



Biological Resources Report

Prepared for Manila Community Services District (MCSD)
Manila CSD Wastewater Infrastructure Improvement Project

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1. Introduction

The Manila Community Services District (MCSD) desires to make strategic improvements to their wastewater infrastructure. MCSD, the project proponent, has received funding from the Safe Drinking Water State Revolving Fund (DWSRF) administered by the State Water Resources Control Board (SWRCB) for this project and therefore the SWRCB serves as the responsible entity.

1.1 Project History

Manila is an unincorporated community, which receives water, wastewater, and recreation services from MCSD (or District). The District boundary encompasses 1,650 acres. The District facilities are comprised of water mains, a storage tank, a booster pump station, a wastewater conveyance and treatment system, percolation ponds, a community park, a community center, a recreation area, and a limited stormwater drainage system. Previous reports have focused on water system infrastructure. This Biological Resources Report is focused on proposed wastewater infrastructure improvements.

The District wishes to make strategic improvements to their wastewater infrastructure, some of which has been in service for more than 40 years. The Humboldt County Board of Supervisors formed the District on July 20, 1965 as an independent multi-purpose district organized pursuant to Resolution No. 2130 adopted under the Community Services District Law, pursuant to Title 6, Division 2, of the California Government Code (Humboldt Local Agency Formation Commission, 2007).

The original Septic Tank Effluent Pump (STEP) system was installed in 1978. At the time, a regional treatment system and ocean discharge was being planned to serve numerous communities, including Manila, so a temporary leach field system was initially installed. The regional concept never came to fruition so the District built a new leach field system as a long term solution. This system began to show signs of failure within a year. Additional improvements were subsequently made including mechanical system upgrades, treatment wetlands, and rapid infiltration basins. These last improvements were made over 20 years ago and many of the components have reached the end of their useful life or have become obsolete. With many mechanical components over 20 years old and some system components over 40 years old, the system needs rehabilitation to make improvements to help the District extend the useful life of the wastewater system over the coming decades.

1.2 Project Location

The District is located along the north spit of Humboldt Bay on the Samoa Peninsula between the Bay and the dunes. Manila is located approximately four miles northwest of Eureka along Highway 255. Manila's current boundary encompasses approximately two square miles, bounded by the Pacific Ocean on the west and Humboldt Bay on the east, and extends approximately six miles north from the Samoa Bridge to the Mad River Slough and is presented on Figure 1 (Appendix B).

Humboldt County Assessor Parcel Numbers (APN) directly involved in the project and staging areas include the following: 506-071-012, 506-071-017, 506-071-019, 506-071-011, 506-081-008, 506-



081-006, 506-092-003, 506-092-014, 506-092-016, 506-081-010, 506-092-007, 506-091-008, 506-102-001, 400-021-008, 400-021-005, 400-011-048, 400-011-007, 400-011-057, 400-011-064, 400-021-011, 400-011-019, 400-011-004, 400-011-069, 400-011-017, 400-041-055, 400-041-025, 400-091-026, 400-101-015, 400-153-003, 400-011-022, 400-011-016, 400-011-077, and 400-011-008. Figure 1 (Appendix B) shows the Project vicinity and Figure 2 (Appendix B) illustrates the Project components. Staging areas for Project implementation will be in the MCSD “office” property and a flat disturbed area directly north of the treatment ponds along Lupin Drive in Manila.

1.3 Project Objective

The objective of the project is to improve wastewater infrastructure in order to address the current inefficiencies, deficiencies and vulnerabilities of the existing system facilities to continue the effective conveyance, treatment and disposal of wastewater through the coming decades, and to meet future planned needs of the District. The project objective will be reached through upgrading select components of the septic, conveyance, and wastewater treatment systems.

2. Description of the Project

This section summarizes the overall configuration and characteristics of the action.

2.1.1 Septic Systems

The existing septic systems throughout the District need a variety of improvements to reduce infiltration /inflow, provide remote monitoring of septic tank levels and pumping, and to improve septic tank cleaning and maintenance. These issues, their impacts and proposed improvements are summarized in Table 2.1.

Table 2.1 Issues and Improvements Associated with the Septic System

Issue	Impact	Improvements
• Low elevation of risers causing potential infiltration of surface water into septic tanks • Poor seals between septic tanks, risers and lids causing infiltration of groundwater into septic tanks	• Increased pumping costs • Potential overflow of tanks	• Installation of new risers to increase elevation of tank rim • Reseal risers to tanks
• Some of the original pumps have not yet been replaced and have reached the end of their useful lives.	• Potential for pump clogging or failure resulting in potential overflow conditions.	• Replace all older pumps.
• No Supervisory Control and Data Acquisition (SCADA) communication of pump failures or high level alarms to District	• Potential for problems to not be communicated to the District resulting in potential tank overflow.	• Integrate each septic tank control panel into a District SCADA system.

**Table 2.1 Issues and Improvements Associated with the Septic System**

Issue	Impact	Improvements
office. Currently rely on homeowners calling the District.		
The District's ability to respond to emergencies by pumping and trucking septage is limited by the existing resources. If there is the need for multiple truckloads in a short time, the District's existing septic tank at the office is not designed to receive septage from a truck.	District must slowly discharge septage into the tank at the office through a fine screen at a rate that does not overwhelm the existing pumps.	Install a septage holding tank and a simple screening system to allow for fast unloading of septage that can then be taken to a treatment facility at a later time.
There are very few local options for disposal of septage and very limited District staff and equipment available to pump septic tanks, address maintenance needs, and respond to emergency conditions.	The time between tank pumping by the District has been increasing due to staff and equipment limitations and few disposal options.	Develop an overall septage management strategy considering the potential to contract out regular hauling and District staff focus on management, maintenance, and emergency response.
Garbage in septic tanks	Clogged pumps and Increased cost of septage disposal	Develop informational brochure to educate residents about the STEP system and their impacts.

Septic tank risers will be replaced or modified with additional rings at select locations to raise lids above ground level. New control panels with telemetry capabilities to communicate with a new SCADA system will replace existing control panels at all septic tank control panel locations. A septage screening system septic tank and holding tank will be installed at existing MCSD office site and connected to the existing force main system.

Ground disturbance would be necessary to install the septage holding tank at the District office site, to a depth of approximately six feet for the septic tank and five feet for the holding tank, and total length of 34 feet and total width of 15 feet. Excavations would amount to approximately 44 cubic yards, and approximately 35 cubic yards would be off hauled. Additionally, shallow excavations to a depth of approximately 1.5 feet will be necessary to expose the base of the septic tank risers in order to install the new risers to increase the elevation of the riser rim at existing septic tanks located on residential properties. Excavation will be above and within the existing footprint of the septic tank. Limited ground disturbing work may be necessary to install the post for the septic tank control panels if the existing posts are compromised. New posts are anticipated to be 4-inch by 4-inch square and will be installed in the same footprint as the existing post. No other ground disturbance work is anticipated.



2.1.2 Conveyance System

The existing conveyance system is relatively simple and generally operates well, although the air release valves should be replaced throughout the system, and the operations staff should have the ability to bypass the existing pumping station during maintenance. The conveyance system issues, impacts, and recommended improvements are summarized in Table 2.2.

Table 2.2 Issues and Improvements Associated with the Conveyance System

Issue	Impact	Improvement
The current system does not have the ability to bypass the existing grit pumping facility and convey flow directly to the treatment lagoons.	In the event of an electrical or mechanical failure at the pumping facility, septic tank pumps continue to operate, which could result in wet well overflow.	Install bypass piping and valves at the pumping facility and replace any septic tank pumps that do not produce the hydraulic head necessary to pump directly to the treatment lagoons.
The conveyance system has a series of air relief valves that have been in service for decades and have corroded and failed.	Failed air relief valves can cause air to accumulate and in piping and cause an air lock blocking the flow. The District must manually purge air when air accumulates.	Replace all air relief valves throughout the system.

The contents of the conveyance system work include approximately 55 feet of flexible pipe and portable trash pump, replacement of select septic tank pumps, and replacement of all air release valves. No ground disturbance work is anticipated for these activities.

2.1.3 Treatment System

The existing treatment system consists of the main pump station, aerated lagoons, treatment wetlands, and infiltration basins. These components have been in service for many years and are in need of targeted upgrades and maintenance as summarized in Table 2.3.

Table 2.3 Issues and Improvements Associated with the Treatment System

Issue	Impact	Improvements
No SCADA communication directly to District Staff. Currently rely on a third party alarm company to notify staff. No way to check status remotely.	Potential for problems to not be communicated to the District resulting in potential overflow.	SCADA system with notification and status direct to District Staff
Channel grinder removed from service	None. District staff found that very few bulk solids are conveyed from the septic tanks and the grinder was simply an	None. Recommend not replacing grinder.



Table 2.3 Issues and Improvements Associated with the Treatment System

Issue	Impact	Improvements
	operational and maintenance problem.	
Dry well pumps are at the end of their useful life and the drywell configuration presents maintenance problems and potential flooding risk.	Access for maintenance is difficult and extends the time needed for equipment replacement. Mechanical failure could lead to backflow and dry well flooding.	The pumping system should be converted to a submersible wet well system.
Odor control system is not functional	Odors affect neighboring properties.	New piping to vent odors to a new location.
No check valve between the dry well pumps and aeration lagoons.	Potential flooding of dry well	Incorporate an air gap at effluent pipe to aeration lagoons.
The existing generator is over 20 years old and is subject to the corrosive environment and does not meet modern air quality standards.	The generator is a greater polluter than modern generators. Ongoing corrosion and wear of the generator could lead to failure.	Replace the generator with a modern unit integrated into the electrical and control systems.
Pond liners exposed to sunlight above the waterline.	Long term exposure to UV radiation degrades the liner and can lead to failure.	Install a protective strip of lining material to exposed areas along the shoreline.
A number of hydraulic control structures are corroded and inoperable.	The District cannot readily change hydraulic operations.	Replace mechanical components of hydraulic control structures and apply epoxy/protective coating on existing concrete.
Removal of aerators for maintenance is difficult and requires positioning of backhoe along shore of lagoons	Potential for liner damage and entry of backhoe into lagoons.	Winch and floating platform for aerator removal and placement on vehicle
Site fencing is severely corroded.	Compromises site controls and security.	Replace all site fencing.

The contents of the conveyance system work include the installation of a SCADA communication system, the installation of a new wet well with pumps to replace the dry well, the installation of a winch and floating platform, and the replacement of multiple amenities including site fencing, effluent pipe, components of the hydraulic control structures, and odor control system.

Limited excavations will be necessary to remove existing fencing and install the replacement site fencing. Equipment access will be limited to the interior (wastewater facilities) side of the fence. Existing fence, fence posts and post anchors (concrete) will be removed with equipment, such as a



small excavator, and disposed of offsite. Holes for new fence post anchors will be augured to a maximum depth of 42 inches and 12 inches in diameter. Post anchor holes will be filled with concrete. The new fence and post anchors will be located along the same alignment as the existing fence. The new fence at the pump station will be relocated within the existing footprint of the gravel area surrounding the pump station. The new fence will be similar to the existing fence with chain link fabric, six feet tall, anchor posts and gates in along the same alignment. An area 1 foot on either side of the fence line will be graded, as needed, to accommodate installation of the new fence alignment and anchor post locations. The new fence alignment will not extend beyond the existing fence alignment and will be moved to the interior of the alignment as needed to avoid sensitive areas.

Excavation within existing paved areas will be required for a new valve box associated with the retrofitted wet well and bypass system. Vent piping for odor control will require trenching near the fence line. Trenching will be approximately 1 foot wide and up to 375 feet in length. Vegetation and sediment on existing paved surfaces will be removed to restore vehicle access to the wet well. A winch will be installed on a concrete pad on an existing paved surface. See Figure 2 in Appendix B for a map of the Project Components. No other ground disturbance work is anticipated.

Construction Schedule

Construction of the project is expected to begin in Spring 2020 and require approximately three months to complete. Anticipated daytime work hours are 7:00 a.m. to 7:00 p.m., Monday through Saturday. Construction on Sunday or legal and county holidays is not currently anticipated.

Construction Staging, Activities, and Equipment

Project staging would take place in the MCSD “office” location. This location has been previously disturbed and acts as a storage yard for the District. Staging will also occur in a flat disturbed area directly north of the treatment ponds along Lupin Drive in Manila. See Figure 2 in Appendix B for the Project area which includes the staging locations.

Equipment required for project implementation would include: mini excavator, concrete/industrial saw, generator set, and a variety of hand tools. All ground disturbing construction activities would be accompanied by both temporary and permanent erosion and sediment control best management practices (BMPs).

It is not anticipated that any temporary utility extensions, such as electric power or water, would be required for construction. Traffic control is not anticipated to be necessary for this project. The installation of the approximately 55 feet of bypass piping is located on MCSD property, and the neighboring landowner is not anticipated to be affected by the work. Pedestrian access to the beach will be retained throughout the installation of the bypass piping through directional signage to an alternate pathway.

Groundwater Dewatering

Dewatering is not anticipated; however, if needed, temporary groundwater dewatering would be conducted to provide a dry work area. Dewatering would involve pumping water out of a trench. Groundwater would typically be pumped to Baker tanks (or other similar type of settling tank).



Following the settling process provided by a tank, the water would be used for dust control and compaction.

Wetlands Impacts

The Project is not anticipated to affect wetlands. See Figure 4 Appendix B for a map of the Project area in relation to U.S. Fish and Wildlife Service National Wetland Inventory data. No Project infrastructure will be located in any wetlands. The wastewater treatment pond boundary fencing will be replaced in its existing location which is adjacent to an aerated lagoon, a component of the wastewater treatment area that is classified as a wetland in the U.S. Fish and Wildlife Service (USFWS) Wetland Inventory Mapper.

2.1.4 Maintenance and Operation

Following project implementation, general operation and maintenance activities associated with the proposed project would presumably remain the responsibility of the MCSD. The wastewater system would require periodic inspections and testing, general repairs, and overall management as needed.

3. Regulatory Background

This project is funded by the Safe Drinking Water State Revolving Fund (DWSRF) administered by the SWRCB. The DWSRF is comprised of multiple funding sources including annual capitalization grants from U.S. EPA and associated state match. In addition to the requirements of the California Environmental Quality Act, a suite of federal environmental acts, rules, and requirements are applied to projects receiving DWSRF funding. The DWSRF federal environmental cross-cutters package is required by this funding source. The SWRCB will use its State Environmental Review Process to review any potential environmental impacts of project, and the State Water Board's Division of Financial Assistance staff will review the cross-cutters Environmental Package of the Construction Application in preparation for consultation with federal agencies (SWRCB 2018).

Following is an overview of agencies that have potential oversight of the Proposed Project related to biological resources as well as relevant laws. The regulatory setting is divided into sections on federal, state, and local jurisdiction.

3.1 Federal Jurisdiction

3.1.1 Endangered Species Act (ESA)

The ESA of 1973 (16 USC 1531 et seq.) establishes a national policy that all federal departments and agencies provide for the conservation of threatened and endangered species and their ecosystems. The Secretary of the Interior and the Secretary of Commerce are designated in the ESA as responsible for: (1) maintaining a list of species likely to become endangered within the foreseeable future throughout all or a significant portion of its range (threatened) and that are currently in danger of extinction throughout all or a significant portion of its range (endangered); (2) carrying out programs for the conservation of these species; and (3) rendering opinions regarding



the impact of proposed federal actions on listed species. The ESA also outlines what constitutes unlawful taking, importation, sale, and possession of listed species and specifies civil and criminal penalties for unlawful activities.

Pursuant to the requirements of the ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region, and whether the proposed project would result in a "take" of such species. The ESA prohibits "take" of a single threatened and endangered species except under certain circumstances and only with authorization from the USFWS or the National Oceanic and Atmospheric Administration (NOAA) Fisheries through a permit under Section 7 (for federal entities or federal actions) or 10(a) (for non-federal entities) of the Act. "Take" under the ESA includes activities such as "harass, harm, pursue, hunt shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS regulations define harm to include "significant habitat modification or degradation." On June 29, 1995, a U.S. Supreme Court ruling further defined harm to include habitat modification "...where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the ESA, or result in the destruction or adverse modification of critical habitat for such species (16 USC 1536[3][4]). If it is determined that a project may result in the "take" of a federally-listed species, a permit would be required under Section 7 or Section 10 of the ESA.

Critical Habitat is defined by the ESA as a specific geographic area containing features essential for the conservation of an endangered or threatened species. Under Section 7 of the ESA, critical habitat should be evaluated if designated for federally listed species that may be present in the project Action Area. The Action Area serves as the "study area" for the purposes of a Section 7 Biological Assessment.

3.1.2 Clean Water Act (CWA)

The CWA (1977, as amended) establishes the basic structure for regulating discharges of pollutants into waters of the U.S. It gives the U.S. Environmental Protection Agency (EPA) the authority to implement pollution control programs, including setting wastewater standards for industry and water quality standards for contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, without a permit under its provisions.

Discharge of fill material into "waters of the U.S.," including wetlands, is regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA (33 USC 1251-1376). USACE regulations implementing Section 404 define "waters of the U.S." to include intrastate waters (such as, lakes, rivers, streams, wetlands, and natural ponds) that the use, degradation, or destruction of could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3). The placement of structures in "navigable waters of the U.S." is also regulated by the USACE under Section 10 of the



Federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are approved by USACE under standard (i.e., individual) or general (i.e., nationwide, programmatic, or regional) permits. The type of permit is determined by the USACE and based on project parameters.

The USACE and the EPA announced the release of the Clean Water Rule on May 27, 2015 (80 FR 124: 37054-37127). The Rule is intended to ensure waters protected under the CWA are more precisely defined, more predictable, easier to understand, and consistent with the latest science. The intent is to: 1) clearly define and protect tributaries that impact the quality of downstream waters; 2) provide certainty in how far safeguards extend to nearby waters; 3) protect unique regional waters; 4) focus on streams instead of ditches; 5) maintain the status of waters associated with infrastructure (i.e., sewer systems); and 6) reduce the need for case specific analysis of all waters. The U.S. Court of Appeals for the Sixth Circuit stayed implementation of the Clean Water Rule pending further action of the court in October 2015. In response, the USACE and EPA resumed case-by-case analysis of waters of the U.S. determinations. Implementation of the Clean Water Rule was pending litigation prior to February 2017. An Executive Order (Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the “Waters of the United States” Rule) was signed on February 28, 2017, directing the USACE and EPA to review The Rule and publish for notice and comment a proposed rule rescinding or revising The Rule. The USACE and EPA subsequently published a Notice of Intention to Review and Rescind or Revise the Clean Water Rule in the Federal Register on March 6, 2017. The definition of “navigable waters” under the CWA along with The Rule was published in the Federal Register on February 14, 2019 and the sixty day public comment period closed on April 15, 2019.

The Fish and Wildlife Coordination Act requires consultation with the USFWS, NOAA Fisheries, and responsible state wildlife agency for any federally authorized action to control or modify surface waters. Therefore, any project proposed or permitted by the USACE under the CWA Section 404 must also be reviewed by the federal wildlife agencies and California Department of Fish and Wildlife (CDFW).

Section 401 of the CWA requires any applicant for a federal license or permit, which involves an activity that may result in a discharge of a pollutant into waters of the U.S., obtain a certification that the discharge will comply with applicable effluent limitations and water quality standards. CWA 401 certifications are issued by Regional Water Quality Control Boards (RWQCBs) under the California Environmental Protection Agency.

3.1.3 Executive Order 11990

Executive Order 11990 (1977) furthers the protection of wetlands under NEPA through avoidance of long and short-term adverse impacts associated with the destruction or modification of wetlands where practicable. The order requires all federal agencies managing federal lands, sponsoring federal projects, or funding state or local projects to assess the effects of their actions on wetlands. The agencies are required to follow avoidance, mitigation, and preservation procedures. The Presidential Wetland Policy of 1993 and subsequent reaffirmation of the policy in 1995 supports effective protection and restoration of wetlands, while advocating for increased fairness of federal regulatory programs.



3.1.4 Migratory Bird Treaty Act (MBTA)

The MBTA of 1918 (16 USC 703-711) as amended established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. A migratory bird is defined as any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. The MBTA prohibits the take, possession, buying, selling, purchasing, or bartering of any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Only exotic species such as Rock Pigeons (*Columba livia*), House Sparrows (*Passer domesticus*), and European Starlings (*Sturnus vulgaris*) are exempt from protection.

In 2001, President Clinton defined “take” in Executive Order 13186 to include both “intentional” and “unintentional.” However, in 2017, the Department of the Interior’s (DOI) Office of Solicitor argued via Opinion M-37050 that incidental take was not prohibited under the Migratory Bird Treaty Act. Opinion M-37050 is currently the subject of a lawsuit between eight U.S. states and the U.S. DOI.

3.2 State Jurisdiction

3.2.1 California Environmental Quality Act (CEQA)

CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a “project.” A project is an activity undertaken by a public agency or a private activity which must receive some discretionary approval. The Proposed Project is a project under CEQA; therefore, CEQA compliance is required. Under CEQA, a variety of technical studies including biological, cultural, traffic, and air quality studies as well as research and professional knowledge are considered to determine whether the project may have an “adverse effect” on the environment. Lead agencies are charged with evaluating the best available data when determining what specifically should be considered an “adverse effect” to the environment.

3.2.2 Porter-Cologne Water Quality Act

The Porter-Cologne Act provides for statewide coordination of water quality regulations by establishing the California State Water Resources Control Board. The State Board is the statewide authority that oversees nine separate RWQCBs that collectively oversee water quality at regional and local levels. California RWQCBs issue CWA Section 401 Water Quality Certifications for possible pollutant discharges into waters of the U.S. or state. On April 2, 2019 the California State Water Resources Control Board adopted new definitions and procedures for discharges of dredged or fill material to Waters of the State.

3.2.3 California Endangered Species Act (CESA)

The CESA includes provisions for the protection and management of species listed by the State of California as endangered, threatened, or designated as candidates for such listing (California Fish and Game Code (FGC) Sections 2050 through 2085). The CESA generally parallels the main provisions of the ESA and is administered by the CDFW, who maintains a list of state threatened and endangered species as well as candidate and species of special concern. The CESA prohibits



the “take” of any species listed as threatened or endangered unless authorized by the CDFW in the form of an Incidental Take Permit. Under FGC, “take” is defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Species of special concern are broadly defined as species that are of concern to the CDFW, because of population declines, restricted distributions, and/or they are associated with habitats that are declining in California. Impacts to special status plants and animals may be considered significant under CEQA.

3.2.4 California Fish and Game Code (FGC)

Native Plant Protection Act

The CDFW administers the Native Plant Protection Act (Sections 1900–1913 of the FGC). These sections allow the California Fish and Game Commission to designate endangered and rare plant species and to notify landowners of the presence of such species. Section 1907 of the California Fish and Game Code allows the Commission to regulate the “taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants.” Section 1908 further directs that “... [n]o person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof that the Commission determines to be an endangered native plant or rare native plant.”

Birds of Prey and Native Nesting Birds

Section 3503 of the FGC prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders *Falconiformes* (hawks and eagles) or *Strigiformes* (owls) and their eggs or nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds. Non-native species, including the European Starling, Rock Dove, and House Sparrow, are not afforded protection under the MBTA or FGC.

Fully Protected Species

The CDFW enforces the FGC, which provides protection for “fully protected birds” (Section 3511), “fully protected mammals” (Section 4700), “fully protected reptiles and amphibians” (Section 5050), and “fully protected fish” (Section 5515). As fully protected species, the CDFW cannot authorize any project or action that would result in “take” of these species even with an incidental take permit.

3.2.5 Sensitive Plant Communities

CDFW provides oversight of habitats (i.e. plant communities) listed as Sensitive in the California Natural Diversity Database (CNDDB) and on the California Sensitive Natural Communities List, based on global and state rarity rankings. The natural communities are broken down to alliance level for vegetation types affiliated with ecological sections in California. The list and alliances coincide with A Manual of California Vegetation (Sawyer et al. 2009). CDFW considers alliances and associations with a S1 to S3 rank to be Sensitive (CDFW 2019a). The application of ranking for determination of Sensitive Communities is summarized as follows in Table 1 (NatureServe 2019):



Table 3.1 NatureServe Conservation Status Ranks

Name	Calculated Status Rank	Status Description
Score $\leq$ 1.5	G1, N1, S1	Critically Imperiled
$1.5 \leq$ Score $\leq$ 2.5	G2, N2, S2	Imperiled
$2.5 \leq$ Score $\leq$ 3.5	G3, N3, S3	Vulnerable
$3.5 \leq$ Score $\leq$ 4.5	G4, N4, S4	Apparently Secure
Score $>$ 4.5	G5, N5, S5	Secure

3.2.6 Coastal Act

The Coastal Act defines an “environmentally sensitive habitat area” (ESHA) as an “area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments” (Section 30107.5). Three important elements define an ESHA:

- 1) A geographic area can be designated ESHA because of the presence of individual species of plants or animals or because of the presence of a particular habitat;
- 2) In order for an area to be designated as ESHA, the species or habitat must be either rare or it must be especially valuable; and,
- 3) The area must be easily disturbed or degraded by human activities.

While there is not a specific list of habitats considered to be ESHA for the State or County, the Coastal Commission through the Coastal Act and counties or municipalities through the Local Coastal Program (LCP) are the jurisdictional agencies that exert authority in identifying and protecting ESHA in the course of project activities. In order for the Coastal Commission to determine if areas are to be classified as ESHA's, they often refer to CDFW's California Sensitive Natural Communities List. CDFW does not use the term ESHA, but it has been inferred that CDFW terminology of “sensitive habitat” might be somewhat synonymous to Coastal Commission ESHA terminology. The Coastal Commission relies on this list to determine if habitats are considered a sensitive plant community and thus potentially ESHA. The global and state rarity ranking can be used to identify areas that may be considered ESHA and subject to protection by the Coastal Commission.

Issuance of Coastal Development Permits may be delegated to counties and municipalities under the Local Coastal Program (LCP).

3.3 Local Jurisdiction

3.3.1 Humboldt County Local Coastal Program

The Project site is within and regulated by the Humboldt Bay Area Plan (HBAP) of the Humboldt County Local Coastal Program (LCP), of which Humboldt County has the primary permitting



authority. LCPs can be adopted by local governments and serve as the regulatory equivalent of the Coastal Act. The HBAP extends from the Mad River in the north to Table Bluff/Hookton Road in the south, excluding the cities of Eureka and Arcata, and identifies land uses and standards by which development will be evaluated within the Coastal Zone as defined by the Coastal Act. The HBAP was certified by the California Coastal Commission in 1982.

The County of Humboldt under the Local Coastal Program (LCP) defines ESHA within the Humboldt Bay Planning Area to include “vegetated dunes” (County of Humboldt 2014) along with other areas, as follows:

- (1) Wetlands and estuaries, including Humboldt Bay and the mouth of the Mad River.
- (2) Vegetated dunes along the North Spit to the Mad River and along the South Spit.
- (3) Rivers, creeks, gulches, sloughs and associated riparian habitats, including Mad River Slough, Ryan Slough, Eureka Slough, Freshwater Slough, Liscom Slough, Fay Slough, Elk River, Salmon Creek, and other streams.
- (4) Critical habitats for rare and endangered species listed on state or federal lists.

4. Environmental Setting

Manila is an unincorporated coastal community built on sand dunes with limited areas of soil, located on the Samoa Peninsula and adjacent to Humboldt Bay. The climate is characterized by high rainfall and summer fog supporting coastal vegetation. Much of the Project area consists of developed residential neighborhoods with little high quality natural habitat. The developed portions of the Project area consist of non-native grassland with pockets of coastal scrub vegetation. The grassland habitat is dominated by sweet vernal grass (*Anthoxanthum odoratum*) and European beach grass (*Ammophila arenaria*) (Stillwater Sciences 2018). Coastal scrub habitat consists of willow species, California blackberry (*Rubus ursinus*), and the invasive Himalayan blackberry (*Rubus armeniacus*) (Stillwater Sciences 2018). A limited amount of dune habitat with native vegetation occurs within the project area primarily in the location of the MCSD treatment ponds.

5. Methods

5.1 Preliminary Investigations

5.1.1 Database Searches (IPac, CNDDDB, CNPS)

Prior to the field survey, a database search of the CNDDDB (California Natural Diversity Database), USFWS IPaC (Information for Planning and Conservation), and CNPS (California Native Plant Society) *Inventory of Rare and Endangered Vascular Plants* was conducted by GHD on April 2, 2019 for the MCSD Wastewater Infrastructure Improvement Project. The list was queried again on May 14 and May 15, 2019. The CNDDDB database and CNPS Inventory were queried for all CRPR List species including CRPR 3 and 4 plant species, for informational purposes while conducting field surveys, although CRPR 3 and 4 plant species are not presented on the database table included in



Appendix A. In addition, databases such as eBird and iNaturalist were reviewed for additional local wildlife information. The search encompassed seven USGS quadrangles (quads) including the project site quad (Eureka) and surrounding six quads (Arcata North, Arcata South, Cannibal Island, Fields Landing, McWhinney Creek, and Tyee City).

Based on these database results, results from the special status plant survey, and personal knowledge regarding the habitat and conditions surrounding the project site, a scoping table was compiled (Appendix A). This table summarizes special status state or federal plant and wildlife species that could be present at the project site as well as special status plant communities. The table also presents information such as the likelihood of each species or community to occur at the project site. Figure 3 in Appendix B shows all Special Status Species tracked by CNDDB that are known to occur within a five mile radius of the project area.

5.1.2 National Wetlands Inventory

A search of the U.S. Fish and Wildlife Service National Wetlands Inventory was conducted on May 21, 2019 for the immediate project vicinity. Figure 4 shows the National Wetlands Inventory Map for the project location. The National Wetlands Inventory map identified freshwater emergent wetlands, freshwater forested/shrub wetlands, and freshwater ponds within the project area. The areas mapped as freshwater ponds by the National Wetlands Inventory include the MCSD treatment ponds.

5.2 2019 Field Survey

5.2.1 Field Survey Extent

A field survey was conducted on May 3, 2019 within the portion of the project area that was known to contain natural vegetation and where project impacts were considered possible. The extent of the 2019 field survey is shown in Appendix B, Figure 5. The survey extent included:

1. Five feet on the outside of the fence around the MCSD treatment ponds, and inside the treatment pond fence
2. The proposed staging area adjacent to the treatment ponds
3. The MCSD pump station

5.2.2 Methods

The field survey was conducted on May 3, 2019. The objectives of the field survey were to conduct seasonally appropriate surveys for state, federal, and other sensitive listed plant species and Sensitive Natural Communities or ESHA within the field survey extent, and to evaluate the extent of any wetland type vegetation (based on one-parameter) in accordance with the California Coastal Commission, as well as the extent of any wetlands that might meet the U.S. Army Corps of Engineers definition based on a three-parameter approach (having wetland-type vegetation, hydric soils, and wetland hydrology). The field survey attempted to identify all plant species within the survey extent and to document the presence of special status plants if present. Plant phenology for target species was used to determine the timing of the botanical survey.



The plant survey was floristic in nature following *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* by the California Natural Resource Agency (CDFW 2018) and *General Rare Plant Survey Guidelines* by the Endangered Species Recovery Program (USFWS 2002). Plants were identified to the lowest taxonomic level (genus or species) necessary for rare plant identification. Nomenclature follows *The Jepson Manual, Second Edition* (Baldwin et al 2012). Species surveys were conducted in an effort to identify presence and location of special status plant species, if any. The survey extent was evaluated by walking the site looking for the presence of target species and habitats identified on the scoping list, as well as presence of any other incidental sensitive-listed plant species. The survey focused on potential habitats for target species.

6. Results

6.1 Previous Field Surveys

GHD performed a wetland delineation at three locations that are included in the current project area in 2017 for the MCSD Drinking Water Infrastructure Improvement Project. Both one and three parameter wetlands were delineated per the California Coastal Commission definition, and U.S. Army Corps of Engineers (USACE) definition respectively. The wetland delineation report which shows the location of the delineated wetlands is included in Appendix C. These three areas were also surveyed by GHD in 2017 for special status plants, and no special status plants were observed (GHD 2017). The 2017 field work included the currently proposed staging area by the Manila Community Service District office (Appendix C). Two Sensitive Natural Communities were observed within the 2017 survey area, *Salix hookeriana* shrubland alliance (coastal dune willow thickets) and coastal and valley freshwater marsh. The coastal dune willow thickets were considered one-parameter wetlands per the California Coastal Commission definition, and coastal and valley freshwater marsh was delineated as three parameter wetland per the U.S. Army Corps of Engineers. No upland ESHA was identified (GHD 2017). No impacts to the previously identified wetlands are expected to occur as a result of the currently proposed waste water infrastructure project.

6.2 Special Status Plant Species, Vegetation Communities, and Wetland Results

The portion of the project area that was known to contain natural vegetation was surveyed on May 3, 2019. No special status plant species were observed within the extent of the 2019 field survey (Appendix B, Figure 5). A list of plant species observed during the field survey is included in Appendix D. No 3-parameter wetlands were observed within the extent of the field survey. Vegetation mapping was performed during the field survey to evaluate the potential for Sensitive Natural Communities, and since the project is within the Coastal Zone, to determine whether Environmentally Sensitive Habitat Areas (ESHA) are present to conform with the Coastal Act and Local Coastal Program.

The survey extent included the area around the pump station. No Sensitive Natural Communities were identified in this area. The area covered by the field survey and where project impacts are



anticipated contained non-native vegetation including a large patch of invasive ice plant (*Carpobrotus edulis*), non-native annual grasses, and a few scattered native coyote brush (*Baccharis pilularis*) shrubs.

Native dune mat plant communities that contain habitat for special status plant species, (and would thus potentially be considered ESHA by the California Coastal Commission), occur adjacent to the project site in the coastal sand dunes that surround the MCSD treatment ponds (outside of current and proposed fencing). Project work at this location is limited to replacement of the existing fence around the treatment ponds along the same alignment and from inside the existing fence line. No impacts are anticipated beyond one foot outside of the existing fence line where new fence posts will be installed. The new fence will be similar to the existing fence with chain link fabric, six feet tall, anchor posts and gates in along the same alignment. Some native dune plants were observed during the project survey on May 3, 2019 (see list of species observed in Appendix D), however, many portions of these areas to be impacted also had a predominance of non-native annual grass species. Due to the limited extent of the work in the dunes, no direct or indirect impacts are expected to occur to the adjacent dune mat plant communities and thus these areas were not mapped or keyed to a vegetation alliance.

Within the fence line of the treatment ponds, and directly adjacent to the fence line are three scattered patches of wax myrtle (*Morella californica*). A small patch of coastal willow (*Salix hookeriana*) also occurs on the western fence line of the treatment pond, growing close to a coyote bush shrub and an invasive yellow bush lupine (*Lupinus arboreus*) shrub. None of the individual shrubs constitute a natural community nor an ESHA, as they occur in isolated patches and are not vegetation communities.

One Sensitive Vegetation Community, based on CDFW's Natural Communities List (CDFW 2019a), was identified within the extent of the field survey and project work – the *Salix hookeriana* Shrubland Alliance (Coastal dune willow thickets). This alliance was identified according to its description in *A Manual of California Vegetation*, Second Edition (Sawyer et al. 2009). The *Salix hookeriana* Shrubland Alliance has a Global listing of G4 and State ranking S3. The *Salix hookeriana* Shrubland Alliance occurs on the eastern fence line of the southern half of the treatment pond facility. Coastal willows are Facultative Wetland Plants (FACW) meaning they usually occur in wetlands, but may occur in non-wetlands (67% to 99% in wetlands), according to the standard reference for plant wetlands indicators: *State of California 2016 Wetland Plant List* (Lichvar et al. 2016). The plant indicator categories were developed by the USFWS and are found in the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987).

As the Coastal dune willow thickets are Facultative Wetland plants they may be considered one-parameter wetlands by the California Coastal Commission. The dripline of the willows was mapped and this line is the western boundary of the one-parameter wetland, per the California Coastal Commission definition for areas having wetland type vegetation. Figure 5 shows the dripline of the one-parameter wetland and the field survey boundary line (which is five feet from the existing fence line that will be replaced). The willows are rooted outside of the area where impacts are anticipated (and outside of the field survey extent). The willow dripline extends all the way to the fence in some locations, while in other locations the dripline is between five to seven feet east of the existing fence. Most, if not all of the willows will be trimmed in order to replace the existing fence (but none will be removed).



Projects affecting wetlands must conform to Section 30233 of the Coastal Act and the Humboldt Bay Area Plan under Humboldt County's Local Coastal Program. Section 30233 of the Coastal Act and Section 3.30 of the Humboldt Bay Area Plan place restrictions on permitting for the diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes (County of Humboldt 2014). The proposed replacement of the fence around the treatment ponds does not include any diking or filling of wetlands and is therefore an allowable activity under the Coastal Act and the Humboldt County Local Coastal Program. Although the new fence post anchor holes will be filled with concrete, this work will occur along the existing alignment after the old fence is removed. The new fence alignment will be moved to the interior of the alignment if needed, to avoid any impacts to the one-parameter wetlands other than trimming the willows.

6.2.1 Summary of Sensitive Biological Resources

Plants

There are two federal and state listed endangered dune plant species that have a moderate potential of occurring in the Study Area discussed in Section 6.2.2. and addressed further in the project's Biological Assessment. There are eight additional species that are considered California State Special Status Species that have a moderate probability of occurring within the project area discussed in Section 6.2.3.

Wildlife

The project area may serve as nesting and foraging habitat for many common avian species protected under the Migratory Bird Treaty Act. In addition, several California state special status avian, bat, and amphibian species have moderate potential to occur in or directly adjacent to the project area or have potential to disperse through the project area (discussed further in Section 6.1.3). As no aquatic habitat (streams, or drainage ditches) is present within the project area, no special status fish species have potential to occur at the project site.

6.2.2 Listed or Candidate Species (Under ESA and/or CESA)

Based on database searches, historical records, and a review of the primary literature, there are two federal and state listed endangered plant species that have a moderate potential of occurring in the Study Area. These species are Menzies' wallflower (*Erysimum menziesii*) and beach layia (*Layia carnosa*). These species are addressed further in the Biological Assessment. Both species occur in coastal dune environments near the project site and may be present within the project area. Neither species was observed during the special status plant survey of May 3, 2019. Impacts to potential habitat for these species is anticipated to be limited to one foot outside of the existing fence line where new fence posts may be installed.

6.2.3 Special Status Species (CDFW FP, CDFW SSC, CDFW Special Animals List, or CRPR Ranked)

The CDFW maintains a list of species and habitats of special concern. These are broadly defined as species that are of concern to the CDFW because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California.



State Species of Special Concern include those plants and wildlife species that have not been formally listed, yet are proposed or may qualify as endangered or threatened, or are candidates for such listing under the California Endangered Species Act. This affords protection to both listed species and species proposed for listing. In addition, United States Fish and Wildlife Service Birds of Conservation Concern and CDFW special-status invertebrates are considered special status species by CDFW.

Plant species on California Native Plant Society's (CNPS) California Rare Plant Ranking (CRPR) Lists 1A, 1B and 2A and 2B are considered eligible for state listing as endangered or threatened pursuant to the California Fish and Game Code and CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California Fish and Game Code. There are occasions where CRPR List 3 or 4 species might be considered of special concern particularly for the type locality of a plant, for populations at the periphery of a species range, or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories. Additionally, there are 64 plant species designated as "rare" which is a special designation created before plants were rolled into CESA in the 1980s (CDFW 2019c). Also under the jurisdiction of CDFW and considered Sensitive are Natural Communities with a State ("S") ranking of S1 through S3 on the California Sensitive Natural Communities List (CDFW 2019a).

Based on database searches, historical records, and an overview of the primary literature, the following special status species have a moderate to high potential of occurring in the Study Area.

Plants

A special status plant survey occurred around the MCSD treatment ponds fence line on May 3, 2019 and no special status plant species were observed. Other than beach layia and Menzies' wallflower, the two plant species that are considered endangered at both the state and federal level, eight additional species that are considered California State Special Status Species have a moderate probability of occurring within the project area. These include pink sand-verbena (*Abronia umbellata* var. *breviflora*), coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), twisted horsehair lichen (*Bryoria spiralifera*), Lyngbye's sedge (*Carex lyngbyei*), Humboldt Bay owl's clover (*Castilleja ambigua* var. *humboldtiensis*), Point Reyes salty bird's beak (*Chloropyron maritimum* ssp. *palustre*), dark-eyed gilia (*Gilia millefoliata*), and Wolf's evening-primrose (*Oenothera wolfii*). Information about these species is included in the CNDDb, CNPS, IPaC, and NMFS Combined Reporting Table found in Appendix A.

Insects

Obscure Bumble Bee (Bombus caliginosus), California State Special Status Species, Moderate Potential

The project site falls within the current documented range of the Obscure Bumble Bee and includes fog-belt coastal habitat preferred by the species (Hatfield et al. 2014). Preferred plants for foraging (such as *Grindelia* sp., *Baccharis* sp., and *Lupinus* sp.) are present adjacent to the project site. California Department of Fish and Wildlife records have documented the species in Humboldt



County (CDFW 2019b). In addition, the species was recorded during *Bombus* surveys on the North Spit of Humboldt Bay and Lanphere Dunes in 2010 (Julian 2012). Based on the location of the project site, the presence of host plants in the area, and recent documented presence of the species in Humboldt County, the Obscure Bumble Bees has a moderate likelihood of occurring at the project site.

Amphibians

Northern Red-legged Frog (Rana aurora), State Species of Special Concern, Moderate Potential

Northern Red-legged Frogs occur along the west coast of N. America from British Columbia to California. The geographic range split between the Northern and California Red-legged Frog species occurs just south of Elk Creek in Mendocino County where both species overlap (AmphibiaWeb 2019, California Herps 2019). Northern Red-legged Frogs are typically found near freshwater sources (e.g., wetlands, ponds, streams, etc.). However, they can range widely and inhabit damp places far from water. Northern Red-legged Frogs reproduce in water from December to February in Humboldt County, with some breeding occurring as late as March. Preferred egg laying locations are in “vegetated shallows with little water flow in permanent wetlands and temporary pools” (California Herps 2019). Northern Red-legged Frogs are relatively common in and near-coastal portions of Humboldt County and historical records have documented the species near the project area (AmphibiaWeb 2019). This being the case, Northern Red-legged Frogs have a moderate chance of occurring at the project site.

Birds

Although Manila Beach (directly adjacent to the project area) serves as nesting, foraging, and wintering habitat for the Western Snowy Plover (Federally Threatened and State Species of Special Concern), the limited strip of hind-dune habitat bordering the MSCD fence does not constitute suitable habitat for the species. Western Snowy Plovers have low potential of occurring in the project area. However, this species is addressed further in the project’s Biological Assessment.

Great Egret (Ardea alba), California State Special Status Species, Moderate Potential

Great Egrets are year-round residents in western California, with breeders concentrated in the Klamath and Warner basin in Siskiyou and Modoc Counties, along the coast in Humboldt County, the San Francisco Bay area, Monterey County, the Salton Sea, and the Central Valley. In term of habitat, they favor wetlands, estuaries, lakes, rivers, ponds, swamps, streams, marshes, and tidal flats. Great Egrets utilize a variety of substrates for nesting including trees, woody vegetation, or artificial nest platforms. Nests platforms are typically constructed of locally available sticks and greenery. Great Egrets nest communally with conspecifics or in mixed-species colonies. They are opportunistic foragers, wading in shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals (Mccrimmon Jr. et al. 2011). The project site could serve as foraging habitat for Great Egrets. However, the lack of large nest trees on the property restricts the chance of breeding onsite. Based on available data, the presence of any established colonies at the site is unlikely. However, based on historical records and available habitat, the species has a moderate potential to be present and forage within the project area.



Great Blue Heron (Ardea herodias), California State Special Status Species, Moderate Potential

Great Blue Herons are year-round residents in the majority of coastal and central California. Notable exceptions include the Sierras and the very southeastern desert regions of the state. Great Blue Herons are extremely adaptable to a variety of habitats including most saltwater and freshwater bodies, agricultural land, swamps, wetlands, as well as commercial and residential areas such as golf courses. Nesting habitat includes trees, bushes, or artificial structures. Nests platforms are typically constructed out of locally available sticks and lined with material such as grass, moss, and reeds. Great Blue Herons are colonial nesters. They are opportunistic foragers, wading in shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals. Additionally, they are known to scavenge carrion (Vennesland and Butler 2011). The project site does contain potential foraging habitat for Great Blue Herons. However, the lack of large nest trees on the property restricts the chance of breeding onsite. Based on available data, the presence of any established colonies at the site is unlikely. However, based on historical records and available habitat, the species has a moderate potential to be present and forage within the project area.

Snowy Egret (Egretta thula), California State Special Status Species, Moderate Potential

Snowy Egrets were hunted to the brink of extinction by the plume trade at the end of the 19th and beginning of the 20th century. However, many populations rebounded after the Migratory Bird Treaty Act was passed in 1918. Year-round populations of Snowy Egrets are found around Humboldt Bay, the San Francisco Bay area, the Central Valley, and the Salton Sea. Wintering populations are also present along much of the rest of the California coast. Snowy Egrets prefer riparian and estuarine areas, marshes, wet meadows, inland lakes, and river courses. Snowy Egrets construct stick nest platforms in a variety of tree and shrub species including: willows, holly, birch, and wax myrtle. Nests are lined with reeds, grasses, and moss. Snowy Egrets are colonial nesters, with colonies comprised of both conspecifics and allospecifics. Snowy Egrets hunt in shallow water and on shore, frequently making use of their distinctly yellow feet to attract and capture prey items. Prey includes fish, amphibians, snakes, lizards, crustaceans, insects, and worms (Parsons and Master 2000). The project site does contain potential foraging habitat for Snowy Egrets. Based on available data, the presence of any established colonies at the site is unlikely. However, based on historical records and available habitat, the species has a moderate potential to be present and forage within the project area.

Black-crowned Night Heron (Nycticorax nycticorax), California State Special Status Species, Moderate Potential

Black-crowned Night Herons are year-round residents in much of California, with notable exceptions in the Sierras, Central Valley, and the arid southeast portion of the state. These herons can be found in a wide variety of habitats adjacent to water bodies including urban, wetland, partially forested, and agricultural landscapes. Black-crowned Night Herons are colonial nesters, building platform stick nests in trees, reeds, cattails, bushes, or on the ground. As opportunistic feeders, Black-crowned Night Herons eat fish, insects, mammals, birds, carrion, trash, clams, crayfish, turtles, and many other food items (Hothem et al. 2010). Based on available data, the presence of any established colonies at the site is unlikely. However, based on historical records and available habitat, the species has a moderate potential to be present and forage within the project area.



Mammals

*Townsend's Big-eared Bat (*Corynorhinus townsendii*), California State Species of Special Concern, Moderate Potential*

Townsend's Big-eared Bats are medium-sized bats, distinguished from other co-occurring bat species by their large ears and a two-pronged horseshoe-shaped lump on the muzzle. The species occurs throughout the western U.S. and Canada. In California, the species is found throughout the state with the exception of the high elevations in the Sierra Nevada Mountain Range (CDFW 2016). Townsends' Big-eared Bats are typically associated with coastal Redwood forests, foothill oak woodlands, inland deserts, pinyon-juniper and pine forests, and mixed coniferous-deciduous forests (Erickson et al. 2002, CDFW 2016). The species roosts colonially in a variety of structures including hollow trees, buildings (barns), mines, and lava tubes. Roost site fidelity is high. Maternity colonies (of females) occur between March and June (CDFW 2016). Males roost singly (Erickson et al. 2002). Females give birth to a single pup per year between May and July. The species winters in mixed sex groups in caves and lava tubes. Townsend's Big-eared Bats feed primarily on moths (Erickson et al. 2002, CDFW 2016).

There are no records of the species from the immediate project area. The closest known record is from 2014 at Lanphere Dunes (BatAMP 2019). It is unknown whether the species may roost on the structures in the project vicinity and would require surveys to confirm. Foraging habitat for the species could be present in the project vicinity. The species may forage in the project vicinity if residential lights attract suitable prey (moths).

*Long-eared Myotis (*Myotis evotis*), California State Species of Special Concern, Moderate Potential*

The Long-eared Myotis is found throughout California and commonly associated with high desert, mixed coniferous/hardwood forests, pinyon-juniper, mesquite scrub, pine/oak woodland, sequoia forests, and residential areas (Erickson et al. 2002). The species roosts in low densities in trees, rocks, mines, buildings, bridges, and caves. Caves in Northern California serve as winter hibernacula (Erickson et al. 2002).

Females from small maternity colonies during the summer and give birth from one pup from June through July each year (NatureServe 2019). The Long-eared Myotis is a hovering gleaner and feeds on a variety of insects including moths, flies, and beetles by plucking prey from foliage or off the ground (Western Bat Working Group 2017).

There are no records of the species from the immediate project area, but several records are known from the vicinity of Arcata and Humboldt Bay (CDFW 2019b, iNaturalist 2019). It is unknown whether the species may roost on the structures in the project vicinity and would require surveys to confirm. Foraging habitat for the species could be present in the project vicinity. The species may forage in the project vicinity.

6.3 Critical Habitat

No critical habitat has been designated for federally listed species within the project area.



6.4 Essential Fish Habitat

Essential fish habitat is designated for species managed in Fisheries Management Plans under the MSA. EFH applies to species within the vicinity of the proposed Project. No EFH is present within the project area and no impacts to EFH will occur

7. Summary of Potential Impacts and Conservation Measures

Potential impacts will be addressed in detail in environmental review documents (FESA Biological Assessment) and associated permit applications. In general, impacts are expected to be minimal, with no measureable effect on sensitive wildlife or plant species or habitats. In addition, project activities are localized and temporary and are not expected to result in any long term or significant impacts to plants or wildlife.

To the extent practical, impacts will be avoided or minimized as described below.

7.1 Proposed Conservation Measures

7.1.1 Migratory Birds

Clearing of shrubs or other vegetation, if necessary for construction or maintenance, shall be conducted if possible during the fall and/or winter months from August 16 to March 14th, outside of the active bird breeding season for Northern California. If vegetation removal or ground disturbance cannot be confined to work during the non-breeding season, the MCSD shall have a qualified biologist conduct pre-construction surveys within the vicinity of the impact area, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special-status bird species. The biologist shall conduct a minimum of one day pre-construction survey within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the breeding season, a qualified biologist shall conduct a supplemental avian pre-construction survey before project work is reinitiated.

If active nests are detected within the construction footprint or within 500 feet of construction activities, the biologist shall flag a buffer around each nest. Construction activities shall avoid nest sites until the biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 500 feet of the construction area, buffers will be implemented as needed. In general, the buffer size for common species would be determined on a case-by-case basis in consultation with the CDFW. The buffer size for sensitive species would be 300 feet and the buffer size for raptors would be 500 feet, if deemed appropriate in coordination with the CDFW.

Buffer sizes will take into account factors such as (1) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (2) distance and amount of vegetation or other screening between the construction site and the nest; and (3) sensitivity of individual nesting species and behaviors of the nesting birds.



7.1.2 Special-status Amphibians

No more than one week prior to commencement of ground disturbance within 50 feet of suitable northern red-legged frog habitat, a qualified wildlife biologist shall perform a preconstruction survey for the northern red-legged frog and shall relocate any specimens that occur within the work -impact zone to nearby suitable habitat.

In the event that a northern-red legged frog is observed in an active construction zone, the contractor shall halt construction activities in the area where observed and the frogs shall be moved to a safe location in similar habitat outside of the construction zone.

7.1.3 Avoid Beach Layia and Menzies' Wallflower

A pre-construction survey shall be conducted prior to the beginning of ground disturbing work and at the appropriate season to confirm the absence of the state and federally endangered beach layia and Menzies' wallflower. If any beach layia or Menzies' wallflower are located during the survey, flagging or exclusion fencing shall be installed around all beach layia and Menzies' wallflower within 10 feet of construction limits. Locations of fencing shall be identified and flagged by a qualified biologist and installed while the biologist is present. The fencing shall be inspected weekly for the duration of construction to ensure that the fencing remains installed properly. Direct impacts to beach layia and Menzies' wallflower will be avoided.

7.1.4 Avoid Special Status Plants

Conservation measures for special status plant species other than beach layia and Menzies' wallflower are addressed collectively for all species. Significant impacts to special-status plant species present or likely to be present onsite shall be minimized, avoided, and (if necessary) compensated by complying with the following:

- Pre-construction surveys: Seasonally appropriate pre-construction surveys for special status plant species shall occur prior to construction within the planned area of disturbance for the project, during the appropriate blooming time (spring or summer) for the target species. Survey methods shall comply with CDFW rare plant survey protocols, and shall be performed by a qualified field botanist. Surveys shall be modified to include detection of juvenile (pre-flowering) colonies of perennial species when necessary. Any populations of special-status plant species that are detected shall be mapped. Populations shall be flagged if avoidance is feasible and if populations are located adjacent to construction areas.
- The locations of any special status plant populations to be avoided shall be clearly identified in the contract documents (plans and specifications).
- If special-status plant populations are detected where construction would have unavoidable impacts, a compensatory conservation plan shall be prepared and implemented in coordination with CDFW. Such plans may include salvage, propagation, on-site reintroduction in restored habitats, and monitoring.



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Appendix A - CNDDB, IPaC, CNPS, NMFS, Combined Report Table

SciName	ComName	Taxon Group	Fed List	Cal List	GRank	SRank	RPI Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
Mammals													
<i>Apodonta rufa humboldtiana</i>	Humboldt Mountain Beaver	Mammals	N	N	G5TNR	SNR				Coastal scrub Redwood Riparian forest	Coast Range in southwestern Del Norte County and northwestern Humboldt County.	Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	No potential. No coastal scrub or riparian forest in present in the project vicinity.
<i>Arborimus albipes</i>	White-footed Vole	Mammals	N	N	G3G4	S2			CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	North coast coniferous forest Redwood Riparian forest	Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs.	Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.	No Potential. Extremely rare species with a highly restricted range in California. Most records from riparian habitats associated with humid old growth redwood forests. No records from CDFW in the immediate vicinity of the project site.
<i>Arborimus pomo</i>	Sonoma Tree Vole	Mammals	N	N	G3	S3			CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	North coast coniferous forest Oldgrowth Redwood	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	No Potential. No coniferous forest habitat present on or adjacent to project site.
<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	Mammals	N	N	G3G4	S2			BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	Broadleaved upland forest Chaparral Chenopod scrub Great Basin grassland Great Basin scrub Joshua tree woodland Lower montane coniferous forest Meadow & seep Mojavean desert scrub Riparian forest Riparian woodland Sonoran desert scrub Sonoran thorn woodland Upper montane coniferous forest Valley & foothill grassland	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Moderate Potential. No records of the species from the immediate area. Closest known record is from 2014 at Lanphere dunes. Unknown whether the species is roosting on the structures in the project vicinity and would require surveys to confirm. Foraging habitat for the species could be present in the project vicinity. Species roosts in a variety of structures includes hollow trees, buildings (barns), and lava tubes and winters in caves. The species may forage in the project vicinity if residential lights attract suitable prey (moths).
<i>Erethizon dorsatum</i>	North American Porcupine	Mammals	N	N	G5	S3			IUCN_LC-Least Concern	Broadleaved upland forest Cismontane woodland Closed-cone coniferous forest Lower montane coniferous forest North coast coniferous forest Upper montane coniferous forest	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.	No potential. No riparian forest/coniferous forest or woodland habitat present in the project area.
<i>Martes caurina humboldtensis</i>	Humboldt Marten	Mammals	N	SE	G5T1	S1			CDFW_SSC-Species of Special Concern USFS_S-Sensitive	North coast coniferous forest Oldgrowth Redwood	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	No Potential. No suitable old growth coniferous forest habitat (for foraging and denning) is present on or directly adjacent to the project site.
<i>Myotis evotis</i>	Long-eared Myotis	Mammals	N	N	G5	S3			BLM_S-Sensitive IUCN_LC-Least Concern WBWG_M-Medium Priority		Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.	Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Moderate Potential. Roosts in low densities in trees, rocks, and caves. Species is highly correlated with oak forests. The species can be found in residential areas and may forage in the project vicinity.

SciName	ComName	Taxon Group	Fed List	Cal list	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Pekania pennanti</i>	Fisher - West Coast DPS	Mammals	PT	ST	G5T3Q	S2S3			BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	North coast coniferous forest Oldgrowth Riparian forest	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	No Potential. No suitable old growth coniferous forest habitat (for foraging and denning) is present on or directly adjacent to the project site.
Birds													
<i>Accipiter striatus</i>	Sharp-shinned Hawk	Birds	N	N	G5	S4			CDFW_WL-Watch List IUCN_LC-Least Concern	Cismontane woodland Lower montane coniferous forest Riparian forest Riparian woodland	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	Low Potential. There is no suitable forested breeding or foraging habitat on or directly adjacent to the project site.
<i>Ardea alba</i>	Great Egret	Birds	N	N	G5	S4			CDF_S-Sensitive IUCN_LC-Least Concern	Brackish marsh Estuary Freshwater marsh Marsh & swamp Riparian forest Wetland	Colonial nester in large trees.	Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	Moderate Potential. Known rookery sites on Indian and Woodley Islands. Numerous records of the species adjacent to the project site (most likely a foraging location).
<i>Ardea herodias</i>	Great Blue Heron	Birds	N	N	G5	S4			CDF_S-Sensitive IUCN_LC-Least Concern	Brackish marsh Estuary Freshwater marsh Marsh & swamp Riparian forest Wetland	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Moderate Potential. There are species records from the project vicinity and requisite foraging habitat may be present.
<i>Brachyramphus marmoratus</i>	Marbled Murrelet	Birds	FT	ST	G3G4	S1			CDF_S-Sensitive IUCN_EN-Endangered NABCI_RWL-Red Watch List	Lower montane coniferous forest Oldgrowth Redwood	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	Low Potential. No suitable old growth coniferous forest habitat (for nesting) is present on directly adjacent project site. However, the species may fly over the project site on the way to foraging habitat (Humboldt Bay/the Pacific Ocean).
<i>Charadrius nivosus nivosus</i>	Western Snowy Plover	Birds	FT	N	G3T3	S2S3			CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List USFWS_BC C-Birds of Conservation Concern	Great Basin standing waters Sand shore Wetland	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	Low Potential. Habitat for this species exists at nearby coastal beaches, but no nesting or foraging habitat for this species is present at the project site (i.e. project site is limited to disturbed or paved areas in the town of Manila).
<i>Charadrius montanus</i>	Mountain Plover	Birds	N	N	G3	S2S3			BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BC C-Birds of Conservation Concern	Chenopod scrub Valley & foothill grassland	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms.	Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Low Potential. No habitat present for this species in the project area. Closest known records (rare) from Arcata Bottoms (V Steet Loop).

SciName	ComName	Taxon Group	Fed List	Cal list	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Circus hudsonius</i>	Northern Harrier	Birds	N	N	G5	S3			CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Coastal scrub Great Basin grassland Marsh & swamp Riparian scrub Valley & foothill grassland Wetland	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.	Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Low Potential. No marsh or grassland areas exist on the project site (paved road) that could serve as foraging or nesting habitat. Species common in the project vicinity however. Species could fly over the project site on the way to foraging or nesting areas.
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	Birds	FT	SE	G5T2T3	S1			BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BC C-Birds of Conservation Concern	Riparian forest	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.	Low Potential. Although suitable riparian habitat may be present for the species adjacent to the project site, there are no records of this species from the project vicinity and the riparian habitat is considered marginal.
<i>Coturnicops noveboracensis</i>	Yellow Rail	Birds	N	N	G4	S1S2			CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BC C-Birds of Conservation Concern	Freshwater marsh Meadow & seep	Summer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.	No Potential. No habitat for this species in the project area. Most recent record (rare incidental) was from a cat-caught individual near the Blue Ox in Eureka.
<i>Egretta thula</i>	Snowy Egret	Birds	N	N	G5	S4			IUCN_LC-Least Concern	Marsh & swamp Meadow & seep Riparian forest Riparian woodland Wetland	Colonial nester, with nest sites situated in protected beds of dense tules.	Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Moderate Potential. Known rookery sites on Indian and Woodley Islands. Numerous records of the species adjacent to the project site (most likely a foraging location).
<i>Elanus leucurus</i>	White-tailed Kite	Birds	N	N	G5	S3S4			BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	Cismontane woodland Marsh & swamp Riparian woodland Valley & foothill grassland Wetland	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Low Potential. No marsh or grassland areas exist on the project site (paved road) that could serve as foraging or nesting habitat. Species common in the project vicinity however, and likely to occur at nearby . Species could fly over the project site on the way to foraging or nesting areas.
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Birds	FD	SE	G5	S3			BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BC C-Birds of Conservation Concern	Lower montane coniferous forest Oldgrowth	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Low Potential. Bald Eagles could forage in ocean adjacent the site but suitable large nesting trees likely not available onsite.

SciName	ComName	Taxon Group	Fed List	Cal list	GRank	SRank	RPI Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	Birds	N	N	G5	S4			IUCN_LC-Least Concern	Marsh & swamp Riparian forest Riparian woodland Wetland	Colonial nester, usually in trees, occasionally in tule patches.	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	Moderate Potential. Known rookery sites on Indian and Woodley Islands. Numerous records of the species adjacent to the project site (most likely a foraging location).
<i>Pandion haliaetus</i>	Osprey	Birds	N	N	G5	S4			CDFW_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern	Riparian forest	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Low Potential. Bald Eagles could forage in ocean adjacent the site but suitable large nesting trees likely not available onsite.
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	Birds	N	N	G5	S4			CDFW_WL-Watch List IUCN_LC-Least Concern	Riparian forest Riparian scrub Riparian woodland	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state.	Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	Low Potential. Site does not contain suitable foraging or nesting habitat. However, species may fly over site however on way to foraging habitat (Pacific Ocean).
<i>Phoebastria albatrus</i>	Short-tailed Albatross	Birds	FE	N	G1	S1			CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable NABCI_RWL-Red Watch List	Offshore Japanese Islands Northern Pacific Ocean Sea of Okhotsk	Islands with bare ground/grass surrounded by cliffs	Nests consist of large scoops lined with grass in open, grassy areas. Forages at upwellings in the ocean.	No Potential. Species is extremely rare along the west coast of the U.S. (non-breeding season only). Only breeds on offshore islands in Japan and recently Midway atoll.
<i>Rallus obsoletus obsoletus</i>	California Ridgway's Rail	Birds	FE	SE	G5T1	S1			CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	Brackish marsh Marsh & swamp Salt marsh Wetland	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. The last Ridgway's Rail breeding population documented in Humboldt County was in 1932 at the mouth of the Mad River . No records of the species have been documented since then. The species was extirpated from this area most likely as the result of tidal marsh habitat loss.
<i>Riparia riparia</i>	Bank Swallow	Birds	N	ST	G5	S2			BLM_S-Sensitive IUCN_LC-Least Concern	Riparian scrub Riparian woodland	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Low Potential. No available muddy banks/cliffs present for nesting habitat at the project site. Closest known recent breeding records from Arcata Bottoms.
<i>Strix occidentalis caurina</i>	Northern Spotted Owl	Birds	FT	ST	G3T3	S2S3			CDFW_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_YWL-Yellow Watch List	North coast coniferous forest Oldgrowth Redwood	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees.	High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	No Potential. No suitable old growth coniferous forest habitat (for foraging and nesting) is present on or directly adjacent to the project site.
Reptiles													
<i>Chelonia mydas</i>	Green Sea Turtle aka East Pacific Green Sea Turtle	Reptiles	FT	N	G3	S1			IUCN_EN-Endangered	Marine bay	Marine.	Completely herbivorous; needs adequate supply of seagrasses and algae.	No Potential. No marine habitat is present in the project area.
<i>Dermochelys coriacea</i>	Leatherback Sea Turtle	Reptiles	FE	N	G2				IUCN_CR-Critically Endangered	Marine	Marine	Open ocean. Also seas, gulfs, bays, and estuaries. Seldom approaches land except for nesting.	No Potential. No marine habitat is present in the project area.

SciName	ComName	Taxon Group	Fed List	Cal list	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Lepidochelys olivacea</i>	Olive Ridley Sea Turtle	Reptiles	FE	N	G3				IUCN_VU-Vulnerable	Marine	Marine	Tropical and subtropical waters including protected, shallow, marine and estuarine waters, bays and lagoons, to offshore areas. Nesting occurs on upper beaches.	No Potential. No marine habitat is present in the project area.
<i>Emys marmorata</i>	Western Pond Turtle	Reptiles	N	N	G3G4	S3			BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	Aquatic Artificial flowing waters Klamath/North coast flowing waters Klamath/North coast standing waters Marsh & swamp Sacramento/San Joaquin flowing waters Sacramento/San Joaquin standing waters South coast flowing waters South coast standing waters Wetland	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	No Potential. No suitable creeks, marshes, or permanent ponds (with the exception of wastewater treatment ponds) occur at or directly adjacent to the project site.
Amphibians													
<i>Ascaphus truei</i>	Pacific Tailed Frog	Amphibians	N	N	G4	S3S4			CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Aquatic Klamath/North coast flowing waters Lower montane coniferous forest North coast coniferous forest Redwood Riparian forest	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	No Potential. No suitable coniferous forest and rocky stream/creekbed habitat on or directly adjacent to project site.
<i>Rana aurora</i>	Northern Red-legged Frog	Amphibians	N	N	G4	S3			CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Klamath/North coast flowing waters Riparian forest Riparian woodland	Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Moderate Potential. Willow hollows and seasonal wetlands present adjacent to the project site. Species likely to disperse through habitat adjacent to the project area.
<i>Rana boylei</i>	Foothill Yellow-legged Frog	Amphibians	N	SC	G3	S3			BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	Aquatic Chaparral Cismontane woodland Coastal scrub Klamath/North coast flowing waters Lower montane coniferous forest Meadow & seep Riparian forest Riparian woodland Sacramento/San Joaquin flowing waters	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	No potential. No lower montane coniferous forest/riparian forest and suitable rocky creek/stream habitat on or directly adjacent to project site.
<i>Rhyacotriton variegatus</i>	Southern Torrent Salamander	Amphibians	N	N	G3G4	S2S3			CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Lower montane coniferous forest Oldgrowth Redwood Riparian forest	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	No Potential. No lower montane coniferous forest and suitable stream habitat on or directly adjacent to project site.
Fish													

SciName	ComName	Taxon Group	Fed List	Cal list	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Acipenser medirostris</i>	Green Sturgeon - SDPS	Fish	FT	N	G3	S1S2			AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NMFS_SC-Species of Concern	Aquatic Klamath/North coast flowing waters Sacramento/San Joaquin flowing waters	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers.	Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	No Potential. No aquatic/riverine or tidal habitat occurs within the project area.
<i>Entosphenus tridentatus</i>	Pacific lamprey	Fish	N	N	G4	S4			AFS_VU-Vulnerable BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Aquatic Klamath/North coast flowing waters Sacramento/San Joaquin flowing waters South coast flowing waters	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining.	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.	No Potential. No aquatic/riverine occurs within the project area.
<i>Eucyclogobius newberryi</i>	Tidewater Goby	Fish	FE	N	G3	S3			AFS_EN-Endangered CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	Aquatic Klamath/North coast flowing waters Sacramento/San Joaquin flowing waters South coast flowing waters	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 brackish water/lagoon habitat falls within the project area.
<i>Oncorhynchus clarkii clarkii</i>	Coast Cutthroat Trout	Fish	N	N	G4T4	S3			AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Aquatic Klamath/North coast flowing waters	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	No Potential. No rivers or streams fall within the project area.
<i>Oncorhynchus kisutch pop. 2</i>	Coho Salmon - southern Oregon / northern California ESU	Fish	FT	SE	G4	S2?			AFS_EN-Endangered	Aquatic	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda.	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.	No Potential. No rivers, streams, or bay habitat fall within the project area.
<i>Oncorhynchus mykiss irideus</i>	Steelhead - northern California DPS	Fish	FT	N	G5T2T3Q	S2S3			AFS_TH-Threatened	Aquatic Sacramento/San Joaquin flowing waters	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.		No Potential. No aquatic/riverine or estuarine habitat occurs within the project area.
<i>Oncorhynchus tshawytscha</i>	Chinook Salmon - California Coastal ESU	Fish	FT	N	G5	S1			AFS_TH-Threatened	Aquatic Sacramento/San Joaquin flowing waters	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co		No Potential. No aquatic/riverine or estuarine habitat occurs within the project area.

SciName	ComName	Taxon Group	Fed List	Cal List	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Spirinchus thaleichthys</i>	Longfin Smelt	Fish	FC	ST	G5	S1			CDFW_SSC-Species of Special Concern	Aquatic Estuary	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	No Potential. No aquatic/riverine or estuarine habitat occurs within the project area.
<i>Thaleichthys pacificus</i>	Eulachon	Fish	FT	N	G5	S3				Aquatic Klamath/North coast flowing waters	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries.	Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	No Potential. No aquatic/riverine or estuarine habitat occurs within the project area.
Mollusks													
<i>Anodonta californiensis</i>	California floater	Mollusks	N	N	G3Q	S2?			USFS_S-Sensitive	Aquatic	Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists.	Generally in shallow water.	No Potential. No aquatic/riverine habitat occurs within the project area.
<i>Margaritifera falcata</i>	Western Pearlshell	Mollusks	N	N	G4G5	S1S2				Aquatic	Aquatic.	Prefers lower velocity waters.	No Potential. No aquatic/riverine habitat occurs within the project area.
Insects													
<i>Bombus occidentalis</i>	Western Bumble Bee	Insects	N	N	G2G3		S1		USFS_S-Sensitive XERCES_IM-Imperiled		Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.		Low Potential. Although the project site falls within the species pre-2002 range (according to ICUN Redlist), the range has contracted significantly in the last decade and now only includes the intermountain west and cascade regions of the US.
<i>Bombus caliginosus</i>	Obscure Bumble Bee	Insects	N	N	G4?	S1S2			IUCN_VU-Vulnerable		Coastal areas from Santa Barbara county to north to Washington state.	Food plant genera include <i>Baccharis</i> , <i>Cirsium</i> , <i>Lupinus</i> , <i>Lotus</i> , <i>Grindelia</i> and <i>Phacelia</i> .	Moderate Potential. Project site falls within the species current range (according to ICUN Redlist). In addition, the project site is within the coastal fog belt (preferred ecoregion). Host plants are present in project vicinity.
<i>Cicindela hirticollis gravida</i>	Sandy Beach Tiger Beetle	Insects	N	N	G5T2	S2				Coastal dunes	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	No Potential. Last historical record from Humboldt County was in the early 1900s. The species is believed to be extirpated from the area with known extant populations only in Marin, San Luis Obispo, Ventura, Santa Barbara, and San Diego counties in California.
Plants													
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	Dicots	N	N	G4G5T2	S2	1B.1	perennial herb	BLM_S-Sensitive	Coastal dunes	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. <i>A. umbellata</i> var. <i>breviflora</i> is usually the plant closest to the ocean. 0-75 m.	Moderate Potential. Species is known from near the project area. Very limited areas of dune habitat with native species are present and very limited impacts are expected to dune habitat.
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	Dicots	N	N	G2T2	S2	1B.2	perennial herb	BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes Coastal scrub Marsh & swamp Wetland	Coastal dunes, marshes and swamps, coastal scrub.	Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.	Moderate Potential. Species is known from near the project area. Limited areas of dune habitat with native species are present and very limited impacts are expected to dune habitat. Limited coastal scrub vegetation is present.
<i>Bryoria spiralifera</i>	twisted horsehair lichen	Lichens	N	N	G3	S1S2	1B.1	fruticose lichen (epiphytic)		North coast coniferous forest	North coast coniferous forest.	Usually on conifers. 0-30 m.	Moderate Potential. This species is known from near the project area. Beach pine, Sitka spruce, and other coniferous trees occur within the project area. However no trees will be impacted by this project.
<i>Cardamine angulata</i>	seaside bittercress	Dicots	N	N	G4G5	S3	2B.1	perennial herb		Lower montane coniferous forest North coast coniferous forest Wetland	North coast coniferous forest, lower montane coniferous forest.	Wet areas, streambanks. 90-155 m.	No Potential. Neither lower montane nor North coast coniferous forest is present.

SciName	ComName	Taxon Group	Fed List	Cal list	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Carex arcta</i>	northern clustered sedge	Monocots	N	N	G5	S1	2B.2	perennial herb		Bog & fen North coast coniferous forest Wetland	Bogs and fens, north coast coniferous forest.	Mesic sites. 60-1405 m.	No Potential. North coast coniferous forest is not present. Bogs and fens are not present. Some wetlands are present within project area but no work is occurring within wetlands.
<i>Carex leptalea</i>	bristle-stalked sedge	Monocots	N	N	G5	S1	2B.2	perennial rhizomatous herb		Bog & fen Freshwater marsh Marsh & swamp Meadow & seep Wetland	Bogs and fens, meadows and seeps, marshes and swamps.	Mostly known from bogs and wet meadows. 3-1395 m.	No Potential. Bogs and fens are not present. Wet meadows are not present. Some wetlands are present within project area but no work is occurring within wetlands.
<i>Carex lyngbyei</i>	Lyngbye's sedge	Monocots	Non e	Non e	G5	S3	2B.2	perennial rhizomatous herb		Marsh & swamp Wetland	Marshes and swamps (brackish or freshwater).	0-200 m.	Moderate Potential. This species is known from near the project area. The project area includes some wetlands, however no project impacts are anticipated within the wetlands.
<i>Carex praticola</i>	northern meadow sedge	Monocots	N	N	G5	S2	2B.2	perennial herb		Meadow & seep Wetland	Meadows and seeps.	Moist to wet meadows. 15-3200 m.	Low Potential. No meadow habitat is present.
<i>Castilleja ambigua</i> var. <i>humboldtensis</i>	Humboldt Bay owl's-clover	Dicots	N	N	G4T2	S2	1B.2	annual herb (hemiparasitic)	BLM_S-Sensitive	Marsh & swamp Salt marsh Wetland	Marshes and swamps.	In coastal saltmarsh with Spartina, Distichlis, Salicornia, Jaumea. 0-20 m.	Moderate Potential. The project area includes some wetlands, however no project impacts are anticipated within the wetlands.
<i>Castilleja litoralis</i>	Oregon coast paintbrush	Dicots	Non e	Non e	G3	S3	2B.2	perennial herb (hemiparasitic)		Coastal bluff scrub Coastal dunes Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.	Low Potential. Very limited areas of dune habitat with native vegetation are present and some coastal scrub vegetation is present. Only very limited impacts to dunes and coastal scrub habitat are expected.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	Dicots	N	N	G4?T2	S2	1B.2	annual herb (hemiparasitic)	BLM_S-Sensitive	Marsh & swamp Salt marsh Wetland	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-115 m.	Moderate Potential. The project area includes some wetlands, however no project impacts are anticipated within the wetlands.
<i>Collinsia corymbosa</i>	round-headed Chinese-houses	Dicots	N	N	G1	S1	1B.2	annual herb		Coastal dunes	Coastal dunes.	0-30 m.	Low Potential. Very limited areas of dune habitat with native vegetation are present and very limited impacts are expected to dune habitat.
<i>Erysimum menziesii</i>	Menzies' wallflower	Dicots	FE	SE	G1	S1	1B.1	perennial herb	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes	Coastal dunes.	Localized on dunes and coastal strand. 1-25 m.	Moderate Potential. Species occurs near project area. However, very limited areas of dune habitat with native vegetation are present and very limited impacts are expected to dune habitat.
<i>Erythronium revolutum</i>	coast fawn lily	Monocots	Non e	Non e	G4G5	S3	2B.2	perennial bulbiferous herb		Bog & fen Broadleaved upland forest North coast coniferous forest Wetland	Bogs and fens, broadleaved upland forest, north coast coniferous forest.	Mesic sites; streambanks. 60-1405 m.	No Potential. Project area does not contain broadleaved upland forest or North Coast coniferous forest.
<i>Fissidens pauperculus</i>	minute pocket moss	Bryophytes	N	N	G3?	S2	1B.2	moss	USFS_S-Sensitive	North coast coniferous forest Redwood	North coast coniferous forest.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1024 m.	No Potential. Project area does not contain North coast coniferous forest.
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	Dicots	N	N	G5T3	S2	1B.2	annual herb		Chaparral Coastal bluff scrub Coastal prairie Valley & foothill grassland	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1345 m.	No Potential. Project does not contain chaparral, coastal bluff scrub, coastal prairie, or valley and foothill grassland.
<i>Gilia millefoliata</i>	dark-eyed gilia	Dicots	N	N	G2	S2	1B.2	annual herb	BLM_S-Sensitive	Coastal dunes	Coastal dunes.	1-60 m.	Moderate Potential. This species is known from near the project area. However, very limited areas of dune habitat with native vegetation are present and very limited impacts are expected to dune habitat.

SciName	ComName	Taxon Group	Fed List	Cal List	GRank	SRank	RPI Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Hesperervax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	Dicots	N	N	G4T3	S2	1B.2	annual herb	BLM_S-Sensitive	Coastal bluff scrub Coastal dunes Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-640 m.	Low Potential. The project area does not contain coastal bluff scrub or coastal prairie. Limited areas of dune habitat with native vegetation are present and very limited impacts are expected to dune habitat.
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	Dicots	N	N	G3T2	S2	1B.2	perennial herb		Coastal bluff scrub Coastal dunes Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	5-185 m.	Low Potential. The project area does not contain coastal bluff scrub. Limited areas of dunes with native vegetation and coastal scrub are present, however, very limited impacts are anticipated to these habitats.
<i>Lathyrus japonicus</i>	seaside pea	Dicots	N	N	G5	S2	2B.1	perennial rhizomatous herb		Coastal dunes	3-65 m.	3-65 m.	Low Potential. Limited areas of dunes with native vegetation and coastal scrub are present, however, very limited impacts are expected in dune habitat.
<i>Lathyrus palustris</i>	marsh pea	Dicots	N	N	G5	S2	2B.2	perennial herb		Bog & fen Coastal prairie Coastal scrub Lower montane coniferous forest Marsh & swamp North coast coniferous forest Wetland	Bogs & fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, coastal scrub.	Moist coastal areas. 2-140 m.	Low Potential. The project area includes some wetlands, however no project impacts are anticipated within the wetlands.
<i>Layia carnosa</i>	beach layia	Dicots	FE	SE	G2	S2	1B.1	annual herb	SB_RSABG-Ra	Coastal dunes Coastal scrub	Coastal dunes, coastal scrub.	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 0-30 m.	Moderate Potential. This species is known from near the project area. Some areas of dune habitat with native vegetation are present, but they are limited, and very limited impacts are expected to these habitats.
<i>Lilium occidentale</i>	western lily	Monocots	FE	SE	G1	S1	1B.1	perennial bulbiferous herb	SB_BerrySB-Berry Seed Bank	Bog & fen Coastal bluff scrub Coastal prairie Coastal scrub Freshwater marsh Marsh & swamp North coast coniferous forest Wetland	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, north coast coniferous forest, marshes and swamps.	Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.	Low Potential. Few of the habitat components meeting the species requirements are present. Coastal scrub and wetlands are present in the project area but no impacts are anticipated to wetlands.
<i>Monotropa uniflora</i>	ghost-pipe	Dicots	N	N	G5	S2	2B.2	perennial herb (achlorophyllous)		Broadleaved upland forest North coast coniferous forest	Broadleaved upland forest, north coast coniferous forest.	Often under redwoods or western hemlock. 15-855 m.	No Potential. The project area does not contain broadleaved upland forest or North coast coniferous forest.
<i>Montia howellii</i>	Howell's montia	Dicots	N	N	G3G4	S2	2B.2	annual herb		Meadow & seep North coast coniferous forest Vernal pool Wetland	Meadows and seeps, north coast coniferous forest, vernal pools.	Vernally wet sites; often on compacted soil. 10-1215 m.	No Potential. The project area does not contain north coast coniferous forest, meadows, seeps, or vernal pools.
<i>Nocca fendleri</i> ssp. <i>californica</i>	Kneeland Prairie Pennycress	Plants	FE	N	G5?T1	S1	1B.1			Coastal prairie (serpentine)		Known from one occurrence at Kneeland Prairie.	No Potential. No coastal prairie or serpentine is present for this very rare species that is endemic to the Kneeland Prairie.
<i>Oenothera wolffii</i>	Wolf's evening-primrose	Dicots	N	N	G2	S1	1B.1	perennial herb	BLM_S-Sensitive SB_BerrySB-Berry Seed Bank	Coastal bluff scrub Coastal dunes Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest.	Sandy substrates; usually mesic sites. 0-125 m.	Moderate Potential. Limited areas containing coastal dunes with native vegetation are present and very limited impacts are anticipated to coastal dunes. Sandy substrates are present throughout the project area with some mesic sites. Species is known from near the project area.
<i>Puccinellia pumila</i>	dwarf alkali grass	Monocots	None	None	G4?	SH	2B.2	perennial herb		Marsh & swamp Wetland	Marshes and swamps.	Mineral spring meadows and coastal salt marshes. 1-10 m.	No Potential. Mineral spring meadows are not present. Some wetlands occur within the project area but no impacts are expected to wetlands.
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	Dicots	N	N	G5T2	S2	1B.2	perennial rhizomatous herb	BLM_S-Sensitive	Coastal bluff scrub Coastal prairie North coast coniferous forest	Coastal bluff scrub, coastal prairie, north coast coniferous forest.	Open coastal forest; roadcuts. 5-1255 m.	Low Potential. Coastal bluff scrub, coastal prairie, and north coast coniferous forest are not present. Road cuts and openings are present within the project area.

SciName	ComName	Taxon Group	Fed List	Cal list	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
<i>Sidalcea oregana ssp. eximia</i>	coast checkerbloom	Dicots	N	N	G5T1	S1	1B.2	perennial herb	BLM_S-Sensitive	Lower montane coniferous forest Meadow & seep North coast coniferous forest Wetland	Meadows and seeps, north coast coniferous forest, lower montane coniferous forest.	Near meadows, in gravelly soil. 5-1805 m.	No Potential. Lower montane and North Coast coniferous forest are not present.
<i>Silene scouleri ssp. scouleri</i>	Scouler's catchfly	Dicots	N	N	G5T4T5	S2S3	2B.2	perennial herb		Coastal bluff scrub Coastal prairie Valley & foothill grassland	Coastal bluff scrub, coastal prairie, valley and foothill grassland.	5-315 m.	No Potential. Coastal bluff scrub, coastal prairie, and valley and foothill grassland habitat is not present.
<i>Spergularia canadensis var. occidentalis</i>	western sand-spurrey	Dicots	N	N	G5T4	S1	2B.1	annual herb		Marsh & swamp Wetland	Marshes and swamps (coastal salt marshes).	0-3 m.	No Potential. Wetlands are present in the project area but no impacts are anticipated to wetlands.
<i>Trichodon cylindricus</i>	cylindrical trichodon	Bryophytes	N	N	G4	S2	2B.2	moss		Broadleaved upland forest Upper montane coniferous forest	Broadleaved upland forest, upper montane coniferous forest.	Moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 50-1500 m.	No Potential. Broadleaved upland forest and upper montane coniferous forest is not present.
<i>Viola palustris</i>	alpine marsh violet	Dicots	N	N	G5	S1S2	2B.2	perennial rhizomatous herb		Bog & fen Coastal scrub Wetland	Coastal scrub, bogs and fens.	Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.	Low Potential. Bogs and fens are not present. Some coastal scrub is present. Wetlands are present however no impacts are expected in wetlands.
Habitats													
Coastal Terrace Prairie	Coastal Terrace Prairie	Herbaceous	N	N	G2	S2.1				Coastal prairie			Not Present. Coastal Terrace Prairie is not present.
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	Marsh	N	N	G3	S3.2				Marsh & swamp Wetland			Not Present. Northern Coastal Salt Marsh is present within project area, however not where project impacts will occur.
Northern Foredune Grassland	Northern Foredune Grassland	Dune	N	N	G1	S1.1				Coastal dunes			Low Potential. No northern foredune grassland habitat has been observed within the project site. Very minimal impacts are expected to dune habitat with native vegetation and these will occur only around the treatment ponds where the dunes that were observed contained dune mat community vegetation and invasive grass species present, but no northern foredune grassland habitat.
Sitka Spruce Forest	Sitka Spruce Forest	Forest	N	N	G1	S1.1							Low Potential. Sitka spruce trees occur within the project area but may not constitute a Sitka spruce forest alliance per the Manual of California Vegetation (Sawyer et al. 2009). No impacts are anticipated to trees within the project area.

***Potential to Occur:**

No Potential:

Low Potential.

Moderate Potential.

High 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).

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.

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.

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.

Key:

FE = Federal Endangered

FT = Federal Threatened

FC = Federal Candidate

FD = Federal Delisted

PT = Proposed Threatened

BCC = USFWS Birds of Conservation Concern

SE = State Endangered

SD = State Delisted

SNR=?

ST = State Threatened

SR = State Rare

SSC = CDFG Species of Special Concern

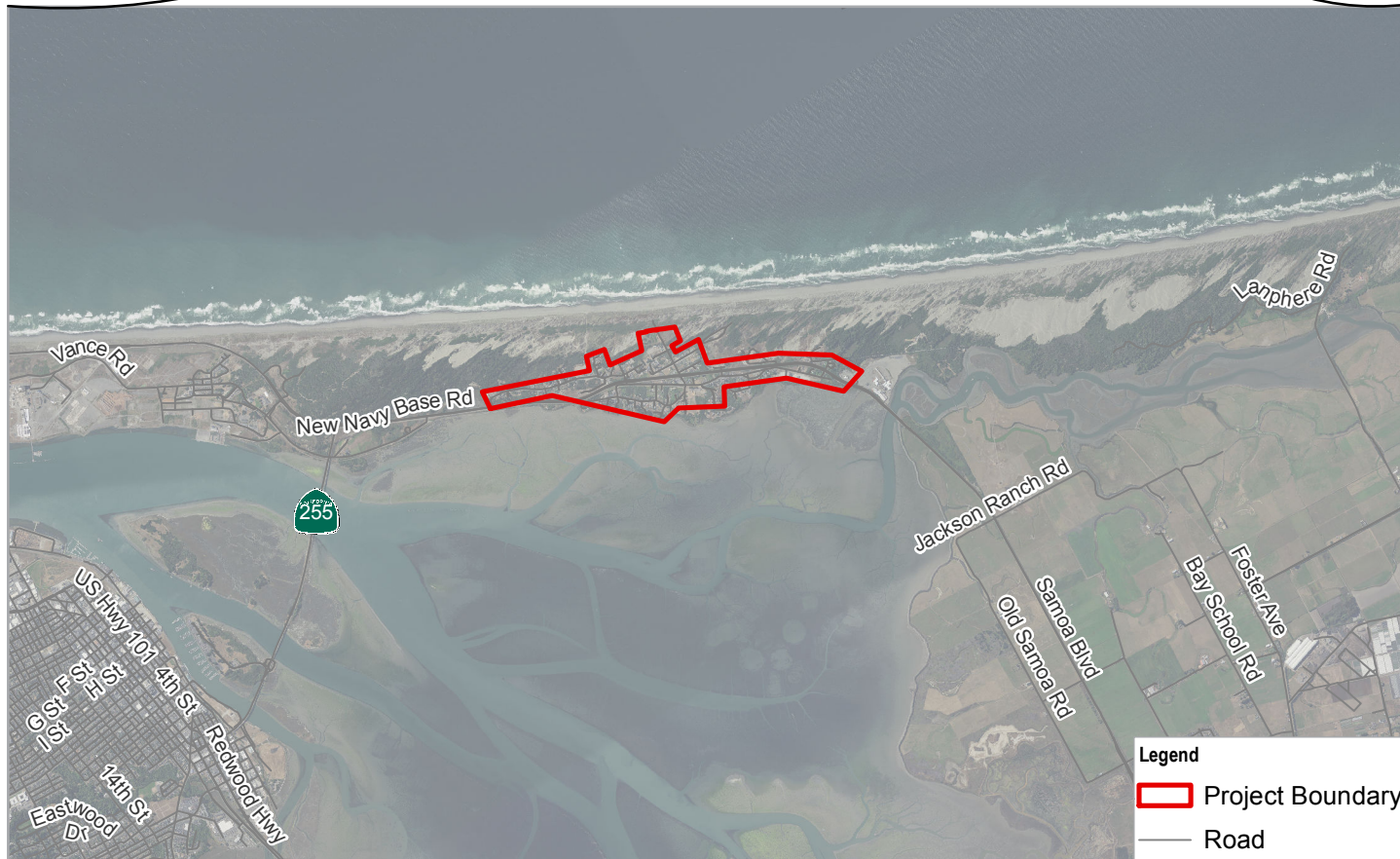
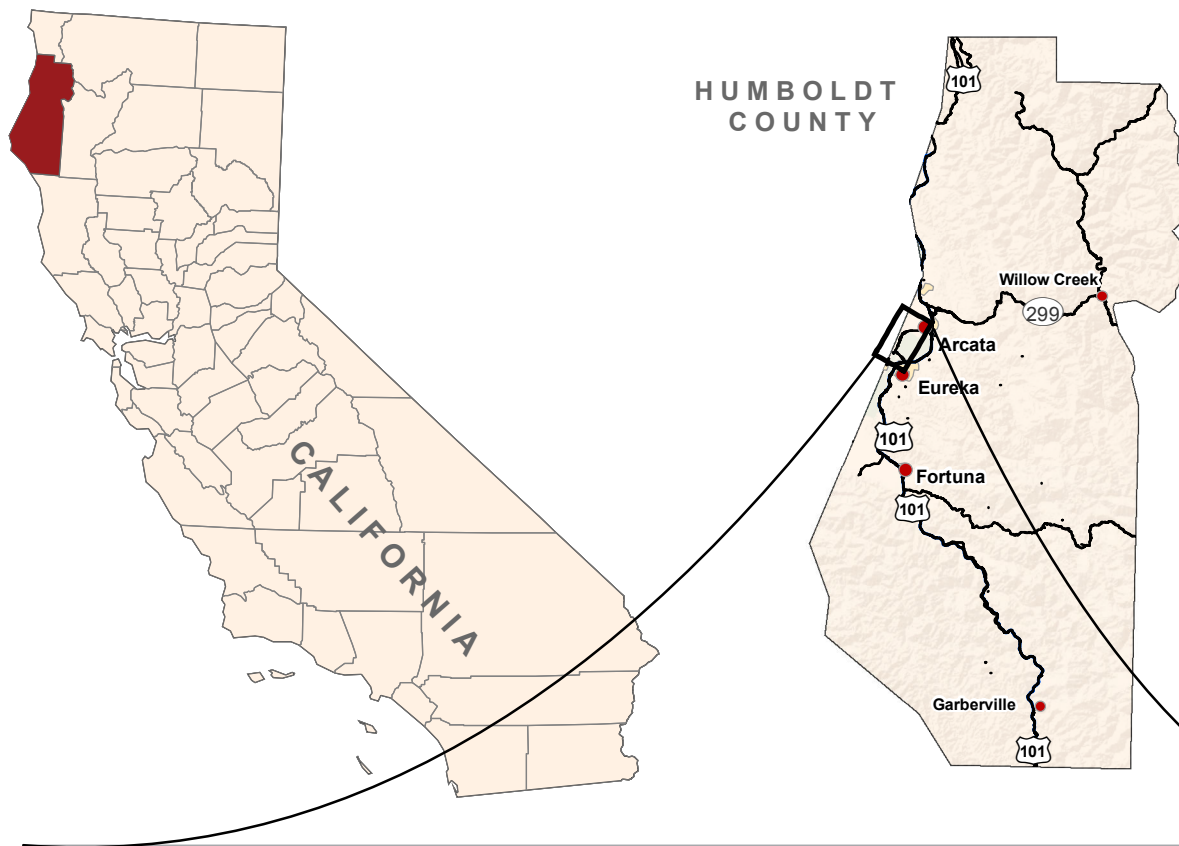
CFP = CDFG Fully Protected Animal

SciName	ComName	Taxon Group	Fed List	Cal List	GRank	SRank	RPI ant Rank	Lifeform	OthrStatus	Habitats	GenHab	MicroHab**	Likelihood to Occur*
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1A = CRPR List 1A: Plants presumed extinct in California
1B = CRPR List 1B: Plants rare, threatened or endangered in California and elsewhere
2 = CRPR List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
3 = CRPR List 3: Plants about which more information is needed (a review list)
4 = CRPR List 4: Plants of limited distribution (a watch list)



Appendix B – Figures



Paper Size ANSI A
0 0.2 0.4 0.6 0.8 1
Miles

Map Projection: Lambert Conformal Conic
Horizontal Datum: NAD 1983 2011

Vertical Datum: North America Vertical Datum of 1988
Grid: NAD 1983 2011 StatePlane California I FIPS 0402 Ft US

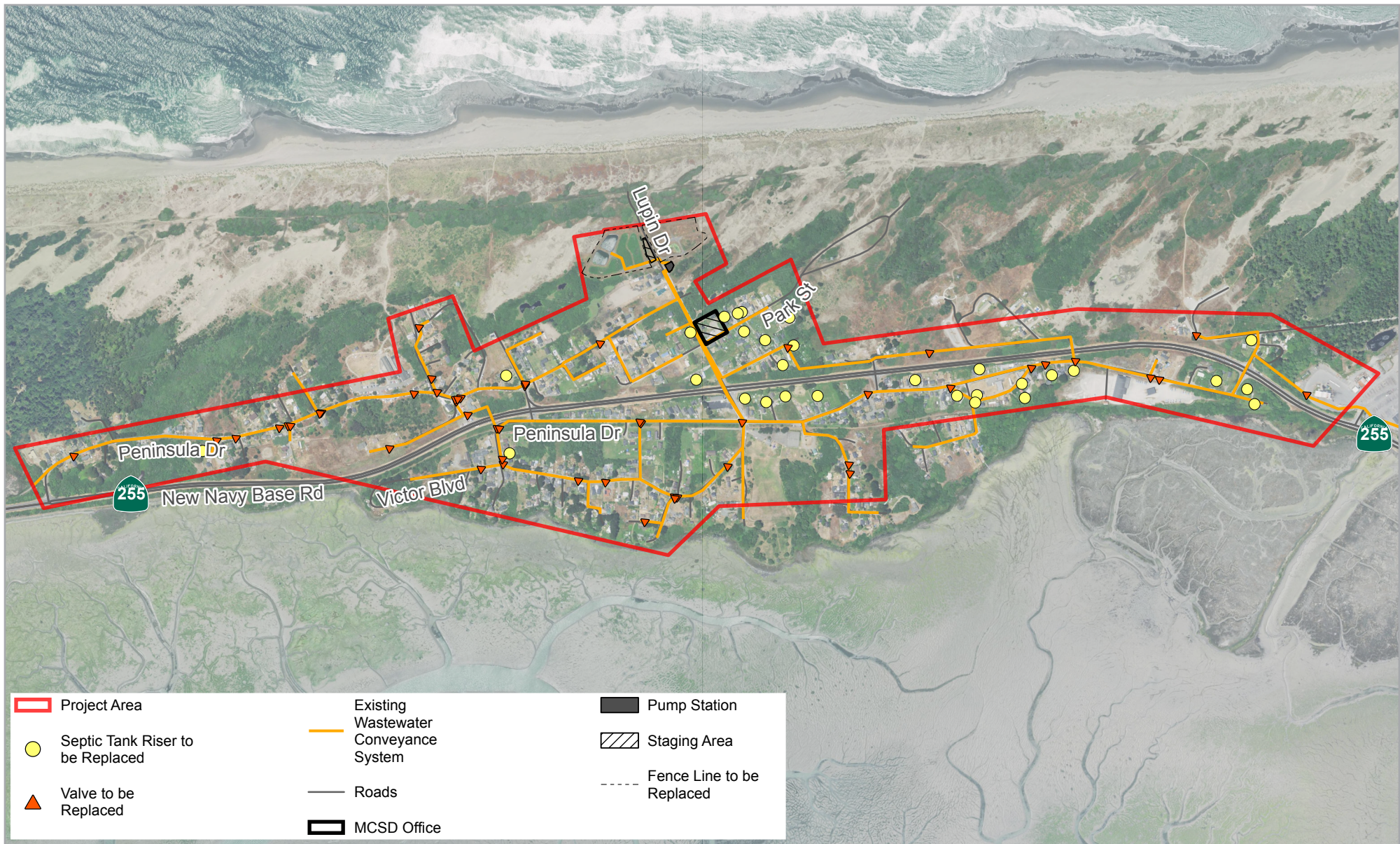


Manila Community Services District
Wastewater Infrastructure Improvement Project
Biological Resources Report

Project No. 11181126
Revision No. -
Date 05/31/2019

Project Vicinity

FIGURE 1



Data Disclaimer
Data within the CNDDDB and Spotted Owl Database require biological expertise for proper analysis, interpretation, and application. It is the user's responsibility to ensure that the data obtained from CDFW are used correctly.

Pacific Ocean

Arcata

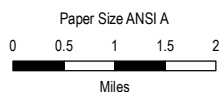
Eureka

Legend

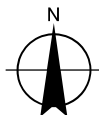
★ Project Location  5 Mile Buffer (area of interest)

Species Known to Occur Within 5 Miles of The Project Location

Wildlife Occurrence		Plant Occurrence	
Bank Swallow	Northern Harrier	Alpine Marsh Violet	Oregon Coast Paintbrush
Black-Crowned Night Heron	Northern Red-Legged Frog	Beach Layia	Pacific Gilia
California Ridgway's Rail	Obscure Bumble Bee	Coast Fawn Lily	Perennial Goldfields
Coast Cutthroat Trout	Pacific Lamprey	Coastal Marsh Milk-Vetch	Pink Sand-Verbena
Coho Salmon - Southern Oregon /	Sandy Beach Tiger Beetle	Dark-Eyed Gilia	Point Reyes Salty Bird's-Beak
Northern California Esu	Snowy Egret	Ghost-Pipe	Round-Headed Chinese-Houses
Double-Crested Cormorant	Sonoma Tree Vole	Howell's Montia	Scouler's Catchfly
Eulachon	Southern Torrent Salamander	Humboldt Bay Owl's-Clover	Seaside Pea
Great Blue Heron	Steelhead - Northern California Dps	Lyngbye's Sedge	Short-Leaved Evax
Great Egret	Tidewater Goby	Maple-Leaved Checkerbloom	Siskiyou Checkerbloom
Green Sturgeon	Townsend's Big-Eared Bat	Marsh Pea	Twisted Horsehair Lichen
Humboldt Mountain Beaver	Western Bumble Bee	Menzies' Wallflower	Western Lily
Longfin Smelt	Western Pond Turtle	Minute Pocket Moss	Western Sand-Spurrey
Mountain Plover	Western Snowy Plover	Northern Clustered Sedge	Wolf's Evening-Primrose
North American Porcupine	White-Footed Vole	Northern Meadow Sedge	



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

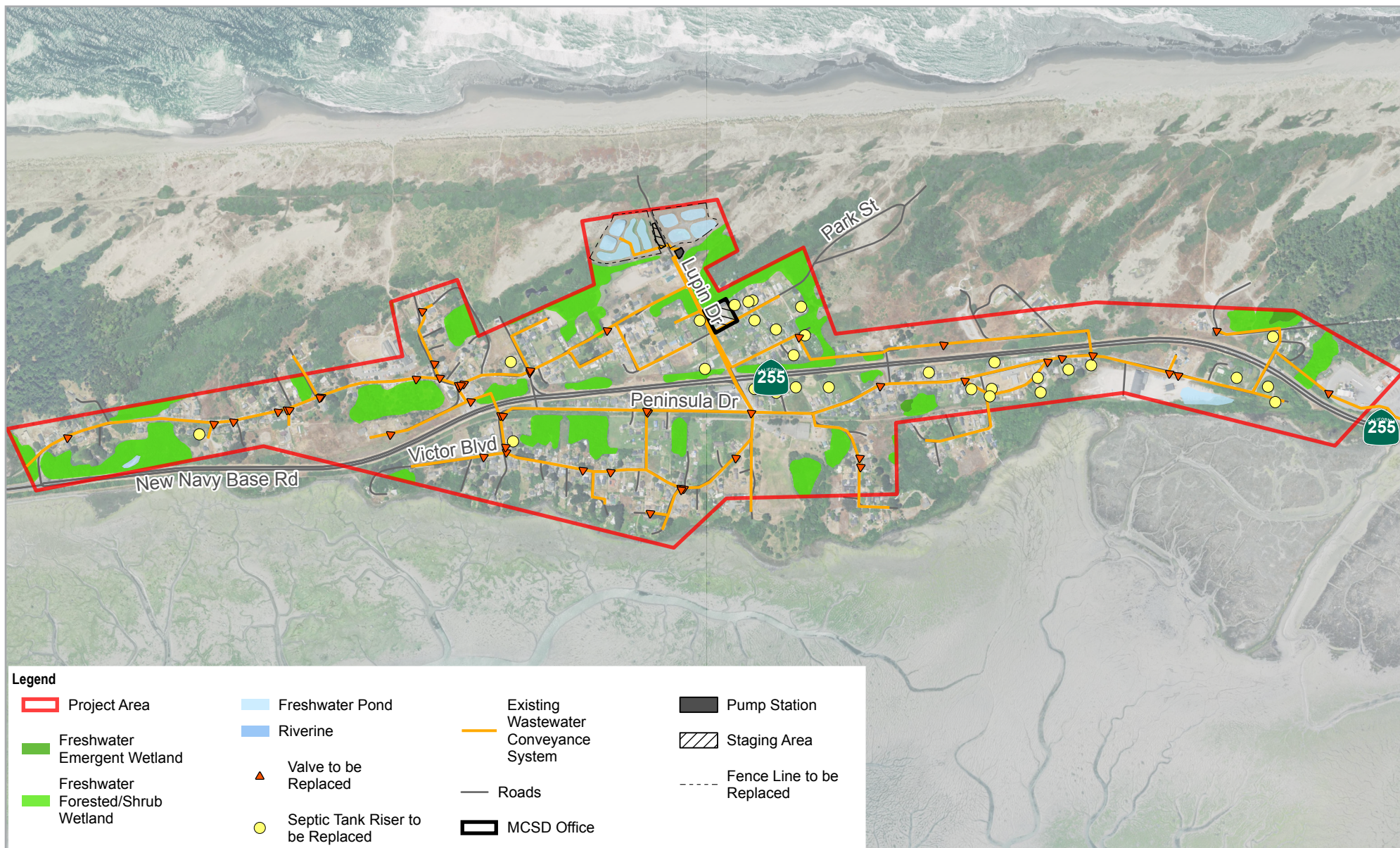


Manila Community Services District
Wastewater Infrastructure Improvement Project
Biological Resources Report

Project No. 11181126
Revision No. -
Date 05/31/2019

CNDDDB Plants and Wildlife
5 mile radius

FIGURE 3



Paper Size ANSI A
0 300 600 900 1,200
Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: NAD 1983 2011
Grid: NAD 1983 2011 StatePlane California III FIPS 0403 Ft US



**Manila Community Services District
Wastewater Infrastructure Improvement Project
Biological Resources Report**

Project No. 11181126
Revision No. -
Date 6/07/2019

USFWS National Wetland Inventory

FIGURE 4





Appendix C – 2017 Wetland Delineation Report



Manila Community Services District

Drinking Water Infrastructure Improvement Project

Wetland Delineation Report

August 2017

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Appendices

Appendix A - (Figures)

Appendix B - (Data Sheets)

1. Introduction

This report presents results of a wetland delineation conducted at the project site in preparation for the proposed Drinking Water Infrastructure Improvement Project. The project site is operated by Manila Community Services District (MCSD) and this effort was conducted upon their behalf. The site is in Manila, Humboldt County, California (Figure 1 Vicinity Map, Appendix A). This report is subject to, and must be read in conjunction with, the limitations set out in Section 6 Special Terms and Conditions and the assumptions and qualifications contained throughout the Report.

A wetland delineation was performed on June 13, 2017, at the request of the MCSD. The delineation was conducted within the area of the potential project components, further defined herein as the Project Study Boundary (PSB) as shown on Figure 2. The PSB is entirely within the Coastal Zone therefore the extent of wetland-type vegetation (based on one parameter) was mapped in accordance with the California Coastal Commission (CCC) as well as the extent of wetlands having wetland-type vegetation, hydric soils, and wetland hydrology (based on three-parameters) per the U.S. Army Corps of Engineers. Figures presenting results of the 2017 investigation are provided in Appendix A. Data sheets documenting conditions observed during the 2017 investigation are included in Appendix B.

1.1 Location

The MCSD headquarters is located off Lupin Drive, west of the intersection with Highway 255 in Manila, Humboldt County, California (Figure 1). Manila is an unincorporated coastal community on the Samoa Peninsula along State Route 255 (SR-255) within Humboldt County, California. Manila is approximately 3.5 miles directly north of Eureka and approximately 5 miles southwest of Arcata.

1.2 Purpose

The purpose of this investigation was to determine the location of wetlands within the proposed project site in support of permitting, environmental documentation, and construction planning. As the PSB is entirely within the Coastal Zone, the wetland delineation was performed in accordance with the California Coastal Commission criteria for wetland delineation as well as in accordance with the U.S. Army Corp of Engineers (USACE) wetlands criteria.

1.3 Project Summary

The Manila CSD has made effective use of existing water infrastructure over the last 50 years. Due to changes in regulations, standards, and industry practices, along with changes in Humboldt Bay Municipal Water District (Manila CSD's wholesale water source) practices, and aging infrastructure, strategic upgrades are needed to address the capacity, functionality, and reliability of the system to continue to protect health and welfare of the public. The primary purpose of the proposed project is to modernize the Manila CSD water system and provide robust and reliable service. Manila CSD is proposing to replace and upgrade the following main components of the local system:

- Water Storage Tank
- Pumping and Disinfection Systems
- Select Distribution Piping and Appurtenances

The project has the following main target areas where activities are proposed within vegetated areas, plus additional areas where proposed activities are confined to within existing pavement and infrastructure (Figures 2, and 3.1 through 3.3):

- A. MCSD headquarters building on Lupin Drive - Water Storage Tank and Pumping and Disinfection Systems at district owned lot; and new distribution main within Lupin Drive, west of the MCSD headquarters extending past Hill Street.
- B. South end of Carlson west of Highway 255 – end cap and pipe to be abandoned.
- C. Northern Peninsula Drive east of Highway 255 connecting west towards Carlson - abandon/reroute/replace PVC pipe that is routed on the surface in a ditch and through a culvert under Highway 255.
- D. Dean/Peninsula Avenue intersection - Pipe connection southwest traversing to west of Highway 255.

There are additional locations of valves and pipes proposed for replacement, which are all located within existing valve boxes and/or paved roadways and were therefore not included in this wetland investigation study boundary. The standard pipeline construction area is estimated to be an approximate width of 5 feet for trenching for pipe installation or removal. Over the four project areas (excluding the valves and pipes within paved areas) that were studied as part of this evaluation, the proposed pipeline-related portion of the project is estimated to encompass approximately 1,100 linear feet.

2. Regulatory Setting

The site is entirely within the Coastal Zone therefore the extent of wetland-type vegetation (based on one parameter) was mapped in accordance with the California Coastal Commission as well as the extent of wetlands having wetland-type vegetation, hydric soils, and wetland hydrology (based on three-parameters) per the U.S. Army Corps of Engineers. To define a wetland, the USACE requires that all three parameters (vegetation, soil, and hydrology) show wetland attributes. The California Coastal Commission requires one parameter to be present in order to define the site as a wetland. Therefore, areas with wetland vegetation (FAC or wetter) that did not meet requirements for wetland hydrology or hydric soils were mapped and differentiated from three parameter wetlands according to dominant vegetation alliance per *A Manual of California Vegetation* (Sawyer et al. 2009).

3. Methodology

3.1 Project Study Boundary

Prior to conducting environmental field work, the project scientist worked in coordination with the project engineer and the applicant to develop the limits of the project study boundary (PSB), also known in some regulatory settings as the Action Area. The PSB is a terminology adopted from definitions and permit procedures promulgated by the U.S. Army Corp of Engineers (USACE). For the purposes of this report, the PSB terminology is used to be synonymous with the Action Area utilized by other federal agencies such as the USFWS. The PSB is designated on a project specific basis, and as feasible, to take into consideration potential alternate layouts of project, fill/cut slopes, temporary impact areas and/or adjacent areas if feasible, access, new or modified utilities and right of ways, and adjacent areas that may be feasibly included in the study. The PSB may be modified

on a project-specific basis according to such issues as private property ownerships, access constraints, and areas excluded from project use.

For the purposes of this study and field survey, the 2017 PSB includes (as shown on Figure 2 Project Site and Figure 3 Wetland Delineation Results):

- A. The MCSD headquarters parcel,
- B. Five (5) feet off either edge of pavement in areas where linear infrastructure work is occurring (study area width along roads of approximately 25 feet).
- C. Five (5) foot wide study area where pipeline is to be abandoned, plus large rectangular area west of highway 101 to allow for new pipe connection and encompassing probable location of existing pipe to be capped.
- D. Five (5) foot buffer off the roadway, and a rectangular area to allow options for alignment of new pipe so as to minimize impacts to wetlands.
- E. Valve replacement locations that are all within existing paved areas and/or existing valve boxes.

In some cases, adjacent wetlands (both USACE and CCC) were mapped where they occurred immediately adjacent to the PSB boundary so as to acknowledge adjacent presence and to note construction avoidance on project design plans (see Figures 3.2 and 3.3).

3.2 Wetland Delineation Approach

The wetland delineation effort began with reviewing available wetland mapping for the project vicinity and study area. This included reviewing existing wetland delineations, if any, that overlap or intersect the project area, or remote sensing wetland mapping in the vicinity such as the National Wetlands Inventory (NWI) results as presented on Figure 2 Project Site. NWI maps are compiled using a variety of remote sensing data sources, including aerial photographs, infrared photography, and soils data. NWI maps do not necessarily represent an accurate extent of jurisdictional wetlands in the study area. When available, Geographic Information System (GIS) data was overlaid with the project study boundary, again as NWI GIS data is shown on Figure 5.

The wetland delineation used USACE criteria from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010). The wetland delineation was conducted by a GHD wetland delineation team both are Certified Soil Scientists and Professional Wetland Scientists. Botany/soils/hydrology data sheets used were the current standard forms provided by the USACE (2010). Vegetation and soil data were collected at transects across the upland/wetland boundary with two plots (upland/wetland) per transect. The naming convention used on data sheets to designate upland or wetland plots was U or W, respectively. Intermediate plots were placed without collection of data as appropriate (based on wetland vegetation and verification of soil conditions as well as extrapolation from adjacent test plots). The intermediate plots were named in numeric order and followed by an "INT" after the point number (i.e. W1T3-int) as shown on the figures.

3.3 Botanical Methodology

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, and tree layer within a standard sized plots depending on layer. The species listed for each plot were classified as to whether or not they were wetland or upland indicators, using the standard reference

for plant wetlands indicators: *State of California 2016 Wetland Plant List* (Lichvar et al. 2016). Plants are classified based on the probability that they would be found in wetlands (USACE 1987), ranging from Obligate (almost always in wetlands) [OBL], Facultative/wet (67% to 99% in wetlands) [FACW], Facultative (34% to 66% in wetlands) [FAC], Facultative/up (1% to 33% in wetlands) [FACU], or Uplands (less than 1% in wetlands) [UP]. Plants not listed in the current wetland plant list are considered to be in the upland category.

Areas with wetland vegetation (FAC or wetter) that did not meet requirements for wetland hydrology or hydric soils were mapped as one parameter wetlands and classified according to dominant vegetation alliance per *A Manual of California Vegetation* (Sawyer et al. 2009).

3.4 Soils Methodology

The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* (USACE 2010) procedures were combined with the Natural Resources Conservation Service's (NRCS) definition of hydric soils presented in *Changes in Hydric Soils of the United States and Field Indicators of Hydric Soils in the United States* (USDA/NRCS 2016). Soil pits were dug to an approximate depth of 18 inches. Data on soil color, texture and redoximorphic features was collected. Care was taken to observe mottling (iron concentrations) and to distinguish between chromas of 1 and 2 that would indicate an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2016).

Colors were described for the entire depth of the test pit and colors were determined on moist natural soil aggregate (ped) surfaces, which had not been crushed, using the Munsell Color Chart (COLOR, M. 2000). Soils with low chromas were verified as being hydric or upland with Field Indicators of Hydric Soils in the United States (Version 8.0, 2016) using indicators including depleted matrix (F3) and sandy redox (S5).

3.5 Hydrology Methodology

The delineation was performed during the early summer outside of the wet-weather season although recent rainfall had occurred after a prolonged and very wet winter. Direct evidence of ground water (soil saturation, standing water, etc.) was present in plots located within mapped wetlands. Primary wetland hydrologic indicators were observed including high water table, saturation, and surface water. Secondary wetland hydrologic indicators included passing the FAC-Neutral Test.

3.6 Wetland Determination

The wetland boundary was evaluated using either the USACE (three-parameter) or Coastal Commission (one-parameter) methodology. The wetland determination was made with an emphasis on hydrology, redoximorphic soil features (hydric soils), and the dominance of wetland vegetation. Wetland plots exhibited a predominance of facultative (FAC) or wetter vegetation and upland plots exhibited predominance of facultative-up (FACU) or drier vegetation. The distance between the upland and wetland plot within each transect was used to determine the wetland boundary.

The horizontal location of each transect point (including intermediate points) along the delineated wetland/upland boundary was collected with a GeoPro Trimble global positioning system (GPS) receiver with sub-meter accuracy, running ArcPad geographic information system (GIS) software. The GPS points were post processed and connected using ArcGIS to produce map of wetland results (Figure 3 Wetland Delineation Results).

4. Results

The PSB consists of various wetland types. The three types of three parameter wetlands were classified within the project study boundary using nomenclature adapted from Classification of Wetlands and Deepwater Habitats of the United States (Cowardin), by the Federal Geographic Data Committee (2013):

- Palustrine Emergent – Ditch (PEM1m)
- Palustrine Forested– Ditch (PFO1m)
- Palustrine Forested (PFO1)

As the project falls entirely within the Coastal Zone, areas with wetland vegetation (FAC or wetter) that did not meet requirements for wetland hydrology or hydric soils were mapped and differentiated from three parameter wetlands according to dominant vegetation alliance. One parameter wetlands meeting Coastal Commission requirements based only on wetland vegetation (FAC or wetter) were mapped based on dominant native vegetation as follows:

- Coastal dune willow thickets (*Salix hookeriana* Shrubland Alliance) (1 parameter)

Figures provided in Appendix A show the results of the wetland delineation. In summary, a total of 0.45 acres of three parameter wetlands (USACE) were mapped within the PSB consisting of 260 square feet (sf) of Palustrine Emergent – Ditch, 4,093 sf of Palustrine Forested – Ditch, and 15,206 sf of Palustrine Forested.

4.1 Vegetation Results

Typical palustrine emergent (PEM1m) vegetation consisted of the following dominant species:

- Pacific rush (*Juncus effusus* subsp. *pacificus*) [FACW]
- Water parsley (*Oenanthe sarmentosa*) [OBL]

Typical vegetation characteristic of the palustrine forested (PFO1) and palustrine forested - ditch (PFO1m) wetlands consisted of the following dominant species:

- Hookers willow (*Salix hookeriana*) [FACW]
- California blackberry (*Rubus ursinus*) [FACU]
- Water parsley (*Oenanthe sarmentosa*) [OBL]

Typical upland vegetation consisted of the following:

- Sweet vernal grass (*Anthoxanthum odoratum*) [FACU]
- rattlesnake grass (*Briza maxima*) [NL]
- California blackberry (*Rubus ursinus*) [FACU]
- ripgut brome (*Bromus diandrus*) [NL]
- annual bluegrass (*Poa annua*) [FAC]

The Coastal dune willow thickets (*Salix hookeriana* Shrubland Alliance) is present when *Salix hookeriana* is the dominant plant species, greater than 50%, in the tall shrub or low tree canopy. Trees are typically 8 meters or greater in height, and with a continuous canopy and variable herbaceous layer. This alliance can occur in habitats near the ocean, where water accumulates in swales and deflation plains among stabilized dunes, lagoon margins, and flood plains. This species also can form a moist, disturbance related alliance and often can be observed in road banks, and in the riparian corridors along streams, creeks, lagoons, and dune hollows. *Rubus ursinus* is often associated with this alliance. At the project site, this alliance was identified in areas where *Salix hookeriana* was the dominant plant in the shrub layer, with sparse understory associated along road edges adjacent to palustrine emergent freshwater marsh, yet lacked three parameters of adjacent marsh to meet criteria to be mapped as USACE wetland. This alliance was mapped at the drip line.

4.2 Soil Results

Soils in delineated wetlands and uplands were generally sandy in texture at the surface and subsurface. Wetland soils exhibited redoximorphic features typically found in hydric soils including low chromas with redoximorphic (iron concentrations) at or above 10 inches from the soil surface. Representative wetland (hydric) soils had matrix color ranges of 2.5Y 3/1, with concentrations of 7.5YR 4/4. Hydric soil indicator observed was sandy redox (S5). Representative upland soils had surface and subsurface color of 2.5Y 3/2 with no redoximorphic features observed.

4.3 Hydrology Results

Precipitation in 2017 was unusually high. According to data from the National Weather Service automated rain gage in Eureka (Eureka WFO (EKA01)), Eureka received 63 inches of rain since the beginning of the water year on October 1, 2016 (National Weather Service 2017), (161% of mean rainfall for this time period). Water was observed in wetland test pits within 12" of the soil surface. Primary indicators of hydrology included: high water table, saturation, observation of standing water, presence of reduced iron. Secondary indicator consisted of a pass on the FAC-neutral test.

5. Conclusions

The wetland delineation completed in early summer 2017 for the proposed project site determined the extent of wetland-type vegetation (based on one-parameter) and the extent of wetlands having wetland-type vegetation, hydric soils, and wetland hydrology (based on three-parameters). The area of investigation was determined to consist of three types of three-parameter wetlands and one type of one-parameter vegetation alliance. The wetland delineation results are provided in map format in Appendix A. The field data sheets from the delineation area are included in Appendix B.

6. Special Terms and Conditions

6.1 Purpose of this Report

This report has been prepared by GHD for Manila Community Services District and may only be used and relied on by Manila Community Services District for the purpose agreed between GHD and the Manila Community Services District as set out in the original scope and contract for work effort reported herein. GHD Inc. is not liable for any action arising out of the reliance of any third party on the information contained within this report. GHD otherwise disclaims responsibility to any

person other than Manila Community Services District arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

6.2 Scope and Limitations

This report does not authorize any individuals to develop, fill or alter the wetlands delineated. Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for planning and development purposes. A USACE agency stamped delineation map and jurisdictional approval letter, and approval from Coastal Commission is required to signify confirmation of delineation results. In situations where a field investigation determines that no jurisdictional wetlands occur, jurisdictional concurrence with these findings is recommended.

To achieve the delineation objectives stated in this report, conclusions of the delineation were based on the information available during the period of the investigation, which took place on June 13, 2017. The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed by the date of preparation of the report. Site conditions may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change, unless contracted to do so.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

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Appendices

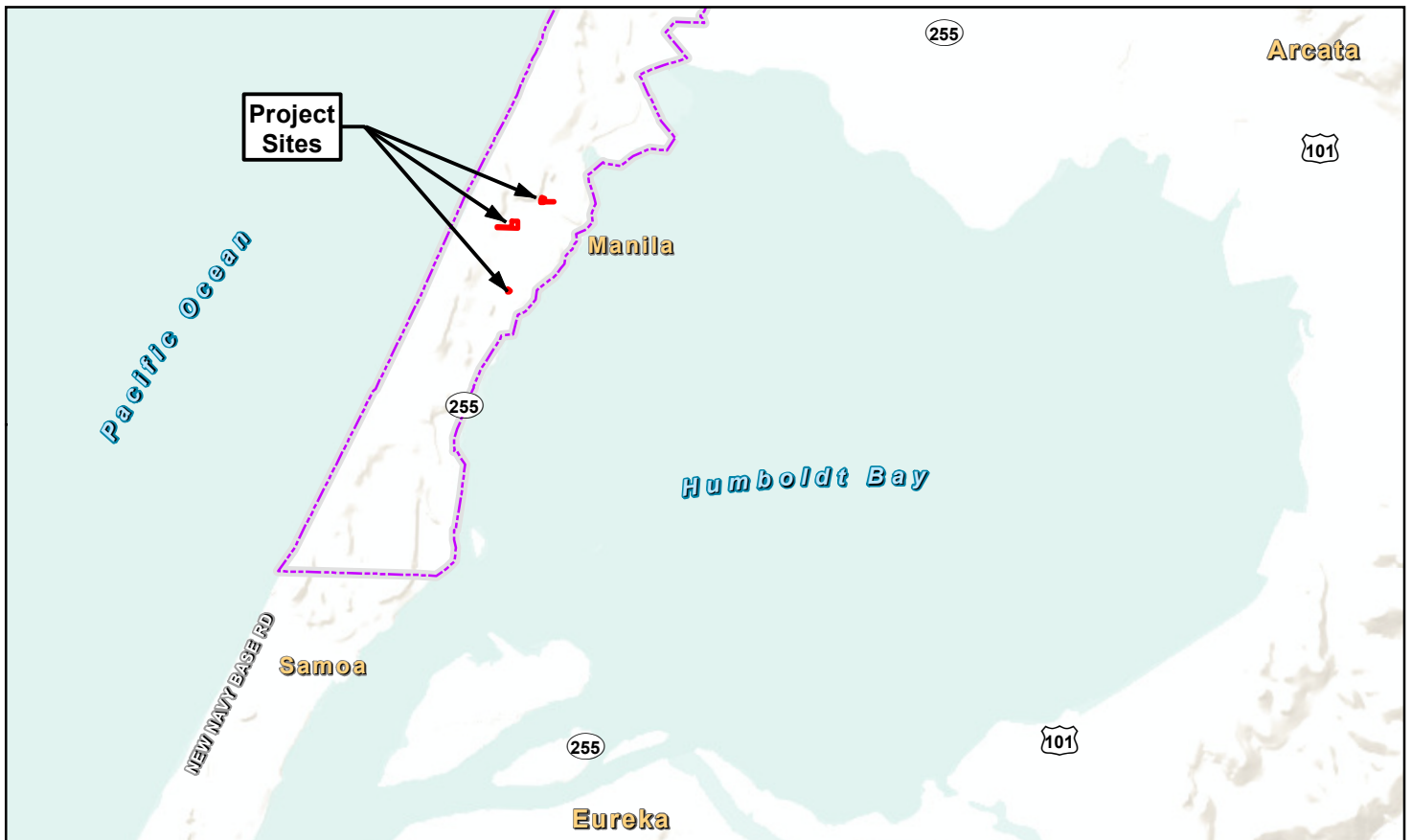
Appendix A - (Figures)

The following figures are enclosed for Drinking Water Infrastructure Improvement Project:

Figure 1 Vicinity Map

Figure 2 Project Site

Figure 3 Wetland Delineation Results



Manila CSD



Wetland Study Boundary

Freeway

Highway

Local Roads

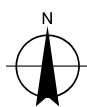


Humboldt County



Counties

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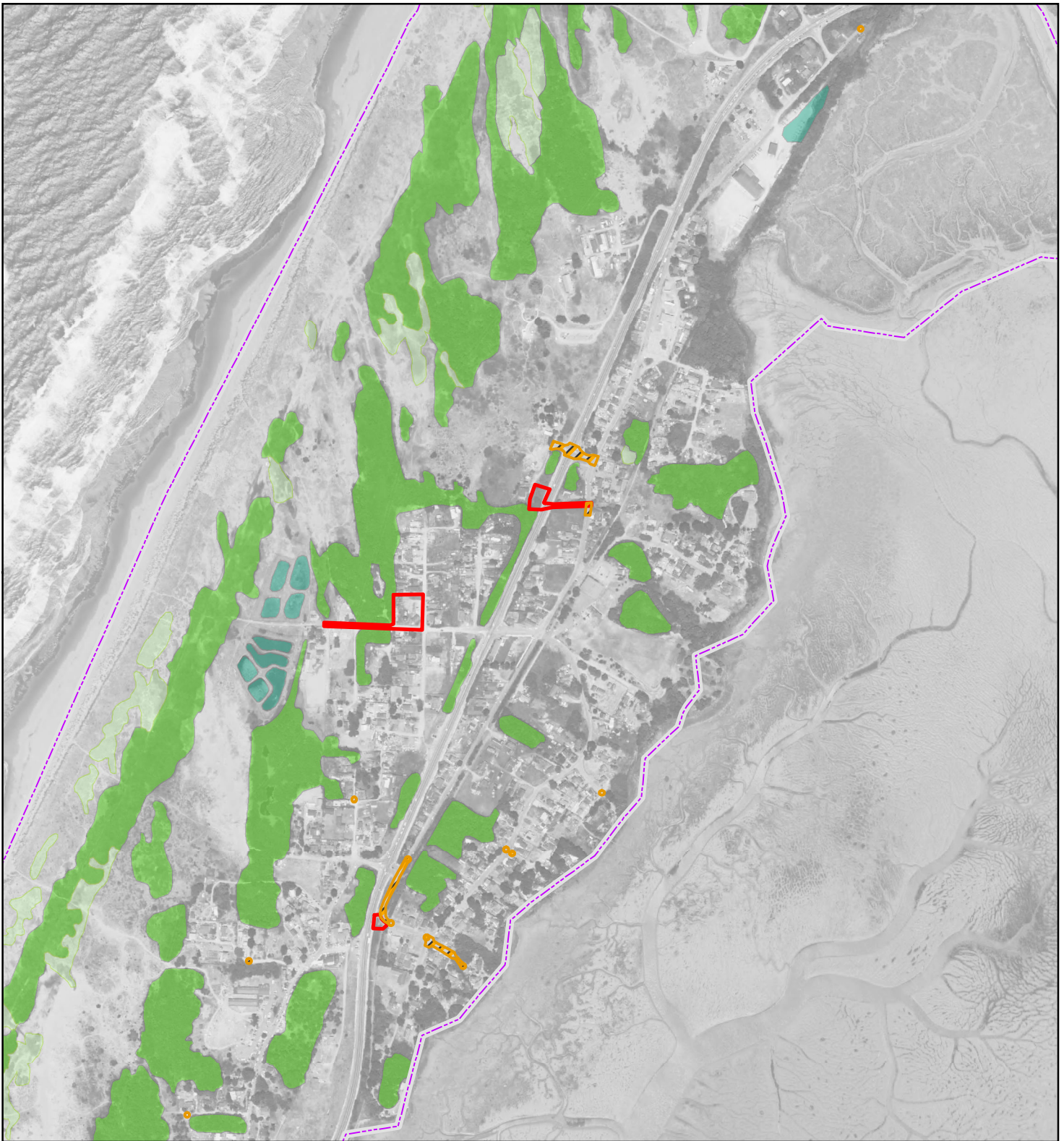


Manila Community Services District
Drinking Water Infrastructure Improvements Project

Job Number 11110683
Revision A
Date 27 Jul 2017

Vicinity Map

Figure 1



APE/Study Boundary



APE within Existing Paved Roads and Valve Boxes



Manila CSD

National Wetland Inventory



Freshwater Emergent Wetland

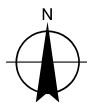


Freshwater Forested/Shrub Wetland



Freshwater Pond

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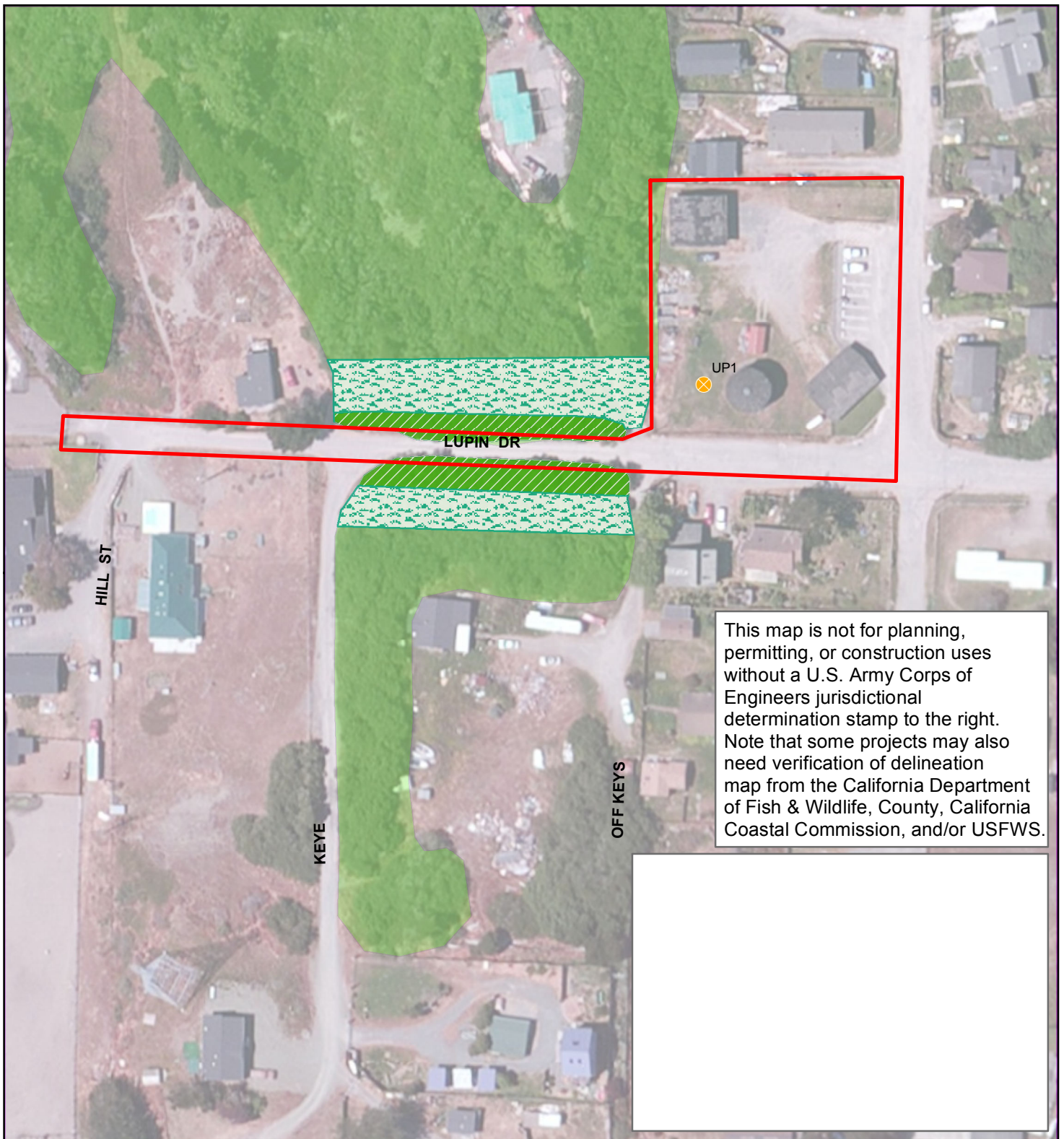


Manila Community Services District
Drinking Water Infrastructure Improvements Project

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Revision A
Date 27 Jul 2017

Project Site

Figure 2



X Upland Plot
 APE/Study Boundary
 3-parameter wetland (USACE) National Wetland Inventory



Forested Wetland (PFO1)



Freshwater Forested/Shrub Wetland

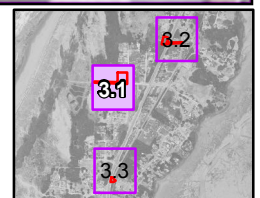
1-parameter wetland



Willow series, dripline

SITE:

A. Water Storage Tank and Pumping and Disinfection Systems at MCSD headquarters building on Lupin Avenue; and pipe replacement in centerline of Lupin



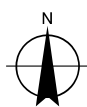
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Feet

Map Projection: Lambert Conformal Conic
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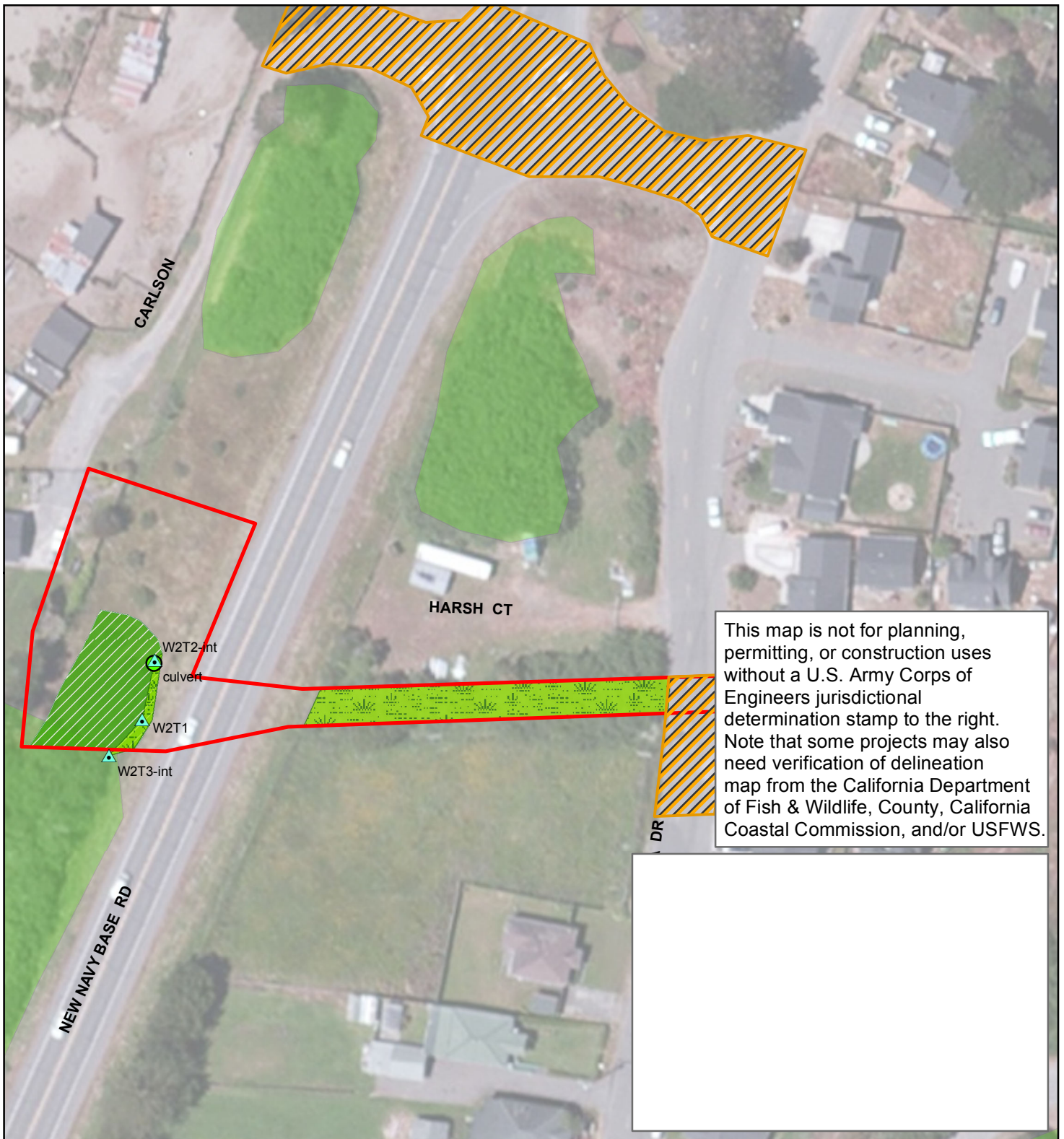


Manila Community Services District
Drinking Water Infrastructure Improvements Project

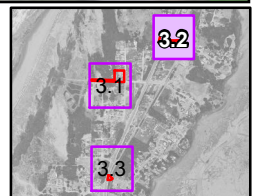
Job Number 11110683
Revision E
Date 23 Jul 2017

Site - A: Wetland Delineation
June 13, 2017

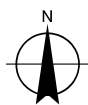
Figure 3.1



- USACE Wetland boundary transect plot**
Culvert
SITE:
 B. Pipe abandonment between northern Peninsula Drive west towards Highway 255, cap pipe south end of Carlson , and install new pipe connection
- APE/Study Boundary**
APE within Existing Paved Roads and Valve Boxes
- 3-parameter wetland (USACE) National Wetland Inventory**
1-parameter wetland
- Forested Wetland Ditch- ditch (PFO1m)**
Willow series, dipline
- Freshwater Forested/Shrub Wetland**



Paper Size ANSI A
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 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

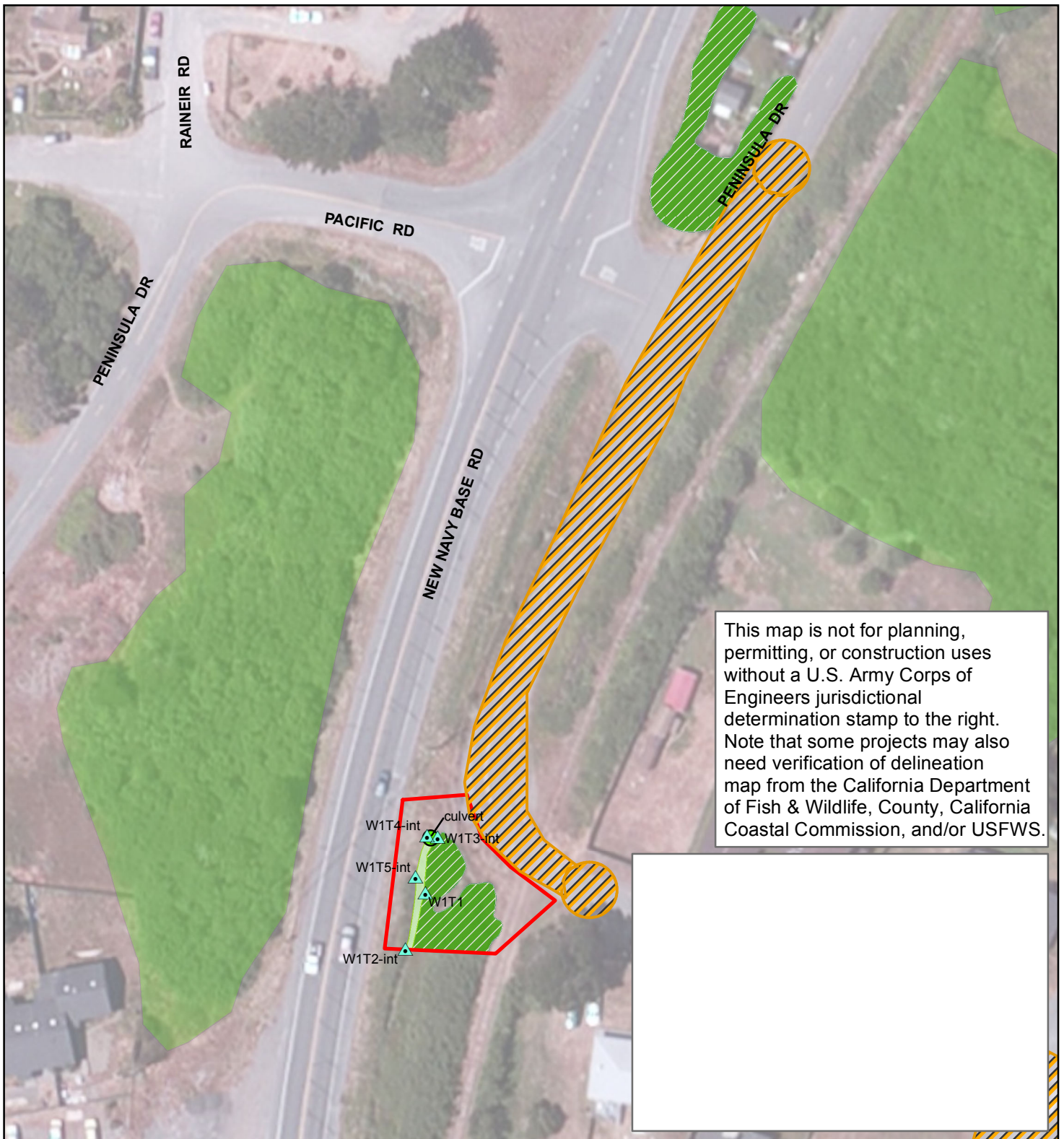


Manila Community Services District
 Drinking Water Infrastructure Improvements Project

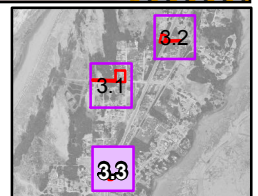
Job Number 11110683
 Revision E
 Date 23 Jul 2017

Site - B: Wetland Delineation
 June 13, 2017

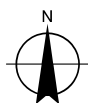
Figure 3.2



- USACE Wetland boundary transect plot**
Culvert
SITE:
 C. Pipe connection southwest of Peninsula/Dean Avenue intersection traversing to west of Highway 255
- APE/Study Boundary**
APE within Existing Paved Roads and Valve Boxes
- 3-parameter wetland (USACE) National Wetland Inventory**
 Palustrine emergent-ditch (PEM1m)
 1-parameter wetland
 Willow series, dipline
- Freshwater Forested/Shrub Wetland**



Paper Size ANSI A
 0 25 50 75 100
 Feet
 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



Manila Community Services District
 Drinking Water Infrastructure Improvements Project

Job Number 11110683
 Revision E
 Date 23 Jul 2017

Site - C: Wetland Delineation
 June 13, 2017

Figure 3.3

Appendix B - (Data Sheets)

The following data sheets are enclosed for Drinking Water Infrastructure Improvement Project:

**Wetland Determination Data Form – Western Mountains, Valleys, and Coast
Region – Version 2.0**

WETLAND DETERMINATION DATA FORM -- Western Mountains, Valleys, and Coast Region

Project/Site: Manilla Drinking Water City/County: Manilla / Humboldt Sampling Date: 6/13/17
 Applicant/Owner: MCSO State: CA Sampling Point: W171-1
 Investigator(s): LC/MS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): coastal plain Local relief (concave, convex, none): concave Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? ☒ Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? ☒ Yes (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☒	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: <u>(1 parameter coastal commission wetland)</u>		

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix</u> <u>no.</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by: _____
1. _____	_____	_____	_____	OBL species _____ x 1 = _____
2. _____	_____	_____	_____	FACW species _____ x 2 = _____
3. _____	_____	_____	_____	FAC species _____ x 3 = _____
4. _____	_____	_____	_____	FACU species _____ x 4 = _____
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
Herb Stratum (Plot size: _____)				Column Totals: _____ (A) _____ (B)
1. <u>Anthraxanthum</u> <u>ed.</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index = B/A = _____
2. <u>Holcus</u> <u>la.</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:
3. <u>Rubus</u> <u>ur.</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	1 - Rapid Test for Hydrophytic Vegetation
4. _____	_____	_____	_____	2 - Dominance Test is >50%
5. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹
6. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹
8. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)
9. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>20</u>				
Remarks: _____				

WIT-1

HYDROLOGY

Primary Indicators (minimum of one required; check all that apply)

Field Observations:

Wetland Hydrology Present? Yes _____ No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drinking Water City/County: Manila Humboldt Sampling Date: 6/13/17
 Applicant/Owner: MCDSP State: CA Sampling Point: WITI-W
 Investigator(s): WJ/MS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): coastal terrace Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? ☒ Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? ☒ Yes ☒ No _____ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Salix b.</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Oenanthe sa.</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	1 - Rapid Test for Hydrophytic Vegetation
2. <u>Juncus effusus</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	2 - Dominance Test is >50%
3. <u>Carex ob.</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	3 - Prevalence Index is ≤3.0 ¹
4. _____				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				5 - Wetland Non-Vascular Plants ¹
6. _____				Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
= Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes ☒ No _____
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

Sampling Point: WITI-W

HYDROLOGY

Primary Indicators (minimum of one required; check all that apply)

- | | | |
|--|--|--|
| ☒ Surface Water (A1) | ☐ Water-Stained Leaves (B9) (except | ☐ Water-Stained Leaves (B9) (MLRA 1, 2, |
| ☒ High Water Table (A2) | MLRA 1, 2, 4A, and 4B) | 4A, and 4B) |
| ☒ Saturation (A3) | ☐ Salt Crust (B11) | ☐ Drainage Patterns (B10) |
| ☐ Water Marks (B1) | ☐ Aquatic Invertebrates (B13) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) | ☐ Hydrogen Sulfide Odor (C1) | ☐ Saturation Visible on Aerial Imagery (C9) |
| ☐ Drift Deposits (B3) | ☐ Oxidized Rhizospheres along Living Roots (C3) | ☐ Geomorphic Position (D2) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) | ☐ Shallow Aquitard (D3) |
| ☐ Iron Deposits (B5) | ☐ Recent Iron Reduction in Tilled Soils (C6) | ☐ FAC-Neutral Test (D5) |
| ☐ Surface Soil Cracks (B6) | ☐ Stunted or Stressed Plants (D1) (LRR A) | ☐ Raised Ant Mounds (D6) (LRR A) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) | ☐ Frost-Heave Hummocks (D7) |
| ☐ Sparsely Vegetated Concave Surface (B8) | | |

Surface Water Present? Yes X No Depth (inches): 8'
Water Table Present? Yes No X Depth (inches):
Saturation Present? Yes X No Depth (inches): 0-10'
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Marilla Drinking Water City/County: Marilla/Humboldt Sampling Date: 6/13/17
 Applicant/Owner: MYSD State: CA Sampling Point: W2T1-U
 Investigator(s): LU/MS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): coastal plain Local relief (concave, convex, none): concave Slope (%): 2%
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: _____		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
1. <u>Salix ho</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: _____) 1. <u>Rubus ursinus</u> <u>30</u> <u>Y</u> <u>FACU</u> 2. _____ 3. _____ 4. _____ 5. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____) 1. <u>Bromus diandrus</u> <u>20</u> <u>Y</u> <u>NL</u> 2. <u>Anthrananthum al.</u> <u>30</u> <u>Y</u> <u>FACU</u> 3. <u>Sinus of</u> <u>2</u> <u>N</u> <u>FACW</u> 4. <u>Briza media</u> <u>2</u> <u>N</u> <u>FAC</u> 5. <u>Scrophularia ca.</u> <u>2</u> <u>N</u> <u>FAC</u> 6. <u>Gexanium di</u> <u>2</u> <u>N</u> <u>NL</u> 7. <u>Brassica nigra</u> <u>10</u> <u>N</u> <u>NL</u> 8. <u>Other</u> <u>2</u> <u>N</u> <u>NL</u> 9. _____ 10. _____ 11. _____				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____				
% Bare Ground in Herb Stratum <u>30</u> <u>0</u> = Total Cover				
Remarks: _____				

Sampling Point: WZT1-U

HYDROLOGY

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? Yes ☐ No ☒ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manilla Drinking Water City/County: Monterey/Humboldt Sampling Date: 6/13/17
 Applicant/Owner: MCSO State: CA Sampling Point: WZT1-W
 Investigator(s): LW/MS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Coastal plain Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix la</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>Rubus ursinus</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
4. _____	_____	_____	_____	OBL species _____ x 1 = _____
5. _____	_____	_____	_____	FACW species _____ x 2 = _____
= Total Cover				FAC species _____ x 3 = _____
Herb Stratum (Plot size: _____)				FACU species _____ x 4 = _____
1. <u>Oenothera sa.</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	UPL species _____ x 5 = _____
2. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
3. _____	_____	_____	_____	Prevalence Index = B/A = _____
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	1 - Rapid Test for Hydrophytic Vegetation
10. _____	_____	_____	_____	<u>X</u> 2 - Dominance Test is >50%
11. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹
= Total Cover				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Woody Vine Stratum (Plot size: _____)				5 - Wetland Non-Vascular Plants ¹
1. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
% Bare Ground in Herb Stratum _____				
Remarks:				

Sampling Point: WZT1-W

HYDROLOGY

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☒ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☒ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☒ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations: Surface Water Present? Yes ☒ No ☐ Depth (inches): <u>6"</u> Water Table Present? Yes ☐ No ☒ Depth (inches): <u> </u> Saturation Present? Yes ☒ No ☐ Depth (inches): <u>0-18</u>		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manilla Drinking Water City/County: Manilla/Humboldt Sampling Date: 6/13/17
 Applicant/Owner: MCSO State: CA Sampling Point: UP1
 Investigator(s): LW/MS Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Coastal plane Local relief (concave, convex, none): linear Slope (%): 0
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: _____)				
1. <u>Poa an.</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Anthoxanthum od.</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Plantago la</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u>Rumex acetosella</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
5. <u>Holcus la</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	
6. <u>Erigeron media</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7. <u>Trifolium repens</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
8. <u>Hypochaeris ra.</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
9. _____				
10. _____				
11. _____				
<u>95</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: UP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-14	2.5Y 3/2	100	—	0	—	loamy sand	mixed w/ gravel + variation from parent material + imported base

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | |
|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) |

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| ☐ High Water Table (A2) | ☐ Salt Crust (B11) |
| ☐ Saturation (A3) | ☐ Aquatic Invertebrates (B13) |
| ☐ Water Marks (B1) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres along Living Roots (C3) |
| ☐ Drift Deposits (B3) | ☐ Presence of Reduced Iron (C4) |
| ☐ Algal Mat or Crust (B4) | ☐ Recent Iron Reduction in Tilled Soils (C6) |
| ☐ Iron Deposits (B5) | ☐ Stunted or Stressed Plants (D1) (LRR A) |
| ☐ Surface Soil Cracks (B6) | ☐ Other (Explain in Remarks) |
| ☐ Inundation Visible on Aerial Imagery (B7) | |
| ☐ Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No <u>X</u>	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

GHD

OfficeAddressLine1

OfficeAddressLine2

T: OfficeTelephone F: OfficeFax E: OfficeEmail

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		Name	Signature	Name	Signature	Date
Draft A	Lia Webb	Misha Schwarz	MS	Misha Schwarz	MS	
Rev 0	Lia Webb	Brett Vivyan	BV	Misha Schwarz	MS	8/10/17

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Appendix D - List of Vascular Plant Species Observed Within the Study Area

Table X. Plant Species Observed within Study Area

Scientific Name	Common Name	Family
<i>Achillea millefolium</i>	western yarrow	Asteraceae
<i>Acmispon americanus</i> <i>var. americanus</i>	spanish lotus	Fabaceae
<i>Acmispon parviflorus</i>		Fabaceae
<i>Ambrosia chamissonis</i>	beach bur-sage	Asteraceae
<i>Anthoxanthum odoratum</i>	sweet vernal grass	Poaceae
<i>Arctostaphylos uva-ursi</i>	bear-berry	Ericaceae
<i>Armeria maritima subsp. californica</i>	thrift	Plumbaginaceae
<i>Artemisia pycnocephala</i>	coastal sagewort	Asteraceae
<i>Avena sp.</i>	oats	Poaceae
<i>Baccharis pilularis</i>	coyote brush	Asteraceae
<i>Brassica nigra</i>	black mustard	Brassicaceae
<i>Briza maxima</i>	rattlesnake grass	Poaceae
<i>Briza minor</i>	annual quacking grass	Poaceae
<i>Bromus carinatus</i>	California brome	Poaceae
<i>Bromus diandrus</i>	ripgut brome	Poaceae
<i>Bromus hordeaceus</i>	soft chess brome	Poaceae
<i>Camissoniopsis cheiranthifolia</i>	beach evening primrose	Onagraceae
<i>Carpobrotus chilensis</i>	sea fig	Aizoaceae
<i>Cortaderia jubata</i>	purple pampas grass	Poaceae
<i>Eriogonum latifolium</i>	seaside wild buckwheat	Polygonaceae
<i>Festuca microstachys</i>	small fescue	Poaceae
<i>Fragaria chiloensis</i>	beach strawberry	Rosaceae
<i>Glehnia littoralis</i>	American silvertop	Apiaceae
<i>Holcus lanatus</i>	velvet grass	Poaceae
<i>Hordeum marinum subsp. gussoneanum</i>	Mediterranean barley	Poaceae
<i>Juncus lescurii</i>	San Francisco rush	Juncaceae
<i>Lupinus arboreus</i>	yellow bush lupine	Fabaceae
<i>Lupinus bicolor</i>	miniature lupine	Fabaceae
<i>Luzula comosa</i>	hairy wood rush	Juncaceae
<i>Medicago polymorpha</i>	California burclover	Fabaceae
<i>Mentha pulegium</i>	pennyroyal	Lamiaceae



Scientific Name	Common Name	Family
<i>Morella californica</i>	wax myrtle	Myricaceae
<i>Parentucellia viscosa</i>	yellow glandweed	Scrophulariaceae
<i>Plantago erecta</i>		Plantaginaceae
<i>Plantago lanceolata</i>	English plantain	Plantaginaceae
<i>Platystemon californicus</i>	cream cups	Papaveraceae
<i>Poa douglasii</i>	sand dune blue grass	Poaceae
<i>Polygonum sp.</i>	knotweed	Polygonaceae
<i>Raphanus sativus</i>	radish	Brassicaceae
<i>Rubus armeniacus</i>	Himalayan blackberry	Rosaceae
<i>Rubus ursinus</i>	California blackberry	Rosaceae
<i>Rumex acetosella</i>	common sheep sorrel	Polygonaceae
<i>Salix hookeriana</i>	coastal willow	Salicaceae
<i>Scrophularia californica</i>	California figwort	Schrophulariaceae
<i>Solidago spathulata</i>	coast goldenrod	Asteraceae
<i>Tanacetum bipinnatum</i>	dune tansy	Asteraceae
<i>Trifolium dubium</i>	little hop clover	Fabaceae
<i>Trifolium repens</i>	white clover	Fabaceae
<i>Trifolium subterraneum</i>	subterraneum clover	Fabaceae
<i>Vicia hirsuta</i>		Fabaceae
<i>Vicia sativa</i>		Fabaceae