's yampah <i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>	Rank 4.2	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools. Elevation ranges from 0 to 2000 feet (0 to 610 meters). Blooms Jun-Oct.	Moderate Potential. The Project Area contains wet meadows which may support this species.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
North Coast phacelia <i>Phacelia insularis</i> var. <i>continentis</i>	Rank 1B.2	Coastal bluff scrub, coastal dunes. Elevation ranges from 30 to 560 feet (10 to 170 meters). Blooms Mar-May.	No Potential. The Project Area does not contain coastal bluff scrub or coastal dune habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Petaluma popcornflower <i>Plagiobothrys mollis</i> var. <i>vestitus</i>	Rank 1A	Marshes and swamps (coastal salt), valley and foothill grassland (mesic). Elevation ranges from 30 to 165 feet (10 to 50 meters). Blooms Jun-Jul.	Unlikely. The Project Area does not contain salt marsh habitat to support this species, and the grassland habitat is not contiguous with marsh habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
North Coast semaphore grass <i>Pleuropogon hooverianus</i>	ST, Rank 1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest. Elevation ranges from 30 to 2200 feet (10 to 671 meters). Blooms Apr-Jun.	Moderate Potential. The Project Area contains broadleaf forest habitat that may support this species.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
nodding semaphore grass <i>Pleuropogon refractus</i>	Rank 4.2	Lower montane coniferous forest, meadows and seeps, north coast coniferous forest, riparian forest. Elevation ranges from 0 to 5250 feet (0 to 1600 meters). Blooms (Mar)Apr-Aug.	Moderate Potential. The Project Area contains wet meadows which may support this species.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
Marin knotweed <i>Polygonum marinense</i>	Rank 3.1	Marshes and swamps (coastal salt or brackish). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms (Apr)May-Aug(Oct).	No Potential. The Project Area does not contain coastal salt or brackish marsh habitat to support this species.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Cunningham Marsh cinquefoil <i>Potentilla uliginosa</i>	Rank 1A	Marshes and swamps. Elevation ranges from 95 to 130 feet (30 to 40 meters). Blooms May-Aug.	Unlikely. Although the Project Area contains wetland habitat, this species is known from broad, acidic, bog-like wetlands with very low fertility substrate.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Lobb's aquatic buttercup <i>Ranunculus lobbii</i>	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools. Elevation ranges from 45 to 1540 feet (15 to 470 meters). Blooms Feb-May.	High Potential. The Project Area contains wetland habitat with a vernal mesic hydric regime that may support this species.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
California beaked-rush <i>Rhynchospora californica</i>	Rank 1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps (seeps), marshes and swamps (freshwater). Elevation ranges from 145 to 3315 feet (45 to 1010 meters). Blooms May-Jul.	Unlikely. The Project Area does not contain perennial wetland habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
round-headed beaked-rush <i>Rhynchospora globularis</i>	Rank 2B.1	Marshes and swamps (freshwater). Elevation ranges from 145 to 195 feet (45 to 60 meters). Blooms Jul-Aug.	Unlikely. The Project Area does not contain perennial wetland habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Victor's gooseberry <i>Ribes victoris</i>	Rank 4.3	Broadleafed upland forest, chaparral. Elevation ranges from 325 to 2460 feet (100 to 750 meters). Blooms Mar-Apr.	Moderate Potential. The Project Area contains broadleaf upland forest on slopes. However, this species was not observed during previous surveys.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
Sanford's arrowhead <i>Sagittaria sanfordii</i>	Rank 1B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 0 to 2135 feet (0 to 650 meters). Blooms May-Oct(Nov).	No Potential. The Project Area does not contain perennial wetland habitat.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Point Reyes checkerbloom <i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	Rank 1B.2	Marshes and swamps (freshwater, near coast). Elevation ranges from 5 to 245 feet (3 to 75 meters). Blooms Apr-Sep.	Unlikely. Although the Project Area contains perennial wetland habitat, this species is known from coastal sites.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
Tamalpais jewelflower <i>Streptanthus batrachopus</i>	Rank 1B.3	Closed-cone coniferous forest, chaparral. Elevation ranges from 1000 to 2135 feet (305 to 650 meters). Blooms Apr-Jul.	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Mt. Tamalpais bristly jewelflower <i>Streptanthus glandulosus ssp. pulchellus</i>	Rank 1B.2	Chaparral, valley and foothill grassland. Elevation ranges from 490 to 2625 feet (150 to 800 meters). Blooms May-Jul(Aug).	No Potential. The Project Area does not contain serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
two-fork clover <i>Trifolium amoenum</i>	FE, Rank 1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentine). Elevation ranges from 15 to 1360 feet (5 to 415 meters). Blooms Apr-Jun.	Unlikely. The Project Area does not contain coastal bluff scrub nor serpentine soils.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
Santa Cruz clover <i>Trifolium buckwestiorum</i>	Rank 1B.1	Broadleafed upland forest, cismontane woodland, coastal prairie. Elevation ranges from 340 to 2000 feet (105 to 610 meters). Blooms Apr-Oct.	Unlikely. While the Project Area contains broadleaf upland forest and cismontane woodland, the soils are not gravelly. Additionally, this species was not observed during previous surveys.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN PROJECT AREA	RESULTS AND RECOMMENDATIONS
saline clover <i>Trifolium hydrophilum</i>	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	Moderate Potential. The Project Area contains mesic grassland habitat which may support this species.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
Pacific Grove clover <i>Trifolium polyodon</i>	SR, Rank 1B.1	Closed-cone coniferous forest, coastal prairie, meadows and seeps, valley and foothill grassland. Elevation ranges from 15 to 1395 feet (5 to 425 meters). Blooms Apr-Jun(Jul).	Moderate Potential. The Project Area contains mesic grassland habitat which may support this species.	Not Observed. This species was not observed during surveys conducted during the peak blooming period for this species. No further recommendations for this species.
San Francisco owl's-clover <i>Triphysaria floribunda</i>	Rank 1B.2	Coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 30 to 525 feet (10 to 160 meters). Blooms Apr-Jun.	Unlikely. Although the Project Area contains grassland habitat, this species is known from coastal and bayside sites within direct maritime influence.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.
coastal triquetrella <i>Triquetrella californica</i>	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 30 to 330 feet (10 to 100 meters).	No Potential. The Project Area does not contain coastal scrub habitat and is not within 100 feet of the coastline.	Not Present. The Project Area does not contain suitable habitat for this species. No further recommendations.

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FC	Federal Candidate
FD	Federal De-listed
BCC	USFWS Birds of Conservation Concern
SE	State Endangered
SD	State Delisted
ST	State Threatened
SR	State Rare
SSC	CDFG Species of Special Concern
CFP	CDFG Fully Protected Animal
WBWG	Western Bat Working Group High or Medium Priority species
List 1A	CNPS List 1A: Plants presumed extinct in California
List 1B	CNPS List 1B: Plants rare, threatened or endangered in California and elsewhere
List 2	CNPS List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
List 3	CNPS List 3: Plants about which CNPS needs more information (a review list) <i>[not special status]</i>
List 4	CNPS List 4: Plants of limited distribution (a watch list) <i>[not special status]</i>

Species Evaluations:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Present. Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

APPENDIX C. PUBLIC COMMENT LETTERS



Marin Audubon Society

P.O. Box 399 | MILL VALLEY, CA 94942-0399 | MARINAUDUBON.ORG

April 28, 2109

Elizabeth Morrison
SF Bay Regional Water Quality Control Board
1515 Clay Street, 14th Fl.
Oakland, CA 94612

RE: NORTH BAY WETLAND MITIGATION BANK

Dear Ms. Morrison:

Thank you for the opportunity to comment on the application by the North Bay Wildlife Conservation/Mitigation LLC to establish a mitigation bank along San Antonio Road in Marin County. The Marin Audubon Society has a number of issues with this project, its potential to cause environmental impacts, and environmental review including the use of a Categorical Exemption. Considering the potential adverse impacts, as discussed below, and to ensure adequate environmental review of impacts, an Initial Study should be required for the project. Our specific comments are as follows:

1. Categorical Exemption

We see a number of problems with the use of Categorical Exemption to comply with CEQA. The Notice of Exemption offers no explanation as to why CEQA Section 15333, SMALL HABITAT RESTORATION PROJECTS, is not used although it is clearly relevant. Instead CEQA Section 15301, Class 1, 3, and 4 is relied on, but even that section does not justify using a Cad Ex. The Guidelines state that the Class 1 exemption does not apply in environmentally sensitive areas and applies only to projects that are negligible expansions of existing uses, and that Class 4 applies only for minor alterations of land. The project is not a negligible expansion of an existing use, it is an entirely new use - a mitigation bank. As described in the Biological Assessment, the site consists of many sensitive areas and supports five special status species. It is not a minor alteration of land; the acreage involved exceeds the acreage limit for a Cad Ex as described in Section 15333.

Why the acreage restriction is not complied with, and why the presence of special status species is ignored along with the potential to cause significant adverse impacts on them, should be addressed. CEQA Guidelines Section 15333 states that the exemption for small habitat restoration projects, such as this, consists of projects not to exceed five acres. The project acreage consists of 7.74 acres of seasonal wetland that would be created by grading uplands. An additional 14.74 acres would be enhanced through seeding and sediment reduction. A further Cad Ex provision is that the project be carried out

principally with hand labor and not mechanized equipment. Clearly grading of the 7.74 acres, one third of the project site, would not be carried out with hand labor.

The Guidelines further qualify that an exempt project have "no significant adverse impact on rare, threatened or endangered species or their habitat." The project site supports four species in this category: state threatened Red Legged Frog (*Rana draytonii*); and three special status plant species, Marin Western flax (*Hesperolinon congestum*), North Coast semaphore grass (*Pleuropogon hooverianus*), and Lobb's buttercup (*Ranunculus lobbii*), as well as one species on CNPS B1 list Tiburon Buckweed (*Eriogonum luteolum* var. *canninum*). There is no reference to the presence of these species in the Categorical Exemption or any discussion as to why the project would not significantly impact them. That seems a major deficiency.

Although the ultimate purpose may be habitat enhancement, even marsh restoration/enhancement projects can have significant adverse impacts on existing habitat and special status species. It is even more imperative that the environmental review for this project be thorough because a mitigation bank will allow for the loss of existing wetlands. The environmental impacts will be magnified, instead of compensated for, if this project proceeds in a manner that results in significant adverse impacts.

We have additional concerns about potential adverse impacts that are discussed in 2 and 3 below.

2. Invasive Plant Removal Methods

The applicant proposes to use herbicides to remove invasive plants and using pesticides is also mentioned. The use of herbicides and/or pesticides is not compatible with the proposed project purpose: to mitigate for wetland losses. Herbicides and pesticides have the potential to cause adverse impacts to wildlife and vegetation, at the site of use and nearby, and it is not clear that there would even be any oversight of the use. The applicant's should be required to remove invasive species using mechanical or manual methods. The total size of the project site is approximately 22 acres, a limited area on which it should not be a problem using non-chemical removal methods.

3. Invasive Species Removal

According to the 404 application, the applicant "may" remove invasive species and only invasive species classified as "high" priority would be removed. The project sponsors should be required to remove all invasive species from the project area, unless they are truly minor infestations, like a few plants. And if those few plants expand in number, as invasive plants are wont to do, they should be required to remove all of them during the full life of the bank. This is necessary to avoid invasive plants taking over the habitat, which is characteristic of many non-native plants. In addition, we note that new invasive species are appearing. Just because a plant is not classified as "high" priority now, it may be six months or a year or two from now.


4. Bank Management


We could not find any reference to the types of projects the bank proposes to sell credits for or a description of the service area. Because the bank is intended to create seasonal wetland habitat, its credits should be available only for projects that would damage or destroy seasonal wetlands of the same type. In addition, bank credits should be available only for projects in the North Marin and Southern Sonoma areas. Allowing its use for a wider area, would result in locally significant unmitigated impacts because the wildlife and humans currently benefitting from wetlands that would be lost, would not benefit from distant mitigation.

In conclusion, this project has the potential to result in multiple adverse impacts and should be required to undergo a thorough environmental review. A biological assessment from the applicant does not suffice. We reiterate our recommendation that an Initial Study be prepared.

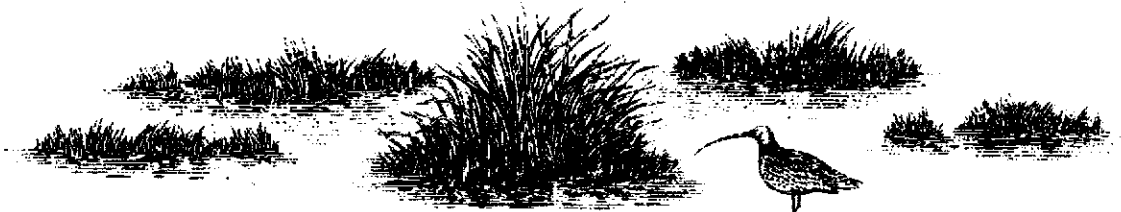
Thank you for considering our comments.

Sincerely,


Barbara Salzman, Co-chair
Conservation Committee


Phil Peterson, Co-chair
Conservation Committee

cc: Marin County Community Development,
Rachael Reid Army Corps of Engineers
CA Department of Fish and Wildlife



MARIN BAYLANDS ADVOCATES



P.O. BOX 2598

MILL VALLEY, CALIFORNIA 94942

April 29, 2019

Elizabeth Morrison
SF Bay Regional Water Quality Control Board
1515 Clay Street, 14th Floor
Oakland, CA 94612

RE: NORTH BAY WETLANDS MITIGATION BANK

Dear Ms. Morrison

Marin Baylands Advocates is writing to express our concern about the review and analysis of biological resources, special status species in particular, for the North Bay Wetlands Mitigation Bank project. There is no information about the project's impacts or even an indication that there has been an analysis of its impacts. We request that adequate environmental review be conducted to establish the net benefit, or harm, resulting from this project.

Three special status plant species, north coast semaphore grass, Marin western flax, Lobb's buttercup, and one amphibian special status species, red legged frog, are identified in the applicant's Biological Assessment as occurring on the site. The Categorical Exemption compliance document does not mention them as existing on the site nor is the habitat restoration section of Categorical Exemptions Guidelines even referenced as applying to this project.

We believe that this project should be subject to even more careful environmental review than most other projects, i.e. that it is even more imperative that potential impacts be carefully considered because the bank will be used to justify wetland losses elsewhere. The bank credits will be used to mitigate for negative wetland impacts on other properties. If the bank project itself causes any adverse impacts, these need to be identified and addressed. Otherwise, any mitigation will not be adequate to compensate for both onsite and offsite impacts.

We depend on regulatory agencies to require analysis of potential adverse impacts of a project, particularly impacts to special status species, that may be identified onsite. Even though the purpose of marsh restoration projects is to restore habitat, they too have the potential to cause negative impacts to existing species and habitats. These should be adequately assessed and addressed through mitigation, adjustment of the project design, or other means.

Sincerely,

Susan Ristow, Marin Baylands Advocates Board Member