Appendix E.1

Biological Resource Reports

Natural Resources Assessment, Samoa Peninsula Water Project

This page is intentionally left blank

Natural Resources Assessment

Samoa Peninsula Wastewater Project

Samoa, California

Prepared for:

County of Humboldt

August 2018
017203.003

1062 G St., Suite I, Arcata, CA 95521-5800 707-822-5785
Civil Engineering, Environmental Services, Geosciences, Planning & Permitting, Surveying

Reference: 017203.003

August 27, 2018

Mr. John Miller
Senior Planner
Humboldt County Planning and Building Department
3015 H Street
Eureka, CA 95501

Subject: Natural Resources Assessment, Samoa Peninsula Wastewater Project, Samoa, California

Dear Mr. Miller:

SHN has prepared this Natural Resources Assessment for the Samoa Peninsula Wastewater Project. This report addresses Environmentally Sensitive Habitat Areas and special status species present or potentially occurring within the study area, evaluates project-related impacts, and recommends appropriate avoidance and minimization measures.

Field work was conducted in April, May, and June 2018, within the bloom period for special status species potentially occurring onsite. Many Environmentally Sensitive Habitat Areas were observed within and adjacent to the study area and are mapped in Figures 3A-3D. In addition, two special status plant species and one nesting special status animal species were observed within the study area. They are mapped on Figures 3A-3D.

The project will not have significant effects on the natural resources within the area if the avoidance measures and recommendations contained within this Natural Resources Assessment are implemented.

Please call me at 707-822-5785 if you have any comments or concerns.

Sincerely,

SHN Engineers & Geologists

Joseph Saler
Biologist/Botanist

JLS:ceg

Enclosure: Natural Resources Assessment

Natural Resources Assessment

Samoa Peninsula Wastewater Project

Samoa, California

Prepared for:
County of Humboldt

Prepared by:

1062 G St., Suite I
Arcata, CA 95521-5800
707-822-5785

August 2018

QA/QC: MKF___

Table of Contents

Table of Contents, Continued

Page

Appendices

List of Illustrations

Figures **Follows Page**

Abbreviations and Acronyms

°C	degrees Celsius
°F	degrees Fahrenheit
ft	feet
km	kilometer
ppt	parts per trillion
APN	Assessor's Parcel Number
BMP	best management practice
BIOS	Biogeographical Information and Observation System
C	candidate species status
CCH	Consortium of California Herbaria
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CT	candidate threatened species status
CWA	Clean Water Act
D	delisted species status
DPS	Northern California distinct population segment/species status
E	endangered species status
EPA	U.S. Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
ESU	evolutionarily significant unit/species status
FESA	Federal Endangered Species Act
FP	fully protected species status
G	global
G1/S1	critically imperiled species heritage rank
G2/S2	imperiled species heritage rank
G3/S3	vulnerable species heritage rank
G4/S4	apparently secure species heritage rank
G5/S5	secure species heritage rank
IPaC	Information for Planning and Conservation
LCP	Local Coastal Program
MBTA	Migratory Bird Treaty Act
NOAA	National Oceanic & Atmospheric Administration
NCDC	National Climatic Data Center
NCCP	Natural Community Conservation Planning Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
NA	not applicable
NL	not listed
NR	not ranked
NRA	Natural Resources Assessment
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PT	proposed threatened species status
RMT II	Redwood Marine Terminal II
RWQCB	Regional Water Quality Control Boards
S	state
SAA	Streambed Alteration Agreement
SNR	State not ranked
SSC	species of special concern
SWRCB	State Water Resources Control Board
T	threatened species status
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VegCAMP	Vegetation Classification and Mapping Program
WDR	Waste Discharge Requirement
WL	watch list species status
WWTF	wastewater treatment facility

1.0 Introduction

SHN has conducted site investigations, literature reviews, and an assessment to determine biological resources present in relation to the proposed Samoa Peninsula Wastewater Project from the Redwood Marine Terminal II (RMT II) ocean outfall pipeline south to the Samoa boat ramp county park (For areas north of the RMT II, see SHN 2017 Natural Resources Assessment, RMT II, Samoa Effluent Pipeline Project, SHN, 2017b). This Natural Resources Assessment (NRA) has been prepared to evaluate the potential for special status biological resources within the study area, including natural communities.

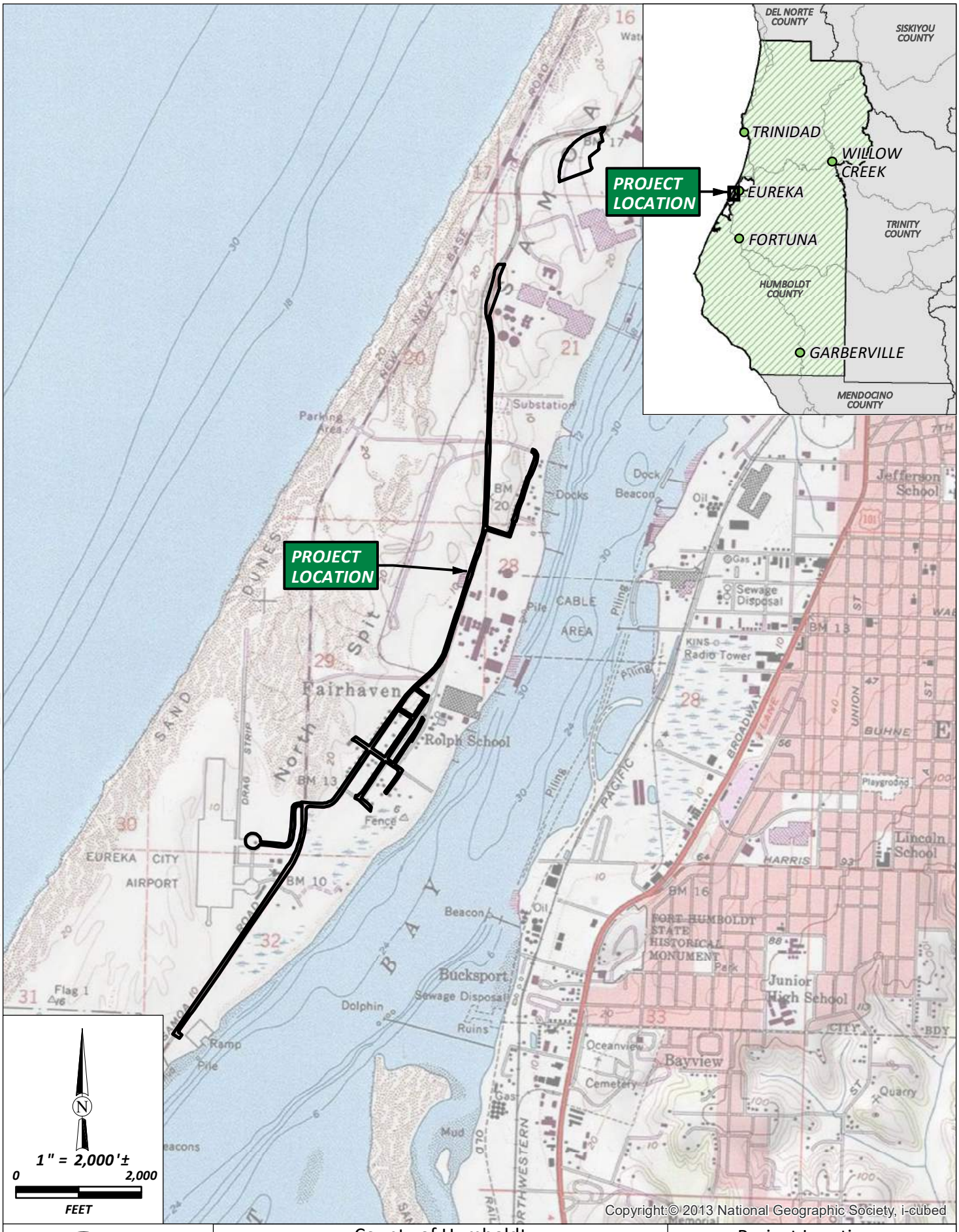
The Samoa Peninsula Wastewater Project (project) is designed to develop a regional wastewater collection, treatment, and disposal system on the Samoa Peninsula to reduce water quality impacts from wastewater which is currently discharged to groundwater through existing percolation ponds and individual leach fields. The project would provide wastewater services to the unincorporated communities of Fairhaven and Finntown, existing industrial uses, the Samoa boat ramp and RV park, and smaller commercial operations located on or near the City of Eureka Samoa Field. The project would not service the Samoa Town as described in the approved Samoa Town Master Plan. The proposed project will include construction and operation of a wastewater collection system, upgrades to a previously approved Wastewater Treatment Facility (WWTF), and treated water disposal through the ocean outfall pipe at the Redwood Marine Terminal II (RMT II). Additional project areas located to the north of the RMT II ocean outfall pipeline were addressed in the Natural Resources Assessment for the RMT II Samoa Effluent Pipeline Project (SHN, 2017b). This Natural Resources Assessment addresses natural resources potentially impacted by the construction of the wastewater system between the RMT II outfall pipe and the Samoa boat ramp and RV park, as well as use of a large staging area near the WWTF site.

1.1 Project Location

The project is located on the Samoa peninsula stretching approximately 2.5 miles from the RMT II ocean outfall pipe to the Samoa boat ramp and RV Park, plus a large staging area proposed near the WWTF site. This includes the two unincorporated communities of Fairhaven and Finntown, California, within Humboldt County (Figure 1; United States Geological Survey [USGS] Eureka 7.5-minute Quadrangle, Township 5 North, Range 1 West, Section 29, Humboldt Meridian). The project is also located within Sections 16, 20, 21, 28, and 32 of Township 5 North, Range 1 West, Humboldt Meridian. The study area intersects directly with five separate parcels (Assessor's parcel numbers [APNs] 401-112-021, 401-301-016, 401-141-005, 401-141-004, and 401-031-061). Parcel 401-141-004 is a staging area located next to the Samoa drag strip. Parcel 401-031-061 is a staging area located next to the proposed WWTF site. The total study area is approximately 30 acres, with a center latitude and longitude of 40.789892° and -124.198747°, respectively (see Figure 2). Project improvements will be located primarily within existing roadways – Vance Avenue, Bendixon Street, Lincoln Avenue, New Navy Base Road, and portions of adjoining streets. Improvements will also be made at the approved, but not yet constructed, Samoa Wastewater Treatment Facility. The study area includes an approximately 4.7-mile long area of study along existing road prisms, including 10 feet from the edge of pavement along all roads within the study area, from the proposed RMT II ocean outfall access point to the Samoa boat launch county park including two stockpile and staging areas (see Figure 2). There are additional stockpile and staging areas located north of the RMT II ocean outfall pipeline which are included in the 2017 Samoa Effluent Pipeline Project NRA (SHN, 2017b). The project is located on the Samoa peninsula, approximately 1 air-mile west of the city of Eureka, and 6.5 air-miles southwest of Arcata.

1.2 Site Description

The study area is located within former industrial land, roadways, and in the unincorporated communities of Fairhaven and Finntown. The majority of these lands were historically dune and deflation plain wetland habitat. The study area has been used for industrial purposes, roadways and residences since the late 1800s



\\Eureka\Projects\2017\017203-Samoa Peninsula Wastewater design -plan of study\GIS\PROJ_MXD\003_EIR_CEQA\ USER: jsousa DATE: 8/23/18, 12:04PM

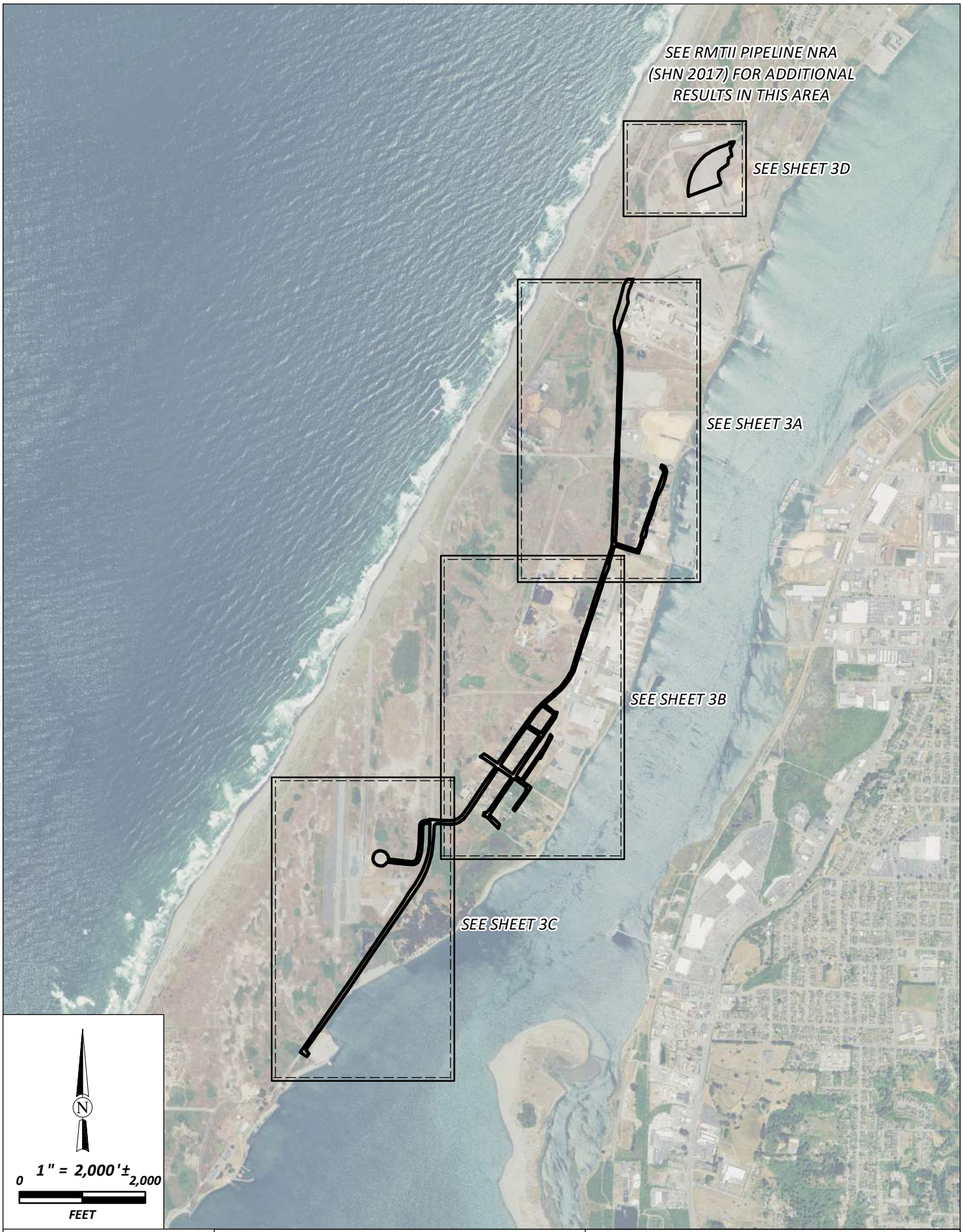
Consulting Engineers & Geologists, Inc.

County of Humboldt
Samoa Peninsula Wastewater NRA
Samoa, California

Project Location

SHN 017203.003

August 2018 | NRA_Fig1_ProjectLocation | Figure 1



\\Eureka\Projects\2017\017203-Samoa Peninsula Wastewater design -plan of study\GIS\PROJ_MXD\003_EIR_CEQA\NRA_Fig2_StudyArea.mxd;User:jsousa;Printed:8/23/2018

Consulting Engineers & Geologists, Inc.	County of Humboldt Samoa Peninsula Wastewater NRA Samoa, California	Study Area SHN 017203.003
	August 2018 | NRA_Fig2_StudyArea	Figure 2

with a large portion of the industrial development occurring in the 1960s and 1970s. The towns of Fairhaven and Finntown historically operated with shipyards oriented around the lumber trade. Several lumber mills and pulp mills operated on the northern and mid-sections of the study area, closing at different times within the last 20 years. These facilities have mostly been demolished, leaving vacant industrial land, however, several have been repurposed into other industrial uses and many lumber-based industrial facilities continue to operate within and adjacent to the study area. The southern portion of the study area includes the Samoa boat launch and campground, operated by the County of Humboldt, and the road access area to the Samoa Drag Strip. The western portion of the study area covers sections of New Navy Base Road and Vance Avenue. Other roadways within the study area include residential roads in Fairhaven and Finntown. Currently, the majority of the study area includes active roadways, and is covered with old asphalt, fractured concrete, compacted gravel on former log decks, and railroad infrastructure. The large staging area proposed near the WWTF consists of a large expanse of asphalt used for industrial purposes and did not contain any potential habitat for special status species nor any Environmentally Sensitive Habitat Areas (ESHA). Installation of the wastewater collection system is proposed to occur within the existing roadways to minimize impacts to sensitive coastal habitat. A large portion of the study area is characterized by a mix of disturbance-adapted, primarily non-native, herbaceous species, and other early seral disturbance-adapted shrubby species such as coyote brush (*Baccharis pilularis* ssp. *consanguinea*). Small areas of semi-natural dune and wetland habitat occur between the vacant industrial lands in areas that are used as drainages, or along property lines. These areas are mostly dominated by native vegetation. Native dune habitat and areas of larger undisturbed wetlands occur adjacent to the study area, and are composed of native vegetation communities. Wetland areas and deflation swales are primarily dominated by coastal willow (*Salix hookeriana*) and wax myrtle (*Morella californica*), among others. Many relatively undisturbed sandy areas exist alongside the proposed project alignment, and constitute dune habitat, however large portions of these areas are dominated by non-native species such as European beach grass (*Ammophila arenaria*) or non-native annual grasses.

2.0 Methodology

2.1 Literature Review

This NRA includes a review of pertinent literature on habitat characteristics of the site, and a review of information related to special status plant and animal species that could potentially use the described habitats.

The findings for this report are a result of several sources, including a review of existing literature regarding sensitive resources that have the potential to occur within the site. Resources for this determination included:

- California Natural Diversity Database (CNDDB) query for the Eureka and surrounding USGS 7.5-minute topographic quadrangles (Arcata South, Cannibal Island, McWhinney Creek, Tyee City, Arcata North, and Fields Landing) (CDFW, 2018a)
- Biogeographical Information and Observation System (BIOS; CDFW, 2018b)
- Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2018) queried for a list of all plant species reported for the Eureka and surrounding USGS 7.5-minute topographic quadrangles
- Special Vascular Plants, Bryophytes, and Lichens of California List (CDFW, 2018c)
- Special Animals of California List (CDFW, 2018d)
- United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) was queried for threatened, endangered, proposed, and candidate species, as well as proposed and

final designated critical habitat, that may occur within the boundary of the proposed project and/or may be affected by the proposed project (USFWS, 2018a)

- Humboldt county General Plan Volume II Humboldt Bay Area Plan (County of Humboldt, 2014)

From the database queries, a list of potential target species for the study area was compiled. Tables 1-1 and 1-2 in Appendix 1 include species reported by the CNDDB and USFWS, and species listed in the California Native Plant Society (CNPS) inventory of rare plants.

Additionally, the USFWS Critical Habitat Portal was queried for habitat designated as critical for species listed under the Federal Endangered Species Act (FESA). No critical habitat is designated within the study area. The nearest designated critical habitat is 2.6 miles east at Ryan Slough for the threatened Chinook salmon (*Oncorhynchus tshawytscha*). Additional critical habitat is designated around Humboldt Bay for the endangered tidewater goby (*Eucyclogobius newberryi*) and the threatened Western snowy plover (*Charadrius alexandrines nivosus*). However designated critical habitat for these species is more than 4 miles away.

Numerous CNDDB occurrences of special status species have been recorded from the dune habitat surrounding the study area. This includes dark-eyed gilia (*Gilia millefoliata*), short-leaved evax (*Hesperavax sparsiflora var. brevifolia*), western lily (*Lilium occidentale*), Menzies wallflower (*Erysimum menziesii*), pink sand verbena (*Abronia umbellata* var. *breviflora*), marsh pea (*Lathyrus palustris*), marsh milkvetch (*Astragalus pycnostachyus* var. *pycnostachyus*), and western sandspurrey (*Spergularia canadensis* var. *occidentalis*) within a half-mile of the study area. The western bumblebee (Bombus occidentalis), eulachon (*Thaleichthys pacificus*), and western snowy plover also have been recorded within a half-mile of the project.

2.2 Field Observations and Studies

SHN's biologist conducted site visits on April 11 and 17, May 31, and June 12, 2018, for biological surveys and habitat assessment for a total of 21.5 hours of surveying. A wetland delineation (SHN, August 2018) was done concurrently with the survey, in order to better analyze the habitats found within the study area, but is not included within the survey hours mentioned above. Surveys were conducted with an attempt to identify all species present within the project-related study areas, including possible species of special concern. In addition to surveying for target species, a list of all botanical and animal species encountered was compiled (Tables 1-3, and 1-4 in Appendix 1). Plants were identified to the lowest taxonomic level possible to distinguish special-status species from others. Nomenclature for special-status animals conforms to California Department of Fish and Wildlife (CDFW) guidelines (CDFW, 2009, 2018b). Plant community names conform to *A Manual of California Vegetation, Second Edition* (Sawyer et al.; 2009) and the VegCAMP (Vegetation Classification and Mapping Program) Natural Communities List (CDFW; 2010). Botanical nomenclature of species in this assessment follows the *Jepson Manual (*Baldwin et al., 2012) and subsequent online revisions. The April, May, and June site visits were conducted at seasonally-appropriate times to best detect early and late blooming special status plant species, and a number of nesting bird species. Analysis of the habitat and vegetation communities present within the study area during the site visits indicate that suitable habitat for several special status plant and animal species exists onsite, however, much of the developed and former industrial lands comprising the majority of the study area do not have suitable conditions for special status species reported as potentially occurring within the area. The areas most likely to support special status species include deflation plain wetlands and wax-myrtle and coastal willow dominated wetlands, as well as relatively undisturbed dune habitat. Habitat assessments were conducted for animal species during site visits. Habitat for special status species and other ESHA have been mapped as part of this report and will be discussed further.

Site photographs from the site visits are included in Appendix 2.

3.0 Environmental Setting

The study area is located on a sandy spit of land 2,000 to 4,000 feet wide between the Pacific Ocean and Humboldt Bay, extending 12.5 miles from the Mad River in the north to the entrance to Humboldt Bay. Land use within the vicinity of the study area includes former and existing industrial land, roadways, recreation, and residential housing within the unincorporated communities of Fairhaven and Finntown. The majority of the area was historically dune and deflation plain wetland, and brackish marsh habitat. Natural dune and wetland habitat exists within and adjacent to portions of the study area. The study area is situated at an approximate 7- to 32-foot elevation above mean sea level (See Figures 1 and 2). The average 30-year precipitation data for this area from October 1 through August 24 is 40.33 inches (NOAA Eureka Station, 2018), with the majority of precipitation occurring between November and March. Temperatures on the Samoa peninsula range from an average low of 46.2 degrees Fahrenheit (°F) in December to an average high of 59.6°F in September; extremes in temperatures are relatively uncommon due to the regional maritime influence.

3.1 Hydrology

The project is located within the Mad-Redwood watershed (hydrologic unit code 18010102), which includes all of Humboldt Bay. Topography across the study area is naturally undulating between dunes, with stormwater draining into wetlands between dunes and other low spots. Within industrial areas, stormwater is directed into Humboldt Bay or the Pacific Ocean; at newer locations, it flows into catchment basins where it infiltrates into well-drained sandy soils. No streams originate or pass through the study area due to the well-drained nature of the soils, and relatively small catchment area. Humboldt Bay is at a minimum 30 feet to the east of the study area at New Navy Base Road north of the Samoa boat launch and campground, while the Pacific Ocean is at a minimum 1,125 feet west of the study area at the RMT II outfall pipeline.

The USFWS is the federal agency responsible for tracking wetland trends and maintaining an inventory through its National Wetland Inventory (NWI; USFWS, 2018b). The NWI can be queried for specific locations throughout the United States (U.S.) to aid federal, State, and local agencies in making informed decisions concerning wetlands. According to the NWI, six wetland types exist within or adjacent to the study area. This includes seasonal and semi-permanently flooded freshwater emergent wetlands (PEM1C, PEM1F), freshwater forested/shrub wetland (PSS1C), freshwater pond (PUBF), estuarine and marine intertidal wetland (E2EM1P), and estuarine and marine intertidal shore (E2US2N) (Appendix 3).

NWI maps are excellent references for scoping the presence or absence of wetlands; however, the resolution of the NWI tends to be on a macro scale, often with no field verification. As recommended by NWI, a site-specific wetland delineation was conducted within the study areas detailing wetland conditions and determining an accurate distribution of wetlands within the proposed study area. Wetland distribution observed during the field visits as recorded within the wetland delineation report (SHN, August 2018) documents wetlands within the study area including areas that were over mapped, and under mapped by the NWI.

3.2 Soils

Soils within the study area consist of urban industrial fill (1014) and the Samoa-Clambeach-duneland complex (155) (USDA-NRCS, 2018; McLaughlin and Harradine, 1965). Industrial fill is found across a large portion of the study areas; the fill consists of soils from mixed sources. Industrial fill soils were used during the construction of the various industrial facilities, residential housing, and roadways within and surrounding the study area. Fill soils along roadways rarely extend more than 10 feet from the edge of pavement. It is within these roadway fill soils that the wastewater collection system is proposed to be built.

Soils adjacent to developed and disturbed areas within the study area consist of the native Samoa-Clambeach-duneland complex. Soils within this complex are sandy and are found in dunes and deflation basins. They are composed of Eolian and marine sand derived from mixed sources. Soils can be somewhat excessively drained on upper dune regions, to very poorly drained in deflation basins. These soils are found within the dunes comprising the Samoa peninsula, and can support unique dune habitat and inter-dune wetlands (NRCS, 2018).

3.3 Vegetation

Vegetation composition varied widely across the study area, but was representative of coastal dune and wetland habitat as well as disturbed and developed coastal areas. The study area along the roadways was composed primarily of non-native species, however in less disturbed areas a mix of coastal willow, wax myrtle, California blackberry (*Rubus ursinus*), slough sedge (*Carex obnupta*), dune mat vegetation, and non-native annual grasses are present. A list of all vegetation species observed within the study area during the surveys is reported in Table 1-3, Appendix 1. See Section 5.3.1 Natural Communities for more information on the natural communities observed on site.

3.4 Wildlife Habitats

Common wildlife species expected on the site are those associated with northern California coastal dunes, shrublands, and disturbed sites. This includes: sandy dunes, willow shrub, non-native grasslands, dune scrub, residential neighborhoods, and industrial buildings. Wildlife species observed at the site included the common raven (*Corvus corax*), barn swallow (*Hirundo rustica*), osprey (*Pandion haliaetus*), and white crowned sparrow (*Zonotrichia leucophrys*), among others (see Appendix 1, Table 1-4). Other wildlife species are likely to inhabit the surrounding area and it is expected that there are many other bird, mammal, and amphibian species that might use the project site, if only transitionally. Human activities within the industrial, residential and roadway areas of the study area may limit the abundance of a variety of birds and animals within those areas.

3.5 Wildlife Movement Corridors

Wildlife movement includes migration (that is, usually one-way per season), inter-population movement (that is, long-term genetic flow), and small travel pathways (that is, daily movement corridors within an animal's territory). Although small travel pathways usually facilitate movement for daily home range activities (such as, foraging or escape from predators), they also provide connection between outlying populations and the main corridor, permitting an increase in genetic flow among populations.

These linkages among habitat types can extend for miles from primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement between populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations constituting a large single population, which is often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as, occurs with coastal dunes and coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, migration corridors, and movement corridors. Depending on the condition of the corridor, genetic flow between populations may be high in frequency, thus, allowing high genetic diversity within the population, or may be low in frequency. Low-frequency genetic flow may potentially lead to complete isolation and, if pressures are strong, potential extinction (McCullough, 1996; Whittaker, 1998).

The study area (Figure 2) is composed of a mixture of developed and undeveloped coastal dune and wetland habitat on a narrow spit of land between Humboldt Bay and the Pacific Ocean. It is unlikely that

large scale terrestrial linkages exist, however local wildlife movement corridors exist across the Samoa peninsula and are expected to be concentrated along shrubby and vegetated areas including wetlands and vegetated swales. The study area is also known to be an important flyover location for shorebirds and other marine bird species, although it is unlikely that these species would stop within the study area.

3.6 Offsite Conditions

Offsite conditions are similar to or better than those found within the study area. The majority of the land to the east of and to the north of the study area has been developed at some time in the past. Land to the west and south ranges from a mix of disturbed dune and wetland habitat to very high-quality dune and wetland habitat with a low percentage of invasive species. Several roads and recreational uses fragment the high-quality habitat, with more disturbed habitat surrounding developed areas and areas used for recreation purposes and off-road vehicles.

4.0 Regulatory Setting

Regulatory authority over biological resources is shared by federal, State, and local authorities under a variety of legislative acts. The following section summarizes the federal, State, and local regulations for special status species, jurisdiction Waters of the U.S. and State of California, and other sensitive biological resources. This section provides a listing and overview of these federal, State and local laws; only select regulations will be applicable to this project.

4.1 Federal Laws

4.1.1 Clean Water Act Sections 404 and 401

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

The USACE defines wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE Environmental Laboratory, 1987). In other words, the USACE defines wetlands by the presence of all three wetland indicators: hydrophytic vegetation, hydric soils, and wetlands hydrology.

Waters of the U.S. are defined at 33 Code of Federal Regulations (CFR) Part 328. They include traditional navigable waters; relatively permanent, non-navigable tributaries of traditional navigable waters, and certain wetlands. Following recent court cases, the EPA and USACE published a memorandum entitled “Clean Water Act Jurisdiction” (USACE/EPA, 2008) to guide the determination of jurisdiction over Waters of the U.S., especially for wetlands. The applicability of Section 404 permitting over discharges to wetlands is, therefore, a two-step process: 1) determining the areas that are wetlands, and 2) where a wetland is present, assessing the wetland’s connection to traditional navigable waters and non-navigable tributaries to determine whether the wetland is jurisdictional under the CWA. A wetland is considered jurisdictional if it meets certain specified criteria.

The USACE is required to consult with the USFWS and/or National Marine Fisheries Service (NMFS) under Section 7 of the FESA if the action subject to CWA permitting could result in “Take” of federally listed species

or an adverse effect to designated critical habitat. The project is within the jurisdiction of the Sacramento District of the USACE.

Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification from the state in which the discharge originates or would originate, or if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCB). The project is within the jurisdiction of the North Coast RWQCB.

4.1.2 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC Sections 661-667e, March 10, 1934, as amended 1936, 1946, 1947, 1948, 1949, 1958, 1965, 1978, and 1995) requires that whenever waters or channel of a stream or other body of water are proposed or authorized to be modified by a public or private agency under a federal license or permit, the federal agency must first consult with the USFWS and/or NMFS and with the head of the agency exercising administration over the wildlife resources of the state where construction will occur (in this case the CDFW), with a view to conservation of birds, fish, mammals, and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.

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

4.1.3 Federal Endangered Species Act

The United States Congress passed the FESA in 1973 to protect species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act.

(NEPA) to help protect the ecosystems upon which endangered and threatened species depend and within which they live. The USFWS and the NMFS are the designated federal agencies responsible for administering the FESA.

The FESA prohibits the “Take” of endangered or threatened wildlife species. A “Take” is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1531, 50 CFR 17.3). An activity can be defined as a “Take” even if it is unintentional or accidental. Taking can result in civil or criminal penalties. Activities that could result in “Take” of a federally-listed species require an incidental “Take” authorization resulting from FESA Section 7 consultation or FESA Section 10 consultation. Plants are legally protected under the FESA only if “Take” occurs on federal land or from federal actions, such as, issuing a wetland fill permit.

A federal endangered species is one that is considered in danger of becoming extinct throughout all, or a significant portion, of its range. A federal threatened species is one that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species proposed for listing as threatened or endangered. Proposed species are those for which a proposed rule to list as endangered or threatened has

been published in the Federal Register. In addition to endangered, threatened, and proposed species, the USFWS maintains a list of candidate species. Candidate species are those for which the USFWS has on file sufficient information to support issuance of a proposed listing rule.

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

4.1.4 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in CFR Part 10, including feather or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21; USFWS, 1918). The MBTA also prohibits disturbance and harassment of nesting migratory birds at any time during their breeding season. The USFWS is responsible for enforcing the MBTA (16 USC 703). The migratory bird nesting season is generally considered to be between March 15 and August 15 within the study region.

4.2 State Laws

4.2.1 California Coastal Act

The California Coastal Act includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. The policies of the Coastal Act constitute the statutory standards applied to planning and regulatory decisions made by the California Coastal Commission and by local governments, pursuant to the Coastal Act.

4.2.2 Porter-Cologne Water Quality Control Act

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

4.2.3 California Endangered Species Act

The State of California enacted the CESA in 1984. The CESA is similar to the FESA but pertains to state-listed endangered and threatened species. Under the CESA, the CDFW has the responsibility for maintaining a list

of threatened and endangered species designated under state law (California Fish and Game Code [CFGC] 2070). Section 2080 of the CFGC prohibits "Take" of any species that the commission determines to be an endangered or threatened species. "Take" is defined in Section 86 of the CFGC as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

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

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

4.2.4 California Environmental Quality Act

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

The CNPS maintains a list of plant species native to California whose populations that are significantly reduced from historical levels, occur in limited distribution, or are otherwise rare or threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS, 2018). Taxa with a CRPR of 1A, 1B, 2A, 2B, and 3 in the CNPS inventory consist of plants that meet the definitions of the CESA of the CFGC, are eligible for state listing, and meet the definition of Rare or Endangered under CEQA Guidelines Sections 15125 (c) and 15380(d). Some taxa with a CRPR 4 may meet the definitions of the CESA of the CFGC. CRPR 4 populations may qualify for consideration under CEQA if they are peripheral or disjunct populations; represent the type locality of the species; or exhibit unusual morphology and/or occur on unusual substrates.

Additionally, CDFW maintains lists of special animals and plants. These lists include a species conservation ranking status from multiple sources, including FESA, CESA, and federal departments with unique jurisdictions, CNPS, and other non-governmental organizations. Based on these sources, CDFW assigns a heritage rank to each species according to their degree of imperilment (as measured by rarity, trends, and threats). These ranks follow NatureServe's Heritage Methodology, in which all species are listed with a G (global) and S (state) rank. Species with state ranks of S1-S3 are also considered highly imperiled.

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

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

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

4.2.5 California Fish and Game Code Section 1600

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

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

In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as "on, or pertaining to, the banks of a stream"; therefore, riparian vegetation is defined as, "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFW, 1994). Removal of riparian vegetation also requires an SAA from the CDFW.

4.2.6 California Fish and Game Code Sections 3503 and 3513

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

4.2.7 Fully Protected Species and Species of Special Concern

The classification of "fully protected" was the CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced with possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The CFGC sections (fish at Sec. 5515, amphibian and reptiles at Sec. 5050,

birds at Sec. 3511, and mammals at Sec. 4700) dealing with "fully protected" species states that these species "…may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species," (CDFW, 1998) although "Take" may be authorized for necessary scientific research. This language makes the "fully protected" designation the strongest and most restrictive regarding the "Take" of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFW to authorize "Take" resulting from recovery activities for state-listed species.

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

Table 1-2 in Appendix 1 includes potentially-occurring federal and State-listed species and SSC animals that may occur in the study area.

4.2.8 Native Plant Protection Act of 1973

The Native Plant Protection Act (NPPA) of 1973 (Sec.1900-1913 of the CFGC) includes provisions that prohibit the taking of endangered or rare native plants from the wild and a salvage requirement for landowners. The CDFW administers the NPPA and generally regards as "rare" many plant species included on Lists 1A, 1B, 2A, 2B, 3, and 4 of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2018).

Table 1-1 in Appendix 1 includes potentially-occurring endangered or rare native plants that may occur in the study area (including CNPS lists).

4.2.9 Natural Community Conservation Planning Act

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

No regionally-occurring natural community or associated plan is listed by the State for the study area.

5.0 Special Status Biological Resources

An evaluation was conducted for the potential presence or absence of habitat for special status plant and animal species. CNDDB RareFind (CDFW, 2018a), BIOS (CDFW, 2018b), and CNPS (CNPS, 2018) searches were completed for the 7.5-minute USGS Eureka quadrangle and all adjacent quadrangles. The aforementioned databases were queried for historical and existing occurrences of State and federally-listed threatened, endangered, and candidate plant and animal species; species proposed for listing; and all plant

species listed by the CNPS (Online 2018 inventory). In addition, a list of all federally listed species that are known to occur or may occur in the vicinity was obtained from the USFWS' IPaC database (USFWS, 2018a).

Table 1-1 in Appendix 1 includes all plant species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the species. Table 1-2 includes all animal species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the species. The potential for occurrence of those species included on the list were then evaluated based on the habitat requirements of each species relative to the conditions observed during the field surveys.

Each species was evaluated for its potential to occur in the study area according to the following criteria:

- **None**. Species listed as having "none" are those species for which:
    - there is no suitable habitat present in the study area (that is, habitats in the study area are unsuitable for the species requirements [for example, elevation, hydrology, plant community, disturbance regime, etc.]).
- **Low**. Species listed as having a "low" potential to occur in the study area are those species for which:
    - there is no known record of occurrence in the vicinity, and
    - there is marginal or very limited suitable habitat present within the study area.
- **Moderate**. Species listed as having a "moderate" potential to occur in the study area are those species for which:
    - there are known records of occurrence in the vicinity, and
    - there is suitable habitat present in the study area.
- **High**. Species listed as having a "high" potential to occur in the study area are those species for which:
    - there are known records of occurrence in the vicinity (there are many records and/or records in close proximity), and
    - there is highly suitable habitat present in the study area.
- **Present**. Species listed as "present" in the study area are those species for which:
    - the species was observed in the study area.

5.1 Special Status Plant Species

Based on a review for special status plant species, 50 special status plant species have been reported from the region consisting of the Eureka quadrangle and the surrounding quadrangles. Of the special status plant species reported for the region, 23 plant species are considered to have low or no potential to occur at the project site and 27 species have a moderate or high potential of occurring at the project site. Species with a moderate or high potential for occurrence within the study area are described below. The western lily is anticipated to have no occurrence of existing within the study area based on lack of appropriate habitat. However, because CNDDB includes a large polygon including a portion of the study area as potential habitat, the western lily is also described below.

Pink sand verbena (*Abronia umbellata* var. *breviflora*) is a perennial herb in the Nyctaginaceae family. It is neither State nor federally listed, but has a CRPR of 1B.1 and a heritage rank of G4G5T2/S1. Its elevation

range is reported from 0 to 10 meters above sea level. Within its range state-wide, its blooming period is reported as June through October. This species is reported from foredunes and interdunes with sparse cover and is usually the plant closest to the ocean. Within the nine-quad search, numerous Rarefind occurrences are reported, several adjacent to, and within the study area. Although suitable habitat may exist within the study area for this species, it was not detected. This species was detected outside of the study area approximately 90 feet east of the study area, and will not be impacted by this project.

Sea watch (*Angelica lucida*) is a perennial herb in the Apiaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G5/S3. Its elevation range is reported from 0 to 150 meters above sea level. Within its range state-wide, its blooming period is reported as May through September. This species is reported from coastal bluff scrub, coastal dunes, coastal scrub, and coastal salt marshes. There is no Rarefind occurrence for this taxon within the nine-quad search. Although suitable habitat may exist within the study area for this species, it was not detected.

Coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*) is a perennial herb in the Fabaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G2T2/S2. Its elevation range is reported from 0 to 155 meters above sea level. Within its range state-wide, its blooming period is reported as April through October. This species is reported from mesic sites in coastal dunes, along streams, coastal marshes and swamps, and mesic sites in coastal scrub. Within the nine-quad search, one Rarefind occurrence is reported directly north of the study area with an observation date in 1925. Although suitable habitat may exist within the study area for this species, it was not detected.

False grey horsehair lichen (*Bryoria pseudocapillaris*) is a lichen in the Parmeliaceae family. It is neither State nor federally listed, but has a CRPR of 3.2 and a heritage rank of G3/S2. Its elevation range is reported from 0 to 90 meters above sea level. This species is reported from coastal dunes and north coast coniferous forest along the immediate coast, where it is usually found on conifers. There is no Rarefind occurrence for this taxon within the nine-quad search. Although suitable habitat may exist within the study area for this species, it was not detected.

Twisted horsehair lichen (*Bryoria spiralifera*) is a lichen in the Parmeliaceae family. It is neither State nor federally listed, but has a CRPR of 1B.1 and a heritage rank of G3/S1S2. Its elevation range is reported from 0 to 30 meters above sea level. This species is reported from north coast coniferous forest, where it is usually found on conifers. Within the nine-quad search, several Rarefind occurrences are reported, with the nearest approximately 1.5 miles to the north of the study area within north coast coniferous forest in stabilized dunes. Although suitable habitat may exist within the study area for this species, it was not detected.

Northern clustered sedge (*Carex arcta*) is a perennial herb in the Cyperaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G5/S1. Its elevation range is reported from 60 to 1405 meters above sea level. Within its range state-wide, its blooming period is reported as June through September. This species is reported from bogs and fens and north coast conifer forest. Within the nine-quad search, several Rarefind occurrences are reported, with the nearest centered over the City of Eureka 1 mile east with an observation date in 1912. Although suitable habitat may exist within the study area for this species, it was not detected.

Lyngbye's sedge (*Carex lyngbyei*) is a perennial herb in the Cyperaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G5/S3. Its elevation range is reported from 0 to 200 meters above sea level. Within its range state-wide, its blooming period is reported as April through August. This species is reported from brackish or freshwater marshes and swamps. Within the nine-quad search, several Rarefind occurrences are reported, with the nearest approximately 3,000 feet to the southwest on

the Samoa Peninsula with an observation date in 1994. Although suitable habitat may exist within the study area for this species, it was not detected.

Humboldt Bay owl's clover (*Castilleja ambigua* var. *humboldtiensis*) is a perennial herb in the Orobanchaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G4T2/S2. Its elevation range is reported from 0 to 20 meters above sea level. Within its range state-wide, its blooming period is reported as April through August. This species is reported from coastal salt marsh typically associated with *Spartina*, *Distichlis, Salicornia*, and *Jaumea*. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest being in Palco Marsh across Humboldt Bay approximately 3,000 feet to the east. Although suitable habitat may exist within the study area for this species, it was not detected.

Oregon coast paintbrush (*Castilleja litoralis*) is a perennial herb in the Orobanchaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G3/S3. Its elevation range is reported from 5 to 255 meters above sea level. Within its range state-wide, its blooming period is reported as June. This species is reported from coastal sandy sites within coastal bluff scrub, coastal scrub, and coastal dune habitat. Within the nine-quad search, several Rarefind occurrences are reported, with the nearest centered over the City of Eureka 1 mile east with an observation date in 1918. Although suitable habitat may exist within the study area for this species, it was not detected.

Point Reyes salty bird's beak (*Chloropyron maritimum* ssp. *palustre*) is an annual herb in the Orobanchaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G4T2/S2. Its elevation range is reported from 0 to 10 meters above sea level. Within its range state-wide, its blooming period is reported as June through October. This species is reported from coastal salt marsh usually with *Salicornia, Distichlis, Jaumea*, and *Spartina*. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest being in Palco Marsh across Humboldt Bay approximately 3,000 feet to the east. Although suitable habitat may exist within the study area for this species, it was not detected.

Round-headed Chinese houses (*Collinsia corymbosa*) is an annual herb in the Plantaginaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G1/S1. Its elevation range is reported from 10 to 30 meters above sea level. Within its range state-wide, its blooming period is reported as April through June. This species is reported from coastal dune habitat. Within the nine-quad search, one Rarefind occurrence is reported centered over the City of Eureka 1 mile east. It is also the only recording of this species within Humboldt County. Although suitable habitat may exist within the study area for this species, it was not detected.

Small spikerush (*Eleocharis parvula*) is a perennial herb in the Cyperaceae family. It is neither State nor federally listed, but has a CRPR of 4.3 and a heritage rank of G5/S4. Its elevation range is reported from 1 to 3,020 meters above sea level. Within its range state-wide, its blooming period is reported as July through August. This species is reported from coastal salt marshes. There is no Rarefind occurrence for this taxon within the nine-quad search. Although suitable habitat may exist within the study area for this species, it was not detected.

Menzies' wallflower (*Erysimum menziesii)* is a perennial herb in the Brassicaceae family. It is both state and federally listed as endangered, and has a CRPR of 1B.1 and a heritage rank of G5T3/S2. Its elevation range is reported from 0 to 35 meters above sea level. Within its range state-wide, its blooming period is reported as March through September. This species is reported from coastal dunes. Within the nine-quad search, numerous Rarefind occurrences are reported, several adjacent to, and within the study area. Although suitable habitat may exist within the study area for this species, it was not detected. This species was

detected outside of the study area in several locations; however, the nearest occurrence was just over 200 feet from the study areas and will not be impacted by this project.

Pacific gilia (*Gilia capitata* ssp. *pacifica*) is an annual herb in the Polemoniaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G2/S2. Its elevation range is reported from 5 to 1,345 meters above sea level. Within its range state-wide, its blooming period is reported as April through August. This species is reported from coastal bluff scrub, chaparral, coastal prairie, and valley and foothill grassland. Within the nine-quad search, one Rarefind occurrence is reported centered over the City of Eureka 1 mile east with an observation date in 1905. Although suitable habitat may exist within the study area for this species, it was not detected.

Dark-eyed gilia (*Gilia millefoliata*) is an annual herb in the Polemoniaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G2/S2. Its elevation range is reported from 1 to 60 meters above sea level. Within its range state-wide, its blooming period is reported as April through July. This species is reported from coastal dune habitat. Within the nine-quad search, numerous Rarefind occurrences are reported, several adjacent to, and within the study area. This species was observed within the study area along the western side of the access road leading to the Samoa airstrip, with several individuals present directly adjacent to the road (see Figure 3C, and Photo 7 in Appendix 2).

American glehnia (*Glehnia littoralis* ssp. *leiocarpa*) is a perennial herb in the Apiaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G5T5/S3. Its elevation range is reported from 0 to 20 meters above sea level. Within its range state-wide, its blooming period is reported as May through August. This species is reported from coastal dune habitat. There is no Rarefind occurrence for this taxon within the nine-quad search, although it has been reported from several locations adjacent to the study area through Calflora. Although suitable habitat may exist within the study area for this species, it was not detected.

Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*) is an annual herb in the Asteraceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G4T3/S2. Its elevation range is reported from 0 to 215 meters above sea level. Within its range state-wide, its blooming period is reported as March through June. This species is reported from coastal bluff scrub, coastal dunes, and coastal prairie where it is found primarily on sandy bluffs and flats. Within the nine-quad search, numerous Rarefind occurrences are reported, several adjacent to, and within the study area. This species was observed within the study area along the eastern side of New Navy Base Road, between the roadway and Humboldt Bay, just north of the Samoa boat launch and RV park (see Figure 3C, and Photo 8 in Appendix 2).

Harlequin lotus (*Hosackia gracilis)* is a perennial herb in the Fabaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G4/S3. Its elevation range is reported from 0 to 700 meters above sea level. Within its range state-wide, its blooming period is reported as March through July. This species is reported from broadleaf upland forests, coastal bluff scrub, coastal prairie, coastal scrub, meadows, seeps, marshes and swamps, north coast coniferous forests, and valley and foothill grassland habitats. There is no Rarefind occurrence for this taxon within the nine-quad search. Although suitable habitat may exist within the study area for this species, it was not detected.

Perennial goldfields (*Lasthenia californica* ssp. *macrantha*) is an annual herb in the Asteraceae family. It is neither State nor federally listed, but has a CRPR of 2B.1 and a heritage rank of G3T2/S2. Its elevation range is reported from 5 to 185 meters above sea level. Within its range state-wide, its blooming period is reported as January through November. This species is reported from coastal bluff scrub, coastal dunes, and coastal scrub. Within the nine-quad search, one Rarefind occurrence is reported centered over the City of

EXPLANATION

- OSPREY NEST
- PROJECT BOUNDARY
- SPECIAL STATUS SPECIES
- EDGE OF PAVEMENT (APPROX.)

VEGETATION COMMUNITIES

- COYOTE BRUSH SCRUB (BP)
- SLOUGH SEDGE SWORD (CO)
- SALTRUSH SWALES (JL)
- WAX MYRTLE SCRUB (MC)
- PACIFIC SILVERWEED MARSH (PA)
- BEACH PINE FOREST (PC)
- COAST DUNE WILLOW THICKET (SH)
- HIMALAYAN BLACKBERRY BRAMBLES (RA)
- COASTAL BRAMBLES (CB)
- SALT GRASS FLAT (DS)
- DUNE MAT (DM)
- NON-NATIVE
- WETLANDS

N

1" = 300'±

0 300

FEET

PHOTO SOURCE:
USGS NAIP, 2016

C:\SHN\Projects\Temp\017203-Samoa Peninsula Wastewater design -plan of study\GIS\PROJ_MXD\003_EIR_CEQA\ USER:jsousa DATE:8/21/2018

SHN Consulting Engineers & Geologists, Inc.

County of Humboldt
Samoa Peninsula Wastewater NRA
Samoa, California

Vegetation Communities / ESHA & Special Status Biol. Resources Present

SHN 017203.003

August 2018 | NRA_Fig3A_VegetationCommESHA | Figure 3A

BP
MC
RA
SH/SL
BP
SH
CB
CB
BP
SH
WET.
WET.
RA
DM
SH
CO
DM

EXPLANATION

- OSPREY NEST
- PROJECT AREA
- SPECIAL STATUS SPECIES
- EDGE OF PAVEMENT (APPROX.)

VEGETATION COMMUNITIES

- COYOTE BRUSH SCRUB (BP)
- SLOUGH SEDGE SWORD (CO)
- SALTRUSH SWALES (JL)
- WAX MYRTLE SCRUB (MC)
- PACIFIC SILVERWEED MARSH (PA)
- BEACH PINE FOREST (PC)
- COAST DUNE WILLOW THICKET (SH)
- HIMALAYAN BLACKBERRY BRAMBLES (RA)
- COASTAL BRAMBLES (CB)
- SALT GRASS FLAT (DS)
- DUNE MAT (DM)
- NON-NATIVE
- WETLANDS

N

1 " = 300 '±

0 300

FEET

PHOTO SOURCE:
USGS NAIP, 2016

\\Eureka\Projects\2017\017203-Samoa Peninsula Wastewater design -plan of study\GIS\PROJ_MXD\003_EIR_CEQA\ USER:jsousa DATE:8/23/2018

SHN Consulting Engineers & Geologists, Inc.

County of Humboldt
Samoa Peninsula Wastewater NRA
Samoa, California

Vegetation Communities / ESHA & Special Status Biol. Resources Present

SHN 017203.003

August 2018 | NRA_Fig3B_VegetationCommESHA | Figure 3B

CO
DM
SH/SL/MC
DM
SH
CO/BP
SH
SH
CO
DM
DM
CB
CO
GILIA
MILLEFOLIATA
DM
BP
DS
SH
HIGH MARSH
CO
CO
SH
CO
JL
PA
CO/OS
SH
DM
CB
DM
CB
HESPEREVAX
SPARSIFLORA
VAR. BREVIFOLIA
DM
CB
DM
CB
DM
CB
DM
SH
SH
EUREKA
34

EXPLANATION

- OSPREY NEST
- PROJECT BOUNDARY
- SPECIAL STATUS SPECIES
- EDGE OF PAVEMENT (APPROX.)

VEGETATION COMMUNITIES

- COYOTE BRUSH SCRUB (BP)
- SLOUGH SEDGE SWORD (CO)
- SALTRUSH SWALES (JL)
- WAX MYRTLE SCRUB (MC)
- PACIFIC SILVERWEED MARSH (PA)
- BEACH PINE FOREST (PC)
- COAST DUNE WILLOW THICKET (SH)
- HIMALAYAN BLACKBERRY BRAMBLES (RA)
- COASTAL BRAMBLES (CB)
- SALT GRASS FLAT (DS)
- DUNE MAT (DM)
- NON-NATIVE
- WETLANDS

N

1" = 300'±

0 300

FEET

PHOTO SOURCE:
USGS NAIP, 2016

C:\SHN\Projects\Temp\017203-Samoa Peninsula Wastewater design -plan of study\GIS\PROJ_MXD\003_EIR_CEQA\ USER:jsousa DATE:8/21/2018

SHN Consulting Engineers & Geologists, Inc.

County of Humboldt
Samoa Peninsula Wastewater NRA
Samoa, California

Vegetation Communities / ESHA & Special Status Biol. Resources Present

SHN 017203.003

August 2018 | NRA_Fig3C_VegetationCommESHA | Figure 3C

N

1" = 200'±

0 200

FEET

\\Eureka\Projects\2017\017203-Samoa Peninsula Wastewater design -plan of study\GIS\PROJ_MXD\003_EIR_CEQA\NRA_Fig3D_VegetationCommESHA.mxd;User:jsousa;Printed:8/23/2018

SHN
Consulting Engineers
& Geologists, Inc.

County of Humboldt
Samoa Peninsula Wastewater NRA
Samoa, California

Vegetation Communities / ESHA &
Special Status Biol. Resources Present
SHN 017203.003

August 2018 | NRA_Fig3D_VegetationCommESHA | Figure 3D

Eureka 1 mile east with an observation date in 1913. Although suitable habitat may exist within the study area for this species, it was not detected.

Seaside pea (*Lathyrus japonicus*) is a perennial herb in the Fabaceae family. It is neither State nor federally listed, but has a CRPR of 2B.1 and a heritage rank of G5/S2. Its elevation range is reported from 3 to 65 meters above sea level. Within its range state-wide, its blooming period is reported as May through August. This species is reported from coastal dune habitat. Within the nine-quad search, one Rarefind occurrence is reported approximately 1.5 miles to the southeast with an observation date in 1915. Although suitable habitat may exist within the study area for this species, it was not detected.

Marsh pea (*Lathyrus palustris)* is a perennial herb in the Fabaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G5/S2. Its elevation range is reported from 2 to 140 meters above sea level. Within its range state-wide, its blooming period is reported as March through August. This species is reported from bogs and fens, lower montane coniferous forests, marshes and swamps, north coast coniferous forests, coastal prairie, and coastal scrub habitats, primarily from moist coastal areas. Within the nine-quad search, two Rarefind occurrences are reported, the nearest being a half-mile north of the study area with an observation date in 1907. Although suitable habitat may exist within the study area for this species, it was not detected.

Beach layia (*Layia carnosa)* is an annual herb in the Asteraceae family. It is both State and federally listed as endangered, and has a CRPR of 2B.2 and a heritage rank of G5/S2. Its elevation range is reported from 0 to 30 meters above sea level. Within its range state-wide, its blooming period is reported as March through July. This species is reported from coastal dunes and coastal scrub, on sparsely vegetated semi-stabilized dunes, usually behind foredunes. Within the nine-quad search, numerous Rarefind occurrences are reported, several adjacent to, and within the study area. Although suitable habitat may exist within the study area for this species, it was not detected. This species was detected outside of the study area in several locations; however, the nearest occurrence was just over 150 feet from the study areas and will not be impacted by this project.

Western lily *(Lilium occidentale)* is a perennial bulbiferous herb in the Liliaceae family. It is both State and federally listed as endangered, and has a CRPR of 1B.1 and a heritage rank of G1/S1. Its elevation range is reported from 2 to 185 meters above sea level. Within its range state-wide, its blooming period is reported as June and July. This species is reported from bogs and fens, coastal bluff scrub, coastal prairie, coastal scrub, freshwater marshes and swamps, and from north coast coniferous forest openings. Within these habitat types, it is most common on well-drained old beach washes overlain with windblown alluvium and organic topsoil, usually near margins of Sitka spruce. This species is very susceptible to soil compaction and texture and is extremely susceptible to herbivory and encroachment by invasive species. Within the nine-quad search, five quads are recorded with non-specific Rarefind occurrences, with the entire Eureka quad highlighted including the study area. Habitat conditions favorable for this species do not exist within the study area and it was not detected.

Howell's montia *(Montia howellii)* is an annual herb in the Montiaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G3G4/S2. Its elevation range is reported from 0 to 835 meters above sea level. Within its range state-wide, its blooming period is reported as March through May. This species is reported from vernally mesic meadows and seeps, north coast coniferous forests, and sometimes roadside habitats. Within the nine-quad search, several Rarefind occurrences are reported, with the nearest centered over the City of Eureka 1 mile east with an observation date in 1916. Although suitable habitat may exist within the study area for this species, it was not detected.

Wolf's evening primrose (*Oenothera wolfii)* is a perennial herb in the Onagraceae family. It is neither State nor federally listed, but has a CRPR of 1B.1 and a heritage rank of G2/S1. Its elevation range is reported from 0 to 125 meters above sea level. Within its range state-wide, its blooming period is reported as May through October. This species is reported from coastal bluff scrub, coastal dunes, coastal prairie, and lower montane coniferous forest. Within the nine-quad search, one Rarefind occurrence is reported 1.5 miles north of the study area with an observation date in 2001. Although suitable habitat may exist within the study area for this species, it was not detected.

Maple leaved checkerbloom (*Sidalcea malachroides*) is a perennial herb in the Malvaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G3/S3. Its elevation range is reported from 0 to 730 meters above sea level. Within its range state-wide, its blooming period is reported as March through August. This species is reported from broadleaf upland forest, coast prairie, coast scrub, north coast conifer forest, and riparian habitats, primarily from woodlands and clearings near the coast; often in disturbed areas. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest centered over the City of Eureka 1 mile east with an observation date in 1921. Although suitable habitat may exist within the study area for this species, it was not detected.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*) is a perennial herb in the Malvaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G5T2/S2. Its elevation range is reported from 5 to 1255 meters above sea level. Within its range state-wide, its blooming period is reported as May through August. This species is reported from coastal bluff scrub, coastal prairie, and north coast conifer forest, primarily in open coastal forest and along road cuts. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest centered over the southern portion of the City of Eureka approximately 0.5 miles east of the study area with an observation date in 1944. Although suitable habitat may exist within the study area for this species, it was not detected.

Western sand -spurrey (*Spergularia canadensis* var. *occidentalis*) is an annual herb in the Caryophyllaceae family. It is neither State nor federally listed, but has a CRPR of 2B.1 and a heritage rank of G5T4/S1. Its elevation range is reported from 0 to 3 meters above sea level. Within its range state-wide, its blooming period is reported as June through August. This species is reported from coastal salt marsh. Within the nine-quad search, several Rarefind occurrences are reported, with the nearest centered approximately 0.5 miles north of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

Surveys were conducted at a seasonally appropriate time for all of the plant species expected to potentially occur within the study area. Surveys of the study area located two special status botanical species within the study area (dark-eyed gilia and short-leaved evax), and additional special status botanical species just outside of the study area. It is unlikely that any species were missed; however, the findings in this report represent a "snapshot in time" and it is possible that false negative surveys for rare plant species could occur. This report documents the 2018 field investigations, and the findings presented here are based on best professional judgment.

5.2 Special Status Animal Species

Based on a review of special status animal species, 57 special status animal species have been reported with the potential to occur in the project region consisting of the Eureka quadrangle and the surrounding quadrangles. Of the special status animal species potentially occurring in the region, 39 animal species are considered to have a low potential to occur at the project site and 18 species have a moderate to high potential. Species with a moderate or high potential for occurrence within the study area are described below.

5.2.1 Amphibians

The northern red-legged frog (*Rana aurora*) is a frog in the Ranidae family. It is not listed under either federal or California endangered species acts, but is considered a species of special concern by CDFW and has a heritage ranking of G4/S3. This species is reported from lowlands, foothills, humid forests, woodlands, grasslands, and within and adjacent to streamsides with plant cover. Breeding occurs in permanent water sources between December and April, with metamorphosis completed by late July. Red-legged frogs are known to occur hundreds of meters from water, especially in thick vegetation. However, they are most frequently found within five meters of water in densely vegetated areas (Thomson, 2016). High quality and marginal northern red-legged frog habitat is present within the coast willow-dominated dune hollow and deflation plain wetlands within the study area. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest across Humboldt Bay just south of the City of Eureka approximately 1 mile east of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

5.2.2 Birds

The great egret (*Ardea alba*) is a bird in the Ardeidae family. It is not listed under either federal or California endangered species acts, but is considered a sensitive species by CDFW and has a heritage ranking of G5/S4. This species forages in brackish marsh, estuaries, freshwater marsh, swamps, riparian areas, and wetlands. It will sometimes forage in open fields, sometimes around cattle. It nests in trees near water and foraging areas. Rookery sites are located near foraging sites within large trees. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest across Humboldt Bay approximately 1.6 miles to the northeast of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The great blue heron (*Ardea herodias*) is a bird in the Ardeidae family. It is not listed under either federal or California endangered species acts, but is considered a sensitive species by CDFW and has a heritage ranking of G5/S4. This species occurs in shallow estuaries and emergent wetlands. It is less common along riverine, rocky marine shores, and pastures. The great blue heron searches for prey in shallow water and open fields. It nests in colonies in tops of secluded large snags/live trees. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest across Humboldt Bay approximately 1.6 miles to the northeast of the study area. This species was observed within the study area to the east of Vance Road foraging in a man-made water feature associated with the former pulp mill.

The western snowy plover (*Charadrius alexandrinus nivosus*) is a bird in the Charadriidae family. It is listed as threatened under the federal endangered species act, but is not listed under the California endangered species act. It is considered an SSC by CDFW and has a heritage ranking of G3T3/S2S3. This species occurs on sandy beaches, salt pond levees, and shores of large alkaline lakes. It is known to nest above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at river mouths, and salt pans at lagoons and estuaries. Within the nine-quad search, numerous Rarefind occurrences are reported, several adjacent to, and within the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The northern harrier (*Circus cyaneus*) is a bird in the Accipitridae family. It is not listed under either federal or California endangered species acts, but is considered a species of special concern by CDFW and has a heritage ranking of G5/S3. This species occurs in coastal scrub, Great Basin grassland, marshes, swamps, and riparian scrub. The northern harrier nests and forages in grasslands usually near wet areas, with nesting usually occurring at a marsh edge. This species feeds primarily on rodents and small birds, hunting over open areas.

Within the nine-quad search, one Rarefind occurrence is reported across Humboldt Bay approximately 2.5 miles to the northeast of the study area. This species was observed hunting adjacent to the study area.

The snowy egret (*Egretta thula*) is a bird in the Ardeidae family. It is not listed under either federal or California endangered species acts and has a heritage ranking of G5/S4. This species occurs in marshes, swamps, wetlands, meadows, and riparian woodlands. They are known to forage in marshes, tidal flats, streams, wet meadows, and borders of ponds and lakes with rookery sites situated nearby. This species is a colonial nester with nesting occurring in protected beds of dense tules. Within the nine-quad search, three Rarefind occurrences are reported, with the nearest across Humboldt Bay approximately 1.6 miles to the northeast of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The white-tailed kite (*Elanus leucurus*) is a bird in the Accipitridae family. It is not listed under either federal or California endangered species acts, but is considered a fully protected species by CDFW and has a heritage ranking of G5/S3S4. This species occurs in rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. They are most commonly found in open grasslands, meadows, or marshes for foraging and close to isolated, dense-topped trees for nesting and perching. Within the nine-quad search, two Rarefind occurrences are reported across Humboldt Bay approximately 1.7 miles to the southeast of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The merlin (*Falco columbarius*) is a bird in the Falconidae family. It is not listed under either federal or California endangered species acts, but is on the CDFW watch list and has a heritage ranking of G5/S3S4. This species occurs along the coast, and tidal estuaries, savannahs, edges of grasslands and deserts, farms and ranches, and within open woodlands. Clumps of trees or windbreaks are required for roosting in open country. Nesting can occur within trees, or clefts of cliffs, or on the ground in pre-existing nests. Merlins hunt small birds, large insects, and less commonly, bats. There is no Rarefind occurrence for this taxon within the nine-quad search. This species was observed hunting adjacent to the study area.

The American peregrine falcon (*Falco peregrinus anatum*) is a bird in the Falconidae family. It has been delisted from both federal and California endangered species acts, but is considered a fully protected species by CDFW and has a heritage ranking of G4T4/S3S4. This species occurs within many open habitats; however, it is more likely along coastlines, lake edges, and mountain edges. It is most common near wetlands, lakes, rivers, or other water. It often nests on cliffs, banks, dunes, and mounds; also, human-made structures, with the nest consisting of a scrape, depression, or ledge in an open area. The American peregrine falcon hunts birds which it will surprise by diving out of the sky to capture or stun. There is no Rarefind occurrence for this taxon within the nine-quad search. This species was observed hunting adjacent to the study area.

The bald eagle (*Haliaeetus leucocephalus*) is a bird in the Accipitridae family. It is has been delisted under the federal endangered species act, but is still listed as Endangered under the California endangered species act. It is considered a fully protected species by CDFW and has a heritage ranking of G5/S3. This species is typically found along ocean shores, lake margins, and rivers for both nesting and wintering. Most nests are constructed within one mile of open water within large, old-growth, or dominant live trees with open branches, especially ponderosa pine. Within the nine-quad search, one Rarefind occurrence is reported across Humboldt Bay approximately 6 miles to the southeast of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The black-crowned night heron (*Nycticorax nycticorax*) is a bird in the Ardeidae family. It is not listed under either federal or California endangered species acts, but has a heritage ranking of G5/S4. This species occurs

in marshes, swamps, wetlands, meadows, and riparian woodlands. They are known to forage in marshes, tidal flats, lake margins, and mud-bordered bays with rookery sites situated nearby. This species is a colonial nester with nesting occurring in trees and occasionally in protected beds of dense tules. Within the nine-quad search, eight Rarefind occurrences are reported around Humboldt Bay with the nearest occurrence reported within and adjacent to the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The osprey (*Pandion haliaetus*) is a bird in the Pandionidae family. It is not listed under either federal or California endangered species acts, but is on the CDFW watch list and has a heritage ranking of G5/S4. This species occurs near rivers, lakes, and coast where large numbers of fish are present. Ospreys are most common around major coastal estuaries and salt marshes. Within the nine-quad search, numerous Rarefind occurrences are reported surrounding Humboldt Bay, with the nearest approximately 2.3 miles to the east of the study area. This species was observed nesting within the study area. Three nests were observed within the study area (see Figure 3A, and Photo 6 in Appendix 2), two of which were active nests with young observed and feeding occurring. The third nest appeared abandoned; however, it could be reused in coming nesting seasons. All three nests were atop power poles with one of the nests on a platform designed for osprey nests.

The California brown pelican (*Pelecanus occidentalis californicus*) is a bird in the Pelicanidae family. It has been delisted from both federal and California endangered species acts, but is considered a fully protected species by CDFW and has a heritage ranking of G4T3T4/S3. This species occurs in estuaries and coastal marine habitat where it feeds on fish. It is a colonial nester on coastal islands just outside of the surf line. There is no Rarefind occurrence for this taxon within the nine-quad search. Although suitable habitat may exist within the study area for this species, it was not detected.

The double-crested cormorant (*Phalacrocorax auritus*) is a bird in the Phalacrocoracidae family. It is not listed under either federal or California endangered species acts, but is on the CDFW watch list and has a heritage ranking of G5/S4. This species is known to occur in riparian forests, scrub, and woodlands when feeding. This species nests colonially along the coast on islets usually on the ground, or in tall trees along lake margins. Double-crested cormorants are excellent swimmers, often chasing prey through the water. It requires exposed perches for drying and resting following feeding. Within the nine-quad search, one Rarefind occurrence is reported within Humboldt Bay approximately 6.5 miles to the northeast of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The black-capped chickadee (*Poecile atricapillus*) is a bird in the Paridae family. It is not listed under either federal or California endangered species acts, but is on the CDFW watch list and has a heritage ranking of G5/S3. This species inhabits riparian woodlands in Del Norte and northern Humboldt counties. It is mainly found in deciduous trees, especially willows and alders, along large or small watercourses. The chickadee excavates its nest cavity in rotten wood, or nests in old woodpecker holes. There is no Rarefind occurrence for this taxon within the nine-quad search. Although suitable habitat may exist within the study area for this species, it was not detected.

5.2.3 Fishes

Many special status fish species occur within Humboldt Bay (See Table 1-2 in Appendix 1). The project will not impact Humboldt Bay or any waterways or wetlands surrounding Humboldt Bay. All wetland areas will be avoided, and work will occur within existing roadways. Work is slated to occur during the dry season, with proper best management practices (BMPs) in place to prevent discharge. Project-related activities are not anticipated to have a significant impact on the special status fish species or habitat of Humboldt Bay.

5.2.4 Insects

The obscure bumblebee (*Bombus caliginosus*) is a bumblebee in the Apidae family. It is not listed under either federal or California endangered species acts, but has a heritage ranking of G4/S1S2. This species is known from coastal areas from Santa Barbara county to north to Washington state, where it nests underground or above ground in abandoned bird nests. The primary food plant genera include *Baccharis*, *Cirsium*, *Lupinus*, *Lotus*, *Grindelia,* and *Phacelia*. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest occurrence centered over the city of Eureka one mile to the east of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

The western bumblebee (*Bombus occidentalis*) is a bumblebee in the Apidae family. It is not listed under either federal or California endangered species acts, but is a USFS sensitive species and has a heritage ranking of G2G3/S1. This species pollinates a wide variety of flowers and is known to gnaw through flowers to obtain nectar their tongues are too short to reach. Colonies nest in cavities or abandoned burrows. It was once common and widespread; however, it has seriously declined, possibly due to disease. Within the nine-quad search, numerous Rarefind occurrences are reported, several adjacent to, and within the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

5.2.5 Mammals

The long-eared myotis (*Myotis evotis*) is a bat in the Vespertilionidae family. It is not listed under either federal or California endangered species acts, but has a heritage ranking of G5/S3. This species feeds on a variety of arthropods including moths, flies, spiders, and especially beetles. The long-eared myotis roosts singly, or in small groups in buildings, crevices, spaces under bark, and snags. Caves are used primarily as night roosts. Within the nine-quad search, two Rarefind occurrences are reported, with the nearest occurrence reported from Freshwater approximately 8 miles to the east. Although suitable habitat may exist within the study area for this species, it was not detected.

5.3 Special Status Natural Communities and Habitats

Sensitive natural communities are habitats that are generally defined by vegetation type and geographical location and are increasingly restricted in abundance and distribution. Recognition of natural communities is an ecosystem-based approach to maintaining biodiversity in California. Holland-type CNDDB natural communities are habitat for numerous special status plant and animal species. CDFW no longer updates their tracking of Holland-type CNDDB natural communities and has since standardized alliance and association-level vegetation nomenclature for California to comply with the National Vegetation Classification System.

5.3.1 Natural Communities

Ten natural communities (defined as vegetation communities) were observed within the study area, in addition to two semi-natural vegetation communities, and former dune habitat dominated by non-native vegetation. Vegetation communities within the study area included *Baccharis pilularis* Shrubland Alliance (Coyote brush scrub), *Morella californica* Shrubland Alliance (Wax myrtle scrub), *Rubus* (*parviflorus, spectabilis, ursinus*) Shrubland Alliance (Coastal brambles), *Salix hookeriana* Shrubland Alliance (Coastal dune willow thicket), *Abronia latifolia-Ambrosia chamissonis* Herbaceous Alliance (Dune mat), *Juncus lescurii* Herbaceous Alliance (salt rush swales), *Carex obnupta* Herbaceous Alliance (slough sedge sward), *Potentilla anserina* ssp. *pacifica* Herbaceous Alliance (Pacific silverweed marshes), *Distichlis spicata* Herbaceous Alliance (salt grass flat), and *Pinus contorta* ssp. *contorta* Forest Alliance (beach pine forest), as well as the two semi-natural vegetation communities *Rubus armeniacus* Semi-Natural Shrubland Stands (Himalayan blackberry brambles) and *Holcus lanatus-Anthoxanthum odoratum* Semi-Natural Herbaceous Stands

(Common velvet grass-sweet vernal grass meadows). Many of these vegetation communities are considered ESHA by the California Coastal Commission. Each of these vegetation communities is discussed below.

Coyote brush scrub is found within a wide range of conditions, and is known from stabilized dunes and disturbed sites, such as is found within the study area. This vegetation community is common within California and is known to be increasing in many areas due to human-caused disturbance, and change in fire regimes (Sawyer, 2009). Coyote brush scrub has a rarity ranking of G5S5, meaning this vegetation community is demonstrably secure statewide and globally, due to its worldwide and statewide abundance and does not qualify for consideration under CEQA, nor is it considered ESHA by the California Coastal Commission. This vegetation community was observed in upland areas subject to disturbance in the past. Very little of the study area was covered in this vegetation community (see Figures 3A-3D).

Wax myrtle scrub is known from wetland locations within coastal dunes, along coastal streams, and on coastal bluffs. This vegetation community is restricted to moist areas along the coast and consequently is not very common (Sawyer, 2009). Changes in hydrology, fire, and introduction of non-native species have further limited viable occurrences of this vegetation community. Wax myrtle scrub has a rarity ranking of G3S3, meaning this vegetation community occurs on 2,590 to 12,950 hectares and is known from 21 to 100 viable occurrences globally and statewide. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. This vegetation community was observed in three places within the study area, with the largest occurrence to the West of Vance Avenue south of the chip export facility (see Figures 3A-3D).

Coastal brambles vegetation community is known from coastal bluffs, headlands, exposed slopes, and gaps in forests. This vegetation community is restricted to coastal areas which limit the area that this vegetation community can be found (Sawyer, 2009). Consequently, coastal brambles have a rarity ranking of G4S3, meaning that there are over 100 viable occurrences globally, but less than 100 viable occurrences statewide. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. Within the study area this vegetation community was dominated exclusively by the California blackberry, and was documented throughout the study area commonly surrounding coastal dune hollows as well as in isolated thickets throughout the study area (see Figures 3A-3D and Photo 1, Appendix 2).

Coastal dune willow thicket is known from areas near the ocean within the summer fog belt, where water stands, and seasonally floods, such as deflation plains and swales among coastal dunes, lagoon margins, and floodplains. This vegetation community is restricted to moist areas along the coast and consequently is not very common (Sawyer, 2009). The coastal dune willow thicket has a rarity ranking of G4S3 meaning that there are over 100 viable occurrences globally, but less than 100 viable occurrences statewide. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. The coastal dune willow thicket vegetation community is the most common natural vegetation community within the study area, and corresponds closely with coastal dune deflation plain wetlands and other wet depressions. This vegetation community occurs throughout the study area; however, the greatest example of this vegetation community is immediately south of the intersection of Lincoln Avenue and New Navy Base Road south of Fairhaven (see Figures 3A-3D, and Photos 1 and 4, Appendix 2).

The dune mat vegetation community is known from sand dunes of coastal bars, river mouths and spits along the immediate coast. Dominant species varies widely within this vegetation community, as was observed within the study area. Deflation plains and other depressions not wet enough to support willow growth was dominated by Brewer's rush (*Juncus breweri*). More upland areas and sloping sandy areas were dominated by a wide range of species including sea thrift (*Armeria maritima* ssp. *californica*), beach primrose

(*Camissoniopsis cheiranthifolia*), California plantain (*Plantago californica*), creamcups (*Platystemon californicus*), dune knotweed (*Polygonum paronychia*), and sandmat (*Cardionema ramosissimum*). Primary dominants in this vegetation community were non-native including large quaking grass (*Briza maxima*), European beach grass (*Ammophila arenaria*), and other upland non-native grasses. Areas with sandy undisturbed soils dominated by non-native species are still mapped as this vegetation community. Dune mat vegetation community has a rarity ranking of G3S3 meaning that there are less than 100 viable occurrences globally, and less than 100 viable occurrences statewide. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. This vegetation community was the second most common natural community within the study area, and included areas dominated by non-native species growing on undisturbed soils. Not included in this vegetation community are non-native dominated areas on disturbed or developed soils that was also common throughout the study area (see Figures 3A-3D and Photos 2 and 3, Appendix 2).

Salt rush swales are known from seasonally-wet slightly brackish marshes at the upper edge of salt marshes or behind dikes in former salt marsh at intermediate elevations (Sawyer, 2009). Salt rush swales have a rarity ranking of G3S2? meaning that there are less than 100 viable occurrences globally, and between 6 and 20 viable occurrences statewide although additional research is needed. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. This vegetation community was observed in one location within the study area, on the southern edge of a salt marsh approximately 1,700 feet north of the entrance to the Samoa RV park and boat launch (see Figures 3A-3D).

Slough sedge swards are found in seasonally-flooded swales in old deflation plains and sand dune complexes, as well as shallowly inundated woods, meadows, roadside ditches, coastal swamps, lakeshores, marshes, and riverbanks (Sawyer, 2009). Slough sedge swards have a rarity ranking of G4S3 meaning that there are over 100 viable occurrences globally, but less than 100 viable occurrences statewide. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. This vegetation community was observed in numerous locations within and adjacent to the study area and corresponds closely with coastal dune deflation plain wetlands and other wet depressions (see Figures 3A-3D).

Pacific silverweed marshes are found in seasonally-flooded brackish marshes at intermediate tidal elevations. Pacific silverweed marshes have a rarity ranking of G4S2 meaning that there are over 100 viable occurrences globally, but only between 6 and 20 viable occurrences statewide. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. This vegetation community was observed in one location within the study area at the base of the eastern embankment of New Navy Base Road within a salt marsh approximately 1,700 feet north of the entrance to the Samoa RV park and boat launch (see Figures 3A-3D).

Salt grass flats are found within coastal salt marshes within Humboldt County. Salt grass flats have a rarity ranking of G5S4 meaning that this vegetation community is demonstrably secure globally and relatively secure statewide with over 100 viable occurrences. As such this vegetation community does not qualify for consideration under CEQA Guidelines checklist IVb. Although the saltgrass vegetation community is relatively common statewide coastal occurrences of this vegetation community are found within salt marsh which is considered ESHA by the California Coastal Commission. This vegetation community was observed in one location within the study area to the east of New Navy Base Road within a salt marsh approximately 1,700 feet north of the entrance to the Samoa RV park and boat launch (see Figures 3A-3D).

Beach pine forest is found within coastal dune habitat, seaside bluffs, and exposed rocky headlands with salt spray and winds (Sawyer, 2009). Beach pine forest has a rarity ranking of G5S3 meaning that this vegetation

community is demonstrably secure globally but has less than 100 viable occurrences statewide. This vegetation community is considered ESHA by the California Coastal Commission and qualifies for consideration under CEQA Guidelines checklist IVb. This vegetation community was observed in three locations within the northern portion of the study area along Vance Avenue, however the best example of this vegetation community within the study area is located at the Bay Street and Vance Avenue intersection, south of Bay Street and East of Vance Avenue (see Figures 3A-3D).

Two semi-natural vegetation communities were mapped within the study area. This included the Himalayan blackberry brambles and common velvet grass-sweet vernal grass meadows. The Himalayan blackberry brambles are an invasive species and pose a threat to native dune habitat. This vegetation community was observed within developed areas and unused lots in Fairhaven. This vegetation community should be removed. The common velvet grass-sweet vernal grass meadows were often found in disturbed areas, however sweet vernal grass was often observed growing in areas that are more accurately described as dune mat habitat and are mapped as such.

Appropriate buffers and BMPs should be established and maintained for the duration of the project to minimize impacts to the S3 vegetation communities. See Section 7.0 Recommendations for recommended buffers and setbacks from S3 vegetation communities.

5.3.2 Wetlands and Riparian Habitats

A site-specific wetland delineation was conducted within the study area (SHN, August 2018). Wetlands were documented throughout the study area, often associated with deflation plains and other depressional features. Wetland areas are considered ESHA by the California Coastal Commission. Furthermore, the Coastal Act considers any area meeting one wetland parameter as wetland ESHA. One, two and three parameter wetlands were mapped and are documented within the wetland delineation (SHN, August 2018). These areas corresponded closely with the slough sedge swards, wax myrtle thickets, and coastal dune willow scrub vegetation communities as well as the salt marsh vegetation communities (see Figures 3A-3D, and Photos 1, 4, and 5, Appendix 2). For a complete inventory of wetlands within the study area see the Samoa Peninsula Wastewater Project Wetland and Other Waters Delineation (SHN, August 2018). Project-related activities will be designed to avoid wetlands as much as is feasibly possible. See Section 7.0 Recommendations for measures to minimize impacts to the wetlands on site.

There are no riparian areas within the study area.

6.0 Conclusions

The purpose of this report was to assess the biological resources and habitat available within the study area, and to evaluate project-related impacts. The habitat value and availability were assessed for special status species that could occur within the study area. See Section 7.0 Recommendations for recommendations for avoiding and mitigating impacts.

6.1 Special Plant Status Species

Of the 50 special status plant species potentially occurring in the Eureka and surrounding quadrangles, 23 are considered to have a low potential to occur within the project site, and 25 are considered to have a moderate or high potential of occurrence and two species are present (dark-eyed gilia (*Gilia millefoliata*) and short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*)). Site investigations were conducted during appropriate seasons for detecting species with moderate or higher potential for occurrence. The dark-eyed gilia and short-leaved evax were the only special status plant species detected within the study area (see Figures 3A-3D and Photos 7 and 8, Appendix 2). Three additional special status plant species were observed

adjacent to the study area; however, the project is not anticipated to impact special status species outside of the study area.

6.2 Special Wildlife Status Species

Of the 57 special status animal species reported from the Eureka and surrounding quadrangles, 39 animal species are considered to have no or a low potential to occur within the study area, 13 species have a moderate to high potential of occurrence, and 5 species are present. Special status animal species present within the study area includes the great blue heron (*Ardea Herodias*), northern harrier (*Circus cyaneus*), merlin (*Falco columbarius*), American peregrine falcon (*Falco peregrinus anatum*), and osprey (*Pandion haliaetus*). Four of these species (great blue heron, northern harrier, merlin, and American peregrine falcon) were observed either flying over of hunting within or adjacent to the study area and are unlikely to be impacted by the project. Three osprey nests were observed within the study area, with two of the nests being actively used at the time of the surveys. Nest locations were atop power poles along Vance Avenue and are noted in Figures 3A-3D and Photo 6 in Appendix 2.

6.3 Sensitive Natural Communities

The following eight special status vegetation communities were observed within the study area (Figures 3A-3D):

Morella californica Shrubland (Wax myrtle scrub) Alliance (G3/S3), *Rubus* (*parviflorus, spectabilis, ursinus*) Shrubland (Coastal brambles) Alliance (G4S3), *Salix hookeriana* Shrubland (Coastal dune willow thicket) Alliance (G4/S3), *Abronia latifolia-Ambrosia chamissonis* Herbaceous (Dune mat) Alliance (G3?S3?), *Juncus lescurii* Herbaceous (salt rush swales) Alliance (G3/S2), *Carex obnupta* Herbaceous (slough sedge sward) Alliance (G4/S3), *Potentilla anserina* ssp. *pacifica* Herbaceous (Pacific silverweed marshes) Alliance (G4/S2), and *Pinus contorta* ssp. *contorta* Forest (beach pine forest) Alliance (G5/S3).

6.4 Nesting Birds

All locations with a shrub or tree canopy layer within the study area may provide suitable nesting habitat for a diverse assemblage of migratory birds. Additionally, marsh and wetland areas provide nesting habitat for some species as does dune habitat for western snowy plover (*Charadrius alexandrinus nivosus*). Three osprey nests were observed within the study area atop power poles along Vance Avenue (see Figures 3A-3D). See Section 7.0 Recommendations for measures to minimize impacts to the nesting birds on site.

6.5 Impacts on Wildlife Movement

Wildlife movement corridors within the study area are expected to be concentrated along shrubby and vegetated areas including wetlands and vegetated swales. The study area is also known to be an important flyover location for shorebirds and other marine bird species, although it is unlikely that these species would stop within the study area and is most likely bypassed during migrations. Wildlife movement corridors are expected to be concentrated along Humboldt Bay and its associated marshes, wetlands, and connectivity to other riparian habitat.

6.6 Wetlands and Riparian Habitats

A total of 9 three-parameter wetlands were delineated, with an additional 23 Coastal Act-defined wetland areas having one or two parameters identified within the project area (See Samoa Peninsula Wastewater Collection System Wetland and Other Waters Delineation Report, SHN, August 2018). The majority of the wetland areas correspond with special status vegetation communities associated with mesic conditions. One-parameter, two-parameter, and three-parameter wetlands were mapped and are documented within

the Samoa Peninsula Wastewater Project Wetlands and Other Waters Delineation Report (SHN, August 2018).

The scope of this project defined the study area as a ten-foot-wide strip of land on each side of the roadways shown in Figure 2 of the Wetland Delineation. This study delineated both USACE and Coastal Act wetland areas within 30 feet of the project roadways to ensure all wetland habitat was covered within and adjacent to the roadways. The majority of the Coastal Act wetlands included dry sites with well-drained sand covered by *Carex obnupta, Rubus armeniacus,* and *Salix hookeriana*. These sites contrasted with the three-parameter areas that displayed wetland hydrology and hydric soils. The three-parameter sites typically held a high water table or standing water during the study period. Soils were characterized by muck and redoximorphic features in these locations, while the one and two-parameter areas were typically sandy soils lacking redoximorphic or organic development.

7.0 Recommendations

Due to the prevalence of wetlands and other ESHAs throughout the Samoa peninsula, the project was designed to primarily locate the proposed improvements within existing roadways. This will help avoid and minimize impacts to biological resources. The following recommendations will further reduce impacts to biological resources.

- Where project construction activities occur within close proximity (100 feet) to special status resources, these resources should be demarcated by high visibility construction fencing during the project construction period in a manner sufficient to avoid unintentional impacts.
- The project should attempt to avoid impacts to special status species and habitats present within the study area, specifically the dark-eyed gilia and short-leaved evax, wetlands, coastal brambles, dune mat, coastal dune willow thickets, salt rush swales, slough sedge swards, pacific silverweed marshes, wax myrtle scrub, and beach pine forest.
- If impacts to special status resources cannot be avoided while still accomplishing project objectives, these impacts should be mitigated at a 3:1 ratio.
- Limit ground disturbance and vegetation clearing to the minimal extent necessary to accomplish project goals.
- Project-related vegetation clearing should occur outside the bird nesting season, which is generally considered to be March 15 through August 1. If project-related brush clearing or structural work on buildings within the vicinity of nesting bird habitat must occur during the breeding season, nesting bird surveys should be performed in those locations by a qualified biologist to ensure that active nests are not destroyed.
- Any work around the osprey nests should be conducted outside of the nesting bird season generally considered to be March 15 through August 1. A qualified biologist in consultation with CDFW should observe the nests prior to the commencement of construction within the vicinity of the nests to ensure that juveniles have fledged, and that the nest is empty during construction.
- Use native and locally-sourced plant material for revegetation if needed.
- All BMPs detailed within the project description shall be adhered to in order to reduce impacts during construction.

8.0 References

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds). (2012). *The Jepson Manual: Vascular Plants of California, Second Edition*. Berkeley, CA:University of California Press, Berkeley.

Calflora. (NR). "Calflora" database. Berkeley, CA:Calflora. Accessed April 2018 at: http://calflora.org/.

California Department of Fish and Wildlife. (1984). "California Endangered Species Act. Fish and Game Code sections 2070, 2080." Sacramento, CA:CDFW.

---. (1994). "A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, Fish and Game Code." Sacramento, CA:CDFW.

---. (1991). "Natural Community Conservation Planning Act. Fish and Game Code Section 2800." Sacramento, CA:CDFW.

---. (1998). "Fish and Game Code." Sacramento, CA:CDFW.

---. (November 2009). "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities." Accessed at: https://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf.

---. (2010). Vegetation Classification and Mapping Program (VegCAMP), "Natural Communities List." Sacramento, CA:CDFW. Accessed May 2018 at: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_communities.asp.

---. (2018a). "California Natural Diversity Database (CNDDB)." Accessed April 2018 at: http://www.dfg.ca.gov/biogeodata/cnddb/. Sacramento, CA:CDFW.

---. (2018b). "Biogeographic Information and Observation System (BIOS), Version 5.65.02." Sacramento, CA:CDFW. Accessed April 2018 at: http://bios.dfg.ca.gov/.

---. (2018c). "Special Vascular Plants, Bryophytes, and Lichens List." Sacramento, CA:CDFW.

---. (2018d). "Special Animals List." Sacramento, CA:CDFW.

California Native Plant Society. (2018). "CNPS Rare Plant Program, Inventory of Rare and Endangered Plants (online edition, v8-02)." Sacramento, CA:CNPS. Accessed April 2018 at: http://www.rareplants.cnps.org.

California Natural Resources Agency. (1970). "California Environmental Quality Act. CCR: Title 14, Div. 6, Chap. 3, Appendix G; Sections 15125 (c) and 15380(d)." Sacramento, CA:CNRA.

Consortium of California Herbaria. (NR). "Consortium of California Herbaria" database. Berkeley, CA:CCH. Accessed April 2018 at: http://ucjeps.berkeley.edu/consortium/.

County of Humboldt. (1988). *Humboldt County General Plan: Volume I Framework Plan* (Amended 1998). Eureka, CA:County of Humboldt.

---. (2014). "Humboldt Bay Area Plan" Eureka, CA: County of Humboldt.

McCullough, Dale R. (ed). (1996). *Metapopulations and Wildlife Conservation*. Washington D.C.:Island Press.

McLaughlin, J. and F. Harradine. (1965). *Soils of Western Humboldt County California*. Davis, CA: Department of Soils and Plant Nutrition at UC Davis and Humboldt Co.

National Oceanic & Atmospheric Administration, National Climatic Data Center. NOAA/NCDC Database, Arcata Eureka Airport, CA US. Accessed June 2018 at: https://www.ncdc.noaa.gov/cdo-web/datatools/normals.

Natural Resources Conservation Service, United States Department of Agriculture. (2018) Web Soil Survey. Accessed August 2016 at: https://websoilsurvey.sc.egov.usda.gov/.

Sawyer, J.O., T. Keeler-Wolf, and J. Evans. (2009). *A Manual of California Vegetation, Second Edition*. Sacramento, CA:CNPS Press.

SHN Consulting Engineers & Geologists. (2017a). *Wetland Delineation, RMT II Samoa Effluent Pipeline Project, Samoa, California*. Eureka, CA:SHN.

---. (2017b). *Natural Resources Assessment, RMTII Samoa Effluent Pipeline, Samoa, California*. Eureka, CA:SHN.

---. (August 2018). *Wetland and other Waters Delineation, Samoa Peninsula Wastewater Project, Samoa, California*. Eureka, CA:SHN.

State Water Resource Control Board. (1969). "Porter-Cologne Water Quality Control Act. CWC Section 7." Sacramento, CA:SWRCB.

Thomson, R.C. (2016). California Amphibian and Reptile Species of Special Concern. Oakland, CA: University of California Press, co-published with California Department of Fish and Wildlife.

U. S. Army Corps of Engineers Environmental Laboratory. (January 1987). *Corps of Engineers Wetlands Delineation Manual: Wetlands Research Program Technical Report Y-87-1*. Vicksburg, MS:USACE.

U.S. Army Corps of Engineers/Environmental Protection Agency. (2008). "Clean Water Act Jurisdiction." Washington, D.C.:USACE/EPA.

U.S. Department of Agriculture, Natural Resources Conservation Service. (2010). *Field Indicators of Hydric Soils in the United States, Version 7.0.* Hurt, G.W. and L.M. Vasilas (eds.). NR: USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

---. (2018). Soil Mapping portal. Accessed June 2018 at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

U.S. Environmental Protection Agency. (2002). "Clean Water Act of 1972, 33 USC § 1251 et seq." Washington, D.C.:EPA.

---. Section 401 of the Clean Water Act, 33 USC § 1341. Washington, D.C.:EPA.

U.S. Fish and Wildlife Service. (1918). "Migratory Bird Treaty Act . 50 CFR 21, 16 USC 703. " Washington, D.C.:USFWS.

---. (1934). "The Fish and Wildlife Coordination Act (16 USC Sections 661-667e, March 10, 1994, as amended 1946, 1958, 1978, and 1995)." Washington, D.C.:USFWS.

---. (1973). "Endangered Species Act. 16 USC 1532, 16 USC 1536, 50 CFR 17.3." Washington, D.C.:USFWS.

---. (2018a). Information, Planning and Conservation System (IPAC), "Trust Resources List." Washington D.C.:USFWS. Accessed April 2018 at: https://ecos.fws.gov/ipac/location/index.

---. (2018b). "National Wetland Inventory." Washington D.C.:USFWS. Accessed April 2018 at: http://fws.gov/wetlands/data/mapper.html.

---. (2018c). Critical Habitat Portal. Accessed April 2018 at: http://ecos.fws.gov/crithab/.

U.S. Geological Survey. (NR). Eureka, Cannibal Island, Fields Landing, McWhinney, Arcata South, Arcata North, and Tyee City 7.5-Minute Quadrangles. NR:USGS.

Whitaker, Doug and R.L. Knight (eds). (Summer 1998). *Understanding Wildlife Responses to Humans. Wildlife Society Bulletin, Vol. 26, No. 2*. pp. 312-317. Bethesda, MD:Wildlife Society.

Species Lists 1

Table 1-1
Special Status Plant Species List CNDDB, CNPS, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
Abronia umbellata var. *breviflora*	pink sand-verbena	Nyctagin-aceae	None	None	G4G5-T2	S1	1B.1	June-Oct.	Coastal dunes and coastal strand.	Foredunes & interdunes with sparse cover. Usually the plant closest to the ocean. 0-10 m.	Moderate
Angelica lucida	sea-watch	Apiaceae	None	None	G5	S3	4.2	May-Sept.	Coastal strand.	Coastal bluff scrub, coastal dunes, coastal scrub, coastal salt marshes. 0-150 m.	High
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	Fabaceae	None	None	G2T2	S2	1B.2	April-Oct.	Coastal dunes, marshes & swamps, coastal scrub.	Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.	Moderate
Astragalus rattanii var. *rattanii*	Rattan's milk-vetch	Fabaceae	None	None	G4T4	S4	4.3	April-July	Chaparral, cismontane woodland, lower montane conifer forest.	Open grassy hillsides, gravelly flats in valleys, and gravel bars of stream beds. 30-825 m.	Low
Bryoria pseudocapillaris	false gray horsehair lichen	Parmeli-aceae	None	None	G3	S2	3.2	Lichen	Coastal dunes, N. Coast conifer forest (immediate coast).	Usually on conifers. 0-90 m.	High
Bryoria spiralifera	twisted horsehair lichen	Parmeli-aceae	None	None	G3	S1S2	1B.1	Lichen	North coast conifer forest.	Usually on conifers. 0-30 m.	Moderate
Cardamine angulata	seaside bittercress	Brassic-aceae	None	None	G5	S1	2B.1	Jan.-July	Lower montane, conifer forest, N. coast conifer forest, wetland.	Wet areas, streambanks. 90-155 m.	Low
Carex arcta	northern clustered sedge	Cyperaceae	None	None	G5	S1	2B.2	June-Sept.	Bogs and fens, north coast conifer forest.	Mesic sites. 60-1405 m.	Moderate
Carex leptalea	bristle-stalked sedge	Cyperaceae	None	None	G5	S1	2B.2	March-July	Bogs and fens, meadows and seeps, marshes and swamps.	Mostly known from bogs and wet meadows. 3-1395 m.	Low
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	None	None	G5	S3	2B.2	April-August	Marsh & swamp (brackish or freshwater).	0-200 m.	Moderate
Carex praticola	northern meadow	Cyperaceae	None	None	G5	S2	2B.2	May-July	Meadows and seeps.	Moist to wet meadows. 15-3200 m.	Low

Table 1-1
Special Status Plant Species List CNDDB, CNPS, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
	sedge										
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	Orobanch-aceae	None	None	G4T2	S2	1B.2	April-August	Marshes and swamps.	Coastal saltmarsh with Spartina, Distichlis, Salicornia, Jaumea. 0-20 m.	Moderate
Castilleja litoralis	Oregon coast paintbrush	Orobanch-aceae	None	None	G3	S3	2B.2	June	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.	Moderate
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	Orobanch-aceae	None	None	G4?T2	S2	1B.2	June-Oct.	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-10 m.	Moderate
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifrag-aceae	None	None	G5	S3	4.3	Feb.-June	North Coast conifer forest, riparian forest.	Streambanks, sometimes seeps, sometimes roadsides. 10-220 m.	Low
Collinsia corymbosa	round-headed Chinese-houses	Plantagin-aceae	None	None	G1	S1	1B.2	April-June	Coastal dunes.	Coastal dunes from 10-30 m.	Moderate
Eleocharis parvula	small spikerush	Cyperaceae	None	None	G5	S4	4.3	July-August	Marsh & swamp, salt marsh, wetland.	In coastal salt marshes. 1-3020 m.	Moderate
Erysimum menziesii	Menzies' wallflower	Brassic-aceae	E	E	G1	S1	1B.1	March-Sept.	Coastal dunes.	Localized on dunes and coastal strand. 0-35 m.	High
Erythronium revolutum	coast fawn lily	Liliaceae	None	None	G4G5	S3	2B.2	March-August	Bogs & fens, broadleaf upland forest, north coast conifer forest.	Mesic sites; streambanks. 60-1405 m.	Low
Fissidens pauperculus	minute pocket moss	Fissident-aceae	None	None	G3?	S2	1B.2	Lichen	North coast conifer forest, Redwood.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1024 m.	Low
Gilia capitata ssp. *pacifica*	Pacific gilia	Polemoni-aceae	None	None	G5T3	S2	1B.2	April-August	Coastal bluff scrub, chaparral, coastal prairie, valley & foothill grassland.	5-1345 m.	Moderate
Gilia millefoliata	dark-eyed gilia	Polemoni-aceae	None	None	G2	S2	1B.2	April-July	Coastal dunes.	1-60 m.	**Present**
Glehnia	American	Apiaceae	None	None	G5T5	S3	4.2	May-	Coastal dunes.	0-20 m.	High

Table 1-1
Special Status Plant Species List CNDDB, CNPS, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
littoralis ssp. *leiocarpa*	glehnia							August			
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	Asteraceae	None	None	G4T3	S2	1B.2	March-June	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-215 m.	**Present**
Hosackia gracilis	harlequin lotus	Fabaceae	None	None	G4	S3	4.2	March-July	Broadleaf upland forest, coast bluff scrub, coast prairie, coast scrub, closed-cone conifer forest, meadow, seep, marsh & swamp, N. coast conifer forest, valley & foothill grassland.	Wetlands and roadsides. 0-700 m.	Moderate
Lasthenia californica ssp. *macrantha*	perennial goldfields	Asteraceae	None	None	G3T2	S2	1B.2	Jan.-Nov.	Coastal bluff scrub, coastal dunes, coastal scrub.	5-185 m.	Moderate
Lathyrus glandulosus	sticky pea	Fabaceae	None	None	G3	S3	4.3	April-June	Cismontane woodland.	In oak woodlands upland from the coast redwood forests & along roadsides. 300-800 m.	None
Lathyrus japonicus	seaside pea	Fabaceae	None	None	G5	S2	2B.1	May-August	Coastal dunes.	3-65 m.	High
Lathyrus palustris	marsh pea	Fabaceae	None	None	G5	S2	2B.2	March-August	Bogs & fens, lower montane and N. coast conifer forest, marsh & swamp, coastal prairie, coastal scrub.	Moist coastal areas. 2-140 m.	Moderate
Layia carnosa	beach layia	Asteraceae	E	E	G2	S2	1B.1	March-July	Coastal dunes, coastal scrub.	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 0-30 m.	High
Lilium kelloggii	Kellogg's lily	Liliaceae	None	None	G3	S3	4.3	May-August	Lower montane conifer forest, N. coast conifer forest.	Gaps and roadsides in conifer forest. 3-1300 m.	None
Lilium occidentale	western lily	Liliaceae	E	E	G1	S1	1B.1	June-July	Coastal scrub, freshwater marsh, bogs & fens,	Well-drained, old beach washes overlain with wind-	Low

Table 1-1
Special Status Plant Species List CNDDB, CNPS, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
									coastal bluff scrub, coast prairie, N. coast conifer forest, marshes and swamps.	blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.	
Listera cordata	heart-leaved twayblade	Orchidaceae	None	None	G5	S4	4.2	Feb.-July	Lower montane and N. coast conifer forest.	Bogs and fens, 5-1370 m.	None
Lycopodium clavatum	running-pine	Lycopodi-aceae	None	None	G5	S3	4.1	June-Sept.	Lower montane conifer forest, north coast conifer forest, marsh &swamp.	Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 45-1225 m.	Low
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifrag-aceae	None	None	G5	S4	4.2	March-Oct.	Broadleaf upland forest, low montane & N. coast conifer forest, meadow & seep.	Mesic sites. 5-1700 m.	Low
Monotropa uniflora	ghost-pipe	Ericaceae	None	None	G5	S2	2B.2	June-Sept.	Broadleaved upland forest, north coast conifer forest.	Often under redwoods or west hemlock. 15-855 m.	None
Montia howellii	Howell's montia	Montiaceae	None	None	G3G4	S2	2B.2	Feb.-May	Meadows and seeps, north coast coniferous forest, vernal pools.	Vernally wet sites; often on compacted soil. 10-1005 m.	Moderate
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	None	None	G2	S1	1B.1	May-Oct.	Coastal bluff scrub, coastal dunes, coastal prairie, low montane conifer forest.	Sandy substrates; usually mesic sites. 0-125 m.	Moderate
Pityopus californicus	California pinefoot	Ericaceae	None	None	G4G5	S4	4.2	March-August	Broadleaf upland forest, upper montane and, N. coast conifer forest, low montane conifer forest.	Deep shade with few understory species, often under layer of duff, in rocky to clay loam soil. 15-2225 m.	None
Pleuropogon refractus	nodding semaphore grass	Poaceae	None	None	G4	S4	4.2	March-August	Meadow & seep, low montane conifer forest, N. coast conifer forest, riparian forest.	Mesic sites along streams, grassy flats in shaded redwood groves. 0-1600 m.	Low
Polemonium carneum	Oregon polemonium	Polemoni-aceae	None	None	G3G4	S2	2B.2	April-Sept.	Coast scrub & prairie, low montane conifer forest.	0-1830 m.	Low
Puccinellia	dwarf alkali	Poaceae	None	None	G4?	SH	2B.2	July	Marshes and swamps.	Mineral spring meadows and coastal salt marshes.	Low

Table 1-1
Special Status Plant Species List CNDDB, CNPS, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
pumila	grass									1-10 m.	
Ribes laxiflorum	trailing black currant	Grossulari-aceae	None	None	G5	S4	4.3	March-August	N. coast conifer forest, Redwood forests.	Grows over logs and stumps in moist, wet places. 5-1395 m.	Low
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	None	None	G3	S3	4.2	March-August	Broadleaf upland forest, coast prairie, coast scrub, N. coast conifer forest, riparian.	Woodlands and clearings near coast; often in disturbed areas. 0-730 m.	Moderate
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	Malvaceae	None	None	G5T2	S2	1B.2	May-August	Coastal bluff scrub, coastal prairie, north coast conifer forest.	Open coastal forest; roadcuts. 5-1255 m.	Moderate
Sidalcea oregana ssp. *eximia*	coast checkerbloom	Malvaceae	None	None	G5T1	S1	1B.2	June-August	Meadow & seep, N. coast & low montane conifer forest.	Near meadows, in gravelly soil. 5-1805 m.	Low
Spergularia canadensis var. *occidentalis*	western sand-spurrey	Caryophyll-aceae	None	None	G5T4	S1	2B.1	June-August	Marshes and swamps (coastal salt marshes).	0-3 m.	Moderate
Trichodon cylindricus	cylindrical trichodon	Ditrichaceae	None	None	G4	S2	2B.2	Moss	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.	Low
Usnea longissima	Methuselah's beard lichen	Parmeli-aceae	None	None	G4	S4	4.2	Lichen	North coast coniferous forest, broadleaf upland forest.	In the "redwood zone" on tree branches of a variety of trees, incl. big leaf maple, oaks, ash, Douglas fir, and bay. 45-1465 m in California.	Low
Viola palustris	alpine marsh violet	Violaceae	None	None	G5	S1S2	2B.2	March-August	Coastal scrub, bogs, and fens.	Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.	Low

1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and California Department of Fish and Wildlife (CDFW)
   - C: candidate
   - CT: candidate threatened
   - D: delisted
   - FP: fully protected
   - PT: proposed threatened
   - SSC: species of special concern

Table 1-1
Special Status Plant Species List CNDDB, CNPS, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence

DPS: distinct population segment
E: endangered
ESU: evolutionarily significant unit
T: threatened
WL: watch list

2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)

G1/S1: critically imperiled
G2/S2: imperiled
G3/S3: vulnerable
G4/S4: apparently secure
G5/S5: secure

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
Amphibians									
Ascaphus truei	Pacific tailed frog	None	None, SSC		S3S4	Aquatic, Klamath/ N. coast flowing waters, Lower montane conifer, N. coast conifer, Redwood, and Riparian forests	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	None
Rana aurora	northern red-legged frog	None	None, SSC	G4	S3	Klamath/N. coast flowing waters, riparian forest, riparian woodland	Humid forests, woodlands, grasslands, & streamsides in NW 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.	High
Rana boylii	foothill yellow-legged frog	None	CT, SSC	G3	S3	Aquatic, Chaparral, Cismontane woodland, coast scrub, Klamath/N. coast flowing waters, lower montane conifer forest, meadow & seep, riparian forest and woodland	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	Low
Rhyacotriton variegatus	southern torrent salamander	None	None, SSC	G3G4	S2S3	Lower montane conifer forest, oldgrowth, redwood forest, 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 rock within trickling water.	Low
Birds									
Accipiter cooperii	Cooper's hawk	None	None, WL	G5	S4	Cismontane woodland Riparian forest Riparian woodland Upper montane conifer forest	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	Low
Accipiter striatus	sharp-shinned hawk	None	None, WL	G5	S4	Cismontane woodland, lower montane conifer forest, riparian forest, riparian woodland	Ponderosa pine, black oak, riparian deciduous, mixed conifer & Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft of water.	Low
Ardea alba	great egret	None	None	G5	S4	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.	High
Ardea herodias	great blue heron	None	None	G5	S4	Brackish marsh, estuary, freshwater marsh, marsh &	Colonial nester in tall trees, cliffsides, and sequestered	Rookery sites in close proximity to foraging areas:	**Present**

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
						swamp, riparian forest, wetland	spots on marshes.	marshes, lake margins, tide-flats, rivers and streams, wet meadows.	
Asio flammeus	short-eared owl	None	None, SSC	G5	S3	Marsh & swamp, meadow & seep, valley & foothill grassland, wetland.	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields.	Tule patches/tall grass needed for nesting/daytime seclusion. Nests dry ground depression concealed in vegetation.	Low
Botaurus lentiginosus	American bittern	None	None	G4	S3S4	Brackish marsh, freshwater marsh, salt marsh.	Freshwater and slightly brackish marshes. Also in coastal saltmarshes.	Dense reed beds.	Low
Brachyramphus marmoratus	marbled murrelet	T	E	G3G4	S1	Lower montane conifer forest, Old-growth Redwood.	Feeds near-shore; nests inland along coast from Eureka to Oregon border.	Nests in old-growth redwood-dominated forests, up to 6 mi. inland, often in Douglas fir.	None
Chaetura vauxi	Vaux's swift	None	None, SSC	G5	S2S3	Lower montane conifer forest, North coast conifer forest, old-growth redwood.	Redwood, Douglas-fir, & other conifer forests. Nests in large hollow trees & snags. Often nests in flocks.	Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	Low
Charadrius alexandrinus nivosus	western snowy plover	T	None, SSC	G3T3	S2S3	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.	Moderate
Charadrius montanus	mountain plover	None	None, SSC	G3	S2S3	Chenopod scrub, Valley & foothill grassland.	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms.	Short vegetation, bare ground & flat topography. Prefers grazed areas & areas with burrowing rodents.	Low
Circus cyaneus	northern harrier	None	None, SSC	G5	S3	Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub.	Coastal salt & fresh-water marsh. Nest & 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.	**Present**
Coccyzus americanus occidentalis	western yellow-billed cuckoo	T	E	G5T2T3	S1	Riparian fores.t	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.	None
Contopus cooperi	olive-sided flycatcher	None	None, SSC	G4	S4	Lower montane conifer forest, redwood and upper montane conifer forests.	Nesting habitats are mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir & lodgepole pine.	Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.	Low

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
Coturnicops noveboracensis	yellow rail	None	None, SSC	G4	S1S2	Freshwater marsh, meadow & seep.	Summer resident in eastern Sierra Nevada in Mono. Co.	Freshwater marshlands.	Low
Egretta thula	snowy egret	None	None	G5	S4	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.	High
Elanus leucurus	white-tailed kite	None	None, FP	G5	S3S4	Cismontane woodland, marsh & swamp, riparian woodland, valley & foothill grassland, wetland.	Rolling foothills and valley margins w/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.	Moderate
Falco columbarius	merlin	None	None, WL	G5	S3S4	Estuary, Great Basin grassland, Valley & foothill grassland.	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches.	Clumps of trees or windbreaks are required for roosting in open country.	**Present**
Falco peregrinus anatum	American peregrine falcon	DL	DL, FP	G4T4	S3S4	Many open habitats, however, more likely along coastlines, lake edges, mountain edges.	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	Nest consists of a scrape or a depression or ledge in an open site.	**Present**
Haliaeetus leucocephalus	bald eagle	DL	E, FP	G5	S3	Lower montane conifer forest, Old-growth.	Ocean shore, lake margins, & rivers for both nesting & wintering. Most nests within 1 mi of water.	Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.	Moderate
Numenius americanus	long-billed curlew	None	None, WL	G5	S2	Great Basin grassland Meadow & seep.	Breeds in upland shortgrass prairies & wet meadows in northeastern California.	Habitats on gravelly soils and gently rolling terrain are favored over others.	Low
Nycticorax nycticorax	black-crowned night heron	None	None	G5	S4	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.	High
Pandion haliaetus	osprey	None	None, WL	G5	S4	Riparian forest.	Ocean shore, bays, fresh-water lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	**Present**
Pelecanus occidentalis	California brown	DL	DL, FP	G4T3	S3	Estuaries and coastal marine habitat.	Colonial nester on coastal islands just outside the surf	Nests on coastal islands of small to moderate size which	High (flyover)

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
californicus	pelican						line.	afford immunity from attack by ground-dwelling predators. Roosts communally.	
Phalacrocorax auritus	double-crested cormorant	None	None	G5	S4	Riparian forest, Riparian scrub, and Riparian woodland.	Colonial nester on coastal cliffs, offshore islands, & 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.	High (flyover)
Poecile atricapillus	black-capped chickadee	None	None, WL	G5	S3	Riparian woodland.	Inhabits riparian woodlands in Del Norte and northern Humboldt counties.	Mainly found in deciduous tree-types, especially willows and alders, along large or small watercourses.	Moderate
Rallus longirostris obsoletus	California clapper rail	E	E, FP	G5T1	S1	Brackish marsh, Marsh & swamp, Salt marsh, and Wetland.	Salt-water & 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.	Low
Riparia riparia	bank swallow	None	T	G5	S2	Riparian scrub and 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
Strix occidentalis caurina	northern spotted owl	T	SSC	G3T3	S2S3	North coast conifer forest and Old-growth Redwood.	Old-growth forests or mixed stands of old-growth & mature trees. Occasional in younger forests w/ patches of big trees.	High, multistory canopy dominated by big trees, many trees w/cavities or broken tops, woody debris & space under canopy.	None
Fish									
Acipenser medirostris	green sturgeon	T	None, SSC	G3	S1S2	Aquatic, Klamath/N. coast flowing waters, Sacramento/ San Joaquin flowing waters	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.	None
Entosphenus tridentatus	Pacific lamprey	None	None, SSC	G4	S4	Aquatic, Klamath/N. coast flowing waters, Sacramento/ San Joaquin flowing waters, South coast flowing waters.	Found in Pacific Coast streams north of San Luis Obispo Co., however regularly runs in Santa Clara River. Size of runs is	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.	None

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
							declining.		
Eucyclogobius newberryi	tidewater goby	E	None, SSC	G3	S3	Aquatic, Klamath/North coast flowing waters, Sacramento/ San Joaquin flowing waters, and South coast flowing waters	Brackish water habitats along the Calif coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water & high oxygen levels.	None
Oncorhynchus clarkii clarkii	coast cutthroat trout	None	None, SSC	G4T4	S3	Aquatic, Klamath/North coast flowing waters.	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams & estuaries. Need shaded streams with water temps <18C, & small gravel for spawning.	None
Oncorhynchus kisutch pop. 2	Coho salmon (S. Oregon/N. Ca ESU)	T	T	G4T2Q	S2?	Aquatic, Klamath/North coast flowing waters, Sacramento/ San Joaquin flowing waters.	Fed listing refers to populations between Cape Blanco, Oregon & Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border & Punta Gorda, California.	None
Oncorhynchus mykiss irideus pop. 16	steelhead- N. Ca DPS	T	None	G5T2-T3Q	S2S3	Aquatic, Klamath/North coast, Sacramento/San Joaquin flowing waters.	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools.	None
Oncorhynchus mykiss irideus pop. 36	summer run steelhead trout	None	None, SSC	G5T4Q	S2	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters.	No. Calif coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & No. Calif DPS.	Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer.	None
Oncorhynchus tshawytscha pop. 17	Chinook salmon (California coast ESU)	T	None	G5	S1	Aquatic, Sacramento/San Joaquin flowing waters.	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian Rivers, Sonoma Co.	Major limiting factor for juvenile chinook salmon is temperature, which strongly effects growth & survival.	None
Spirinchus thaleichthys	longfin smelt	C	T, SSC	G5	S1	Aquatic, Estuary.	Euryhaline, nektonic & anadromous. Open waters of estuaries, mostly mid to bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	None
Thaleichthys pacificus	Eulachon	T	None	G5	S3	Aquatic, Klamath/North coast flowing waters.	Found in Klamath River, Mad River, Redwood Creek & in small numbers in Smith River & Humboldt Bay	Spawn in lower reaches of coastal rivers w/ moderate water velocities & bottom of pea-sized gravel, sand &	None

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
							tributaries.	woody debris.	
Insects									
Bombus caliginosus	obscure bumble bee	None	None	G4?	S1S2	Nests underground or above ground in abandoned bird nests.	Coastal areas from Santa Barbara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	High
Bombus occidentalis	western bumble bee	None	None	G2G3	S1	Pollinates a wide variety of flowers. Will gnaw through flowers to obtain nectar their tongues are too short to reach.	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Nest in cavities or abandoned burrows.	Moderate
Cicindela hirticollis gravida	sandy beach tiger beetle	None	None	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.	None
Mammals									
Aplodontia rufa humboldtiana	Humboldt mountain beaver	None	None	G5TNR	SNR	Coastal scrub, Redwood and Riparian forests.	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.	Low
Arborimus albipes	White-footed vole	None	None, SSC	G3G4	S2	North coast coniferous forest, Redwood, Riparian forest	Mature coastal forests in Humboldt & Del Norte cos. Prefers areas near small, clear streams with dense alder & shrubs.	Occupies the habitat from the ground surface to the canopy. Feeds in all layers & nests on the ground under logs or rock	Low
Arborimus pomo	Sonoma tree vole	None	None, SSC	G3	S3	North coast conifer forest, old-growth, redwood forest.	N. coast fog belt from Oregon border to Sonoma Co. In Douglas fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas fir needles. Will occasionally eat needles of grand fir, hemlock, or spruce.	None
Corynorhinus townsendii	Townsend's big-eared bat	None	None, SSC	G3G4	S2	Broadleaf upland forest, chaparral, lower montane conifer forest, meadow & seep, riparian forest, riparian wood-land, montane conifer forest,	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Low

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
						valley & foothill grassland.			
Erethizon dorsatum	North American porcupine	None	None	G5	S3	Broadleaf upland forest Cismontane woodland Closed-cone and lower montane conifer forests, North coast and upper montane conifer forests.	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.	Low
Martes caurina humboldtensis	Humboldt marten	None	CE, SSC	G5T1	S1	North coast conifer forest, oldgrowth, Redwood forest.	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.	None
Myotis evotis	long-eared myotis	None	None	G5	S3	Roosts in a wide range of substrate.	Found in all brush, woodland & forest habitats from sea level to 9000 ft. Prefers coniferous woodlands & forests.	Nursery colonies in buildings, crevices, spaces under bark, & snags. Caves used primarily as night roosts.	Moderate
Pekania pennanti	fisher (west coast DPS)	PT	CT, SSC	G5T2-T3Q	S2S3	North coast conifer forest, old-growth, riparian forest.	Intermediate to large-tree stages of conifer forests & deciduous-riparian areas with high % canopy closure.	Uses cavities, snags, logs & rocky areas for cover & denning. Needs large areas of mature, dense forest.	None
Reptiles									
Chelonia mydas	green sea turtle	T	None	G3	S1	Marine bay	Marine.	Completely herbivorous; needs adequate supply of seagrass & algae.	None
Emys marmorata	western pond turtle	None	None, SSC	G3G4	S3	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Wetland	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6,000 ft elevation.	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Low
Mollusks									
Anodonta californiensis	California floater	None	None	G3Q	S2?	Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists.	Aquatic	Generally in shallow water.	None

Table 1-2
Special Status Animal Species List CNDDB, IPaC: Eureka and Surrounding 7.5-minute quadrangles
Samoa Wastewater Project

Scientific Name	Common Name	FedList	CalList	GRank	SRank	Habitats	GenHab	MicroHab	Potential of Occurrence
Margaritifera falcata	western pearlshell	None	None	G4G5	S1S2	Aquatic.	Aquatic.	Prefers lower velocity waters.	None

1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and California Department of Fish and Wildlife (CDFW)
   - C: candidate
   - CT: candidate threatened
   - D: delisted
   - DPS: distinct population segment
   - E: endangered
   - ESU: evolutionarily significant unit
   - FP: fully protected
   - PT: proposed threatened
   - SSC: species of special concern
   - T: threatened
   - WL: watch list
   - SNR: State not ranked
   - NR: not ranked

2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)
   - G1/S1: critically imperiled
   - G2/S2: imperiled
   - G3/S3: vulnerable
   - G4/S4: apparently secure
   - G5/S5: secure

Table 1-3 Botanical Species Observed 4/11,17, 5/31, and 6/12/2018 Samoa Wastewater Project			
Scientific Name	**Common Name**	**Family**	**Native?**
Trees			
Acacia dealbata	silver wattle	Fabaceae	N
Alnus rubra	red alder	Betulaceae	Y
Eucalyptus globulus	bluegum eucalyptus	Myrtaceae	N
Hesperocyparis macrocarpa	Monterrey cypress	Cupressaceae	N
Picea sitchensis	Sitka spruce	Pinaceae	Y
Pinus contorta ssp. *contorta*	beach pine	Pinaceae	Y
Pinus radiata	Monterrey pine	Pinaceae	N
Pittosporum tenuifolium	shortleaf box	Pittosporaceae	N
Salix hookeriana	Hooker's willow	Salicaceae	Y
Salix lasiandra	pacific willow	Salicaceae	Y
Salix sitchensis	Sitka willow	Salicaceae	Y
Shrubs			
Arctostaphylos uva-ursi	bearberry manzanita	Ericaceae	Y
Baccharis pilularis ssp. *consanguinea*	coyote brush	Asteraceae	Y
Cornus sericea	American dogwood	Cornaceae	Y
Cytisus scoparius	scotch broom	Fabaceae	N
Frangula purshiana	cascara	Rhamnaceae	Y
Garrya elliptica	coast silk-tassel	Garryaceae	Y
Lonicera involucrata var. *ledebourii*	twinberry	Caprifoliaceae	Y
Lupinus arboreus	yellow bush lupine	Fabaceae	N
Morella californica	California wax-myrtle	Myricaceae	Y
Rosa rubiginosa	sweetbriar	Rosaceae	N
Rubus armeniacus	Himalayan blackberry	Rosaceae	N
Rubus ursinus	California blackberry	Rosaceae	Y
Sedges and Rushes			
Carex harfordii	Harford's sedge	Cyperaceae	Y
Carex obnupta	slough sedge	Cyperaceae	Y
Carex pansa	sand-dune sedge	Cyperaceae	Y
Cyperus eragrostis	tall flatsedge	Cyperaceae	Y
Cyperus involucratus	umbrella plant	Cyperaceae	N
Eleocharis macrostachya	spike rush	Cyperaceae	Y
Eleocharis palustris	spikerush	Cyperaceae	Y
Juncus brewerii	Brewer's rush	Juncaceae	Y
Juncus bufonius	toad rush	Juncaceae	Y
Juncus effuses ssp. *pacificus*	common rush	Juncaceae	Y
Juncus lescurii	dune rush	Juncaceae	Y
Ferns			
Polypodium scouleri	leather-leaf fern	Polypodiaceae	Y
Polystichum munitum	sword fern	Dryopteridaceae	Y
Pteridium aquilinum var. *pubescens*	bracken fern	Dennstaedtiaceae	Y
Grasses			
Agrostis stolonifera	creeping bentgrass	Poaceae	N

Table 1-3 Botanical Species Observed 4/11,17, 5/31, and 6/12/2018 Samoa Wastewater Project			
Scientific Name	**Common Name**	**Family**	**Native?**
Aira caryophyllea	silver hair grass	Poaceae	N
Alopecurus geniculatus	march foxtail	Poaceae	N
Ammophila arenaria	beach grass	Poaceae	N
Anthoxanthum odoratum	sweet vernal grass	Poaceae	N
Avena barbata	wild oat	Poaceae	N
Briza maxima	large quaking grass	Poaceae	N
Bromus catharticus	rescue grass	Poaceae	N
Bromus diandrus	ripgut brome	Poaceae	N
Bromus hordeacus	soft chess	Poaceae	N
Cortaderia jubata	jubata grass	Poaceae	N
Cynosurus echinatus	dogtail grass	Poaceae	N
Dactylis glomerata	orchard grass	Poaceae	N
Deschampsia cespitosa ssp. *holciformes*	tufted hairgrass	Poaceae	Y
Distichlis spicata	salt grass	Poaceae	Y
Ehrharta erecta	panic veldt grass	Poaceae	N
Festuca arundinacea	tall fescue	Poaceae	N
Festuca bromoides	brome-fescue	Poaceae	N
Festuca perennis	wildrye	Poaceae	N
Festuca rubra	red fescue	Poaceae	Y
Holcus lanatus	velvet grass	Poaceae	N
Hordeum marinum ssp. *leporinum*	farmers foxtail	Poaceae	N
Poa annua	annual grass	Poaceae	N
Poa bulbosa	bulbous blue-grass	Poaceae	N
Poa confinis	beach bluegrass	Poaceae	Y
Poa unilateralis	ocean bluff beachgrass	Poaceae	Y
Herbs			
Abronia latifolia	yellow sand verbena	Nytaginaceae	Y
Achillea millefolium	common yarrow	Asteraceae	Y
Acmispon americanus	American bird's-foot	Fabaceae	Y
Agapanthus praecox	African lily	Liliaceae	N
Allium triquetrum	three cornered leek	Alliaceae	N
Ambrosia chamissonis	beach bur-sage	Asteraceae	Y
Arctotheca calendula	capeweed	Asteraceae	N
Armeria maritima ssp. *californica*	sea thrift	Plumbaginaceae	Y
Artemisia pycnocephala	beach sagewort	Asteraceae	Y
Atriplex prostrata	fat hen	Chenopodiaceae	N
Bellis perenne	English daisy	Asteraceae	N
Bellardia trixago	Meditteranean linseed	Orobanchaceae	N
Brassica nigra	black mustard	Brassicaceae	N
Brodiaea terrestris ssp. *terrestris*	dwarf brodiaea	Themidaceae	Y
Cakile maritima	sea rocket	Brassicaceae	N
Camissoniopsis cheiranthifolia	beach primrose	Onagraceae	Y
Cardamine oligosperma	bittercress	Brassicaceae	Y
Cardionema ramosissimum	sandmat	Caryophyllaceae	Y
Castilleja exserta ssp. *latifolia*	purple owl's clover	Orobanchaceae	Y

Table 1-3 Botanical Species Observed 4/11,17, 5/31, and 6/12/2018 Samoa Wastewater Project			
Scientific Name	**Common Name**	**Family**	**Native?**
Cerastium glomeratum	mouse-ear chickweed	Caryophyllaceae	N
Chamerion angustifolium	fireweed	Onagraceae	Y
Cirsium arvense	Canada thistle	Asteraceae	N
Clarkia davyi	Davy's clarkia	Onagraceae	Y
Claytonia perfoliata ssp. *perfoliata*	miner's lettuce	Montiaceae	Y
Claytonia rubra ssp. *depressa*	redstem miner's lettuce	Montiaceae	Y
Conium maculatum	Poison hemlock	Apiaceae	N
Crocosmia x crocosmiiflora	montebretia	Iridaceae	N
Cryptantha leiocarpa	beach cryptantha	Boraginaceae	Y
Daucus carota	Queen Anne's lace	Apiaceae	N
Epilobium ciliatum	fringed willowherb	Onagraceae	Y
Eriogonum latifolium	coast buckwheat	Polygonaceae	Y
Erodium cicutarium	coastal heron's bill	Geraniaceae	N
Erodium moschatum	whitestem filaree	Geraniaceae	N
Eschscholzia californica	California poppy	Papaveraceae	Y
Foeniculum vulgare	fennel	Apiaceae	N
Fragaria chiloensis	beach strawberry	Rosaceae	Y
Galium aparine	cleaver plant	Rubiaceae	Y
Gamochaeta ustulata	featherweed	Asteraceae	Y
Geranium dissectum	cut-leaf geranium	Geraniaceae	N
Geranium molle	crane's bill geranium	Geraniaceae	N
Gilia millefoliata	**dark-eyed gilia**	**Polemoniaceae**	**Y 1B.2**
Grindelia stricta var. *stricta*	coastal gumplant	Asteraceae	Y
Hesperevax sparsiflora* var. *brevifolia	**short-leaved evax**	**Asteraceae**	**Y 1B.2**
Hirschfeldia incana	hoary mustard	Brassicaceae	N
Hyacinthoides non-scripta	blue bells	Asparagaceae	N
Hypochaeris radicata	hairy cat's-ear	Asteraceae	N
Iris pseudacorus	yellow flag iris	Iridaceae	N
Kniphofia uvaria	firepoker	Asphodelaceae	N
Lamium purpureum	henbit	Lamiaceae	N
Lathyrus latifolius	sweet pea	Fabaceae	N
Lepidium strictum	peppergrass	Brassicaceae	Y
Linum bienne	flax	Linaceae	N
Lobularia maritima	sweet alyssum	Brassicaceae	N
Logfia gallica	daggerleaf cottonrose	Asteraceae	N
Lotus corniculatus	bird-foot trefoil	Fabaceae	N
Lupinus bicolor	annual lupine	Fabaceae	Y
Lysimachia arvensis	Scarlet pimpernel	Myrsinaceae	N
Lythrum hyssopifolia	hyssop loosestrife	Lythraceae	N
Malva parviflora	cheeseweed	Malvaceae	N
Matricaria discoidea	pineapple weed	Asteraceae	Y
Medicago lupulina	black medic	Fabaceae	N
Medicago polymorpha	bur-clover	Fabaceae	N
Melilotus albus	white sweet clover	Fabaceae	N
Nuttallanthus texanus	blue toadflax	Plantaginaceae	Y

Table 1-3 Botanical Species Observed 4/11,17, 5/31, and 6/12/2018 Samoa Wastewater Project			
Scientific Name	**Common Name**	**Family**	**Native?**
Oenanthe sarmentosa	water parsley	Apiaceae	Y
Oenothera glazioviana	red-sepal primrose	Onagraceae	N
Oxalis pres-caprae	Bermuda buttercup	Oxalidaceae	N
Parentucellia viscosa	yellow glandweed	Orobanchaceae	N
Plantago californica	California plantain	Plantaginaceae	Y
Plantago coronopus	buckhorn plantain	Plantaginaceae	N
Plantago lanceolata	English plantain	Plantaginaceae	N
Plantago major	common plantain	Plantaginaceae	N
Platystemon californicus	creamcups	Papaveraceae	Y
Plectritis congesta ssp. *brachystemon*	sea blush	Valerianaceae	Y
Polygonum paronychia	dune knotweed	Polygonaceae	Y
Potentilla anserina ssp. *pacifica*	silverweed	Rosaceae	Y
Pseudognaphalium luteoalbum	jersey cudweed	Asteraceae	N
Ranunculus repens	creeping buttercup	Ranunculaceae	N
Raphanus sativa	wild radish	Onagraceae	N
Rumex acetosella	sheep sorrel	Polygonaceae	N
Rumex crispus	curly dock	Polygonaceae	N
Rumex pulcher	fiddle dock	Polygonaceae	N
Sanicula arctopoides	footsteps of spring	Apiaceae	Y
Scrophularia californica	bee plant	Scrophulariaceae	Y
Senecio vulgaris	common groundsel	Asteraceae	N
Silene gallica	common catchfly	Caryophyllaceae	N
Solidago spathulata	dune goldenrod	Asteraceae	Y
Soliva sessilis	common soliva	Asteraceae	N
Sonchus olereacus	sow thistle	Asteraceae	N
Sparaxis tricolor	harlequin flower	Iridaceae	N
Spergula arvensis	corn spurry	Caryophyllaceae	N
Stellaria media	chickweed	Caryophyllaceae	N
Symphyotrichum chilense	pacific aster	Asteraceae	Y
Tanacetum bipinnatum	dune tansy	Asteraceae	Y
Trifolium repens	white clover	Fabaceae	N
Trifolium subterraneum	subterranean clover	Fabaceae	N
Triphysaria eriantha ssp. *eriantha*	butter 'n' eggs	Orobanchaceae	Y
Typha latifolia	cattail	Typhaceae	Y
Veronica arvensis	corn speedwell	Plantaginaceae	N
Vicia hirsuta	tiny vetch	Fabaceae	N
Vicia sativa ssp. *sativa*	spring vetch	Fabaceae	N
Vicia villosa ssp. *villosa*	hairy vetch	Fabaceae	N
Vinca major	periwinkle	Apocynaceae	N
Zantedeschia aethiopica	calla lily	Araceae	N
Vines			
Delairea odorata	cape ivy	Asteraceae	N
Hedera helix	English ivy	Araliaceae	N
168 Species			**45% Native**

Table 1-4 Animal Species Observed 4/11,17, 5/31 and 6/12/2018 Samoa Wastewater Project				
Scientific Name	**Common Name**	**Family**	**Nesting Habit**	**Status[1]**
Birds				
Agelaius phoeniceus	red-wing black-bird	Icteridae	Low growing marsh/wetland vegetation.	NL
Ardea herodias	great blue heron	Ardeidae	Colonial nester in trees, sometimes on ground.	S
Branta canadensis	Canada geese	Anatidae	On the ground, elevated near water.	NL
Callipepla californica	California quail	Odontophoridae	Hides nest on the ground amid grasses, shrubs.	NL
Calypte anna	Anna's hummingbird	Trochilidae	Horizontal braches 6/20 ft high.	NL
Catharus ustulatus	Swainson's thrush	Turdidae	Shrubs within thickets, 3-10 ft above ground.	NL
Circus cyaneus	northern harrier	Accipitridae	On the ground within dense vegetation	SSC
Cistothorus palustris	marsh wren	Troglodytidae	W/i cattails and bulrushes 2-5 ft off the ground	NL
Columba livia	rock pigeon	Columbidae	On made-made structures.	NL
Empidonax trailii	willow flycatcher	Tyrannidae	Shrubs, 2-5 feet off the ground.	NL
Corvus brachyrhynchos	American crow	Corvidae	In tree canopy, March-July	NL
Euphagus cyanocephalus	Brewer's blackbird	Icteridae	Variable locations, typically in a colony.	NL
Falco columbarius	merlin	Falconidae	Reuse other species nests in semi-open areas.	WL
Falco peregrinus	peregrine falcon	Falconidae	On cliffs, or other high open areas.	S, FP
Haemorhous purpureus	purple finch	Fringillidae	Tree or shrub, near tip of limb.	NL
Hirundo rustica	barn swallow	Hirundinidae	Mud cup, typically on a man-made structure.	NL
Melospiza melodia	song sparrow	Passerellidae	Hidden in grasses or low vegetation.	NL
Pandion haliaetus	osprey	Pandionidae	In open areas on a wide sturdy support.	WL
Passer domesticus	house sparrow	Passeridae	cavity nester within man-made structures.	NL
Passerella iliaca	fox sparrow	Passerellidae	Low crotches, or on the ground.	NL
Sayornis nigricans	black phoebe	Tyrannidae	Cliff faces and man-made structures.	NL
Streptopelia decaocto	Eurasian dove	Columbidae	Trees and buildings 10 ft or higher.	NL
Sturnis vulgaris	European starling	Sturnidae	Cavity, near human habitation	NL
Turdus migratorius	American robin	Turdidae	Within lower canopy, April-July	NL
Zonotrichia atricapilla	golden-crowned sparrow	Passerellidae	On the ground in northern latitudes.	NL
Zonotrichia leucophrys	white crowned sparrow	Passerellidae	Placed low, usually in shrubs.	NL
Reptiles and Amphibians				
Thamnophis elegans ssp. *terrestris*	coastal garter snake	Colubridae	N/A	NL
Elgaria multicarinata ssp. *scincicauda*	Oregon alligator lizard	Anguidae	N/A	NL

Table 1-4 Animal Species Observed 4/11,17, 5/31 and 6/12/2018 Samoa Wastewater Project				
Scientific Name	**Common Name**	**Family**	**Nesting Habit**	**Status[1]**
Pseudacris regilla	tree frog	Hylidae	N/A	NL
Insects				
Plebejus acmon	acmon blue butterfly	Lycaenidae	N/A	NL
Mammals				
Felis catus	domestic cat	Felidae	N/A	NA

1. FP: Fully protected species status
NA: Not applicable
NL: Not listed
S: Sensitive
SSC: Species of special concern

Site Photographs 2

Photo 1: Coastal dune hollow, with two S3 vegetation communities present. Note Coastal dune willow thicket and coastal bramble vegetation communities. Also note non-native grasses along roadway, typical of portions of the study area. Looking south along Vance Avenue. Photo taken 4/17/2018.

Photo 2: Coastal dune habitat with high cover by non-native grasses. Looking east toward Finntown (beyond dune). Photo taken at edge of Vance Avenue, looking just beyond road prism.

Photo taken 4/17/2018.

Photo 3: Typical conditions within the study area along roadways. Note non-native annual grasses within 10 feet of road way transitioning into dune habitat dominated by European beach grass. Photo taken looking northeast.

Photo taken 5/31/2018.

Photo 4: Typical conditions within wetlands just outside of the study area. Note cover by willow and slough sedge understory.

Photo taken 5/31/2018.

Photo 5: Salt marsh habitat to the west of New Navy Base Road, just outside of the study area. Note drop in elevation from the road prism to the wetland habitat. Photo looking west.

Photo taken 6/12/2018.

Photo 6: One of three osprey nests observed within the study area (northernmost). Note adult on adjacent power pole. Photo looking east from the study area.

Photo taken 4/11/2018.

Photo 7: Dark-eyed gilia (*Gilia millefoliata*) observed within the study area, directly west of the airport access road.

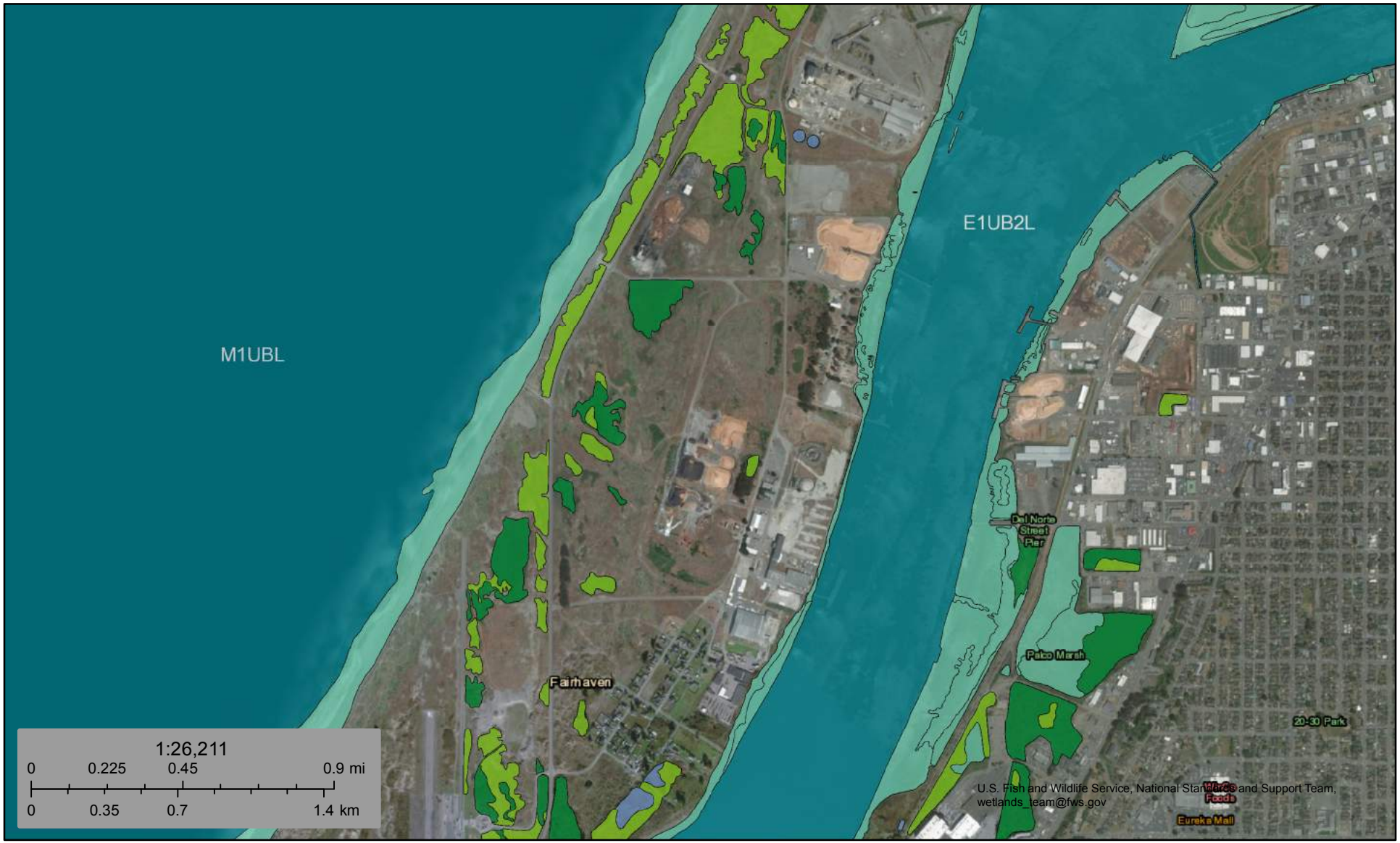
Photo 8: Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*) observed within the study area, directly east of New Navy Base Road north of the Samoa RV park and boat launch.

National Wetlands Inventory

3

U.S. Fish and Wildlife Service
National Wetlands Inventory

Samoa North



June 19, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

U.S. Fish and Wildlife Service
National Wetlands Inventory

Samoa Peninsula WWTP South NWI

April 10, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Eureka, CA | Arcata, CA | Redding, CA | Willits, CA | Coos Bay, OR | Klamath Falls, OR

www.shn-engr.com