Appendix C

Aquatic Resources Delineation Report

SAN JOSÉ–SANTA CLARA REGIONAL WASTEWATER FACILITY OUTFALL BRIDGE AND INSTRUMENTATION IMPROVEMENTS PROJECT

Aquatic Resources Delineation Report

Prepared for
U.S. Army Corps of Engineers

San José–Santa Clara Regional
Wastewater Facility

December 2019

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CHAPTER 1
Introduction

This report has been prepared to document the results and conclusions of an aquatic resources delineation field survey conducted on August 14, 2019 for the San José-Santa Clara Regional Wastewater Facility's (RWF or Facility) Outfall Bridge and Instrumentation Improvements Project. The study area includes approximately 4.84 acres located within northern Santa Clara County (**Figure 1**) and is adjacent to the Facility, located at 700 Los Esteros Road in the City of San José, Santa Clara County, California (**Figure 2)**. On behalf of the City of San José (City), the landowner and manager, ESA investigated the extent of aquatic resources, including wetlands, potentially subject to regulation under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (R&HA).

The study concludes that there are 0.867 acre of aquatic resources within the study area. Most of the aquatic resources are within the "outfall channel" of the RWF, which ends at a weir in the study area that is the point of release of treated effluent. The outfall channel is part of the waste treatment system included within a National Pollutant Discharge Elimination System (NPDES) permit issued under the authority of Section 402 of the Clean Water Act. Waste treatment systems are not waters of the U.S. for the purposes of Section 404 of the Clean Water Act. A total of 0.118 acre of the aquatic resources within the outfall channel are not waters of the U.S. The other 0.750 acre of aquatic resources in the study area is waters of the U.S.

All conclusions presented should be considered preliminary and subject to change pending official review and verification in writing by the U.S. Army Corps of Engineers (USACE).

1.1 Responsible Parties

The responsible party and point of contact for regulatory permitting is:

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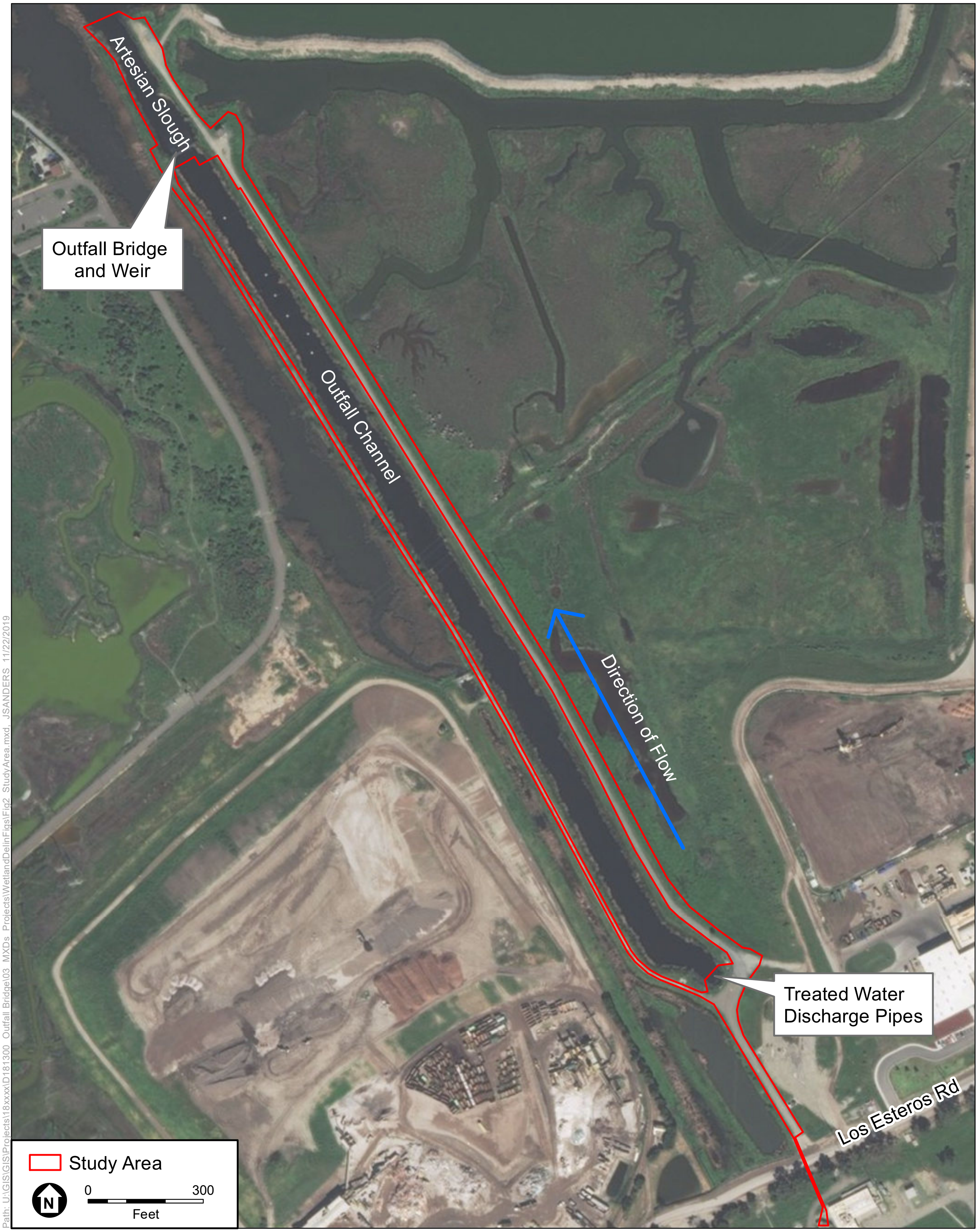
SOURCE: ESA 2019

D181300.00 San José-Santa Clara RFW Outfall Bridge and Instrumentation Improvements Project

Figure 1
Regional Location

ESA



SOURCE: ESA 2019

D181300.00 San José-Santa Clara RFW Outfall Bridge and Instrumentation Improvements Project

Figure 2
Study Area

ESA

1.2 Directions to Study Area

Directions from San Francisco:

- Head south on U.S. Highway 101 about 33 miles to exit 396B.
- Take exit 396B onto eastbound State Route 237
- Head east on State Route 237 about 5.5 miles to the Zanker Road exit
- Take the Zanker Road exit, turn left and head north on Zanker Road for about 1.4 miles to the San José-Santa Clara Regional Wastewater Facility administration building. The address of the administration building is 700 Los Esteros Road. Zanker Road turns into Los Esteros Road at the bend just before the administration building.

1.3 Purpose

The purpose of this investigation is to describe and delineate all aquatic resources within the study area that may be subject to Section 404/401 of the federal Clean Water Act, Section 10 of the federal Rivers and Harbors Act, and the state Porter-Cologne Water Quality Control Act. Information from this report may be used in preparing permit applications for future actions proposed in the study area. This report is intended to be reviewed by the USACE and to support the Regional Water Quality Control Board's (RWQCB) assessment of waters of the state.

CHAPTER 2
Setting

2.1 Study Area

The study area is within section 2 (Township 6 South, Range 1 West) of the Milpitas, California U.S. Geological Survey (USGS) 7.5-minute series quadrangle. It is located at the northern end of the Santa Clara County Valley, near the margin of the southern San Francisco Bay, at the San José-Santa Clara Regional Wastewater Facility (RWF or Facility). The study area comprises approximately 4.84 acres, and the approximate centroid is 37.436615º North, 121.955420º West. Elevation ranges from 3 to 11 feet above mean sea level. The study area encompasses the area where future project work may occur.

The climate in the region consists of cool, wet winters and hot, dry summers. The climate is temperate with mean annual precipitation of 14.68 inches and mean annual temperatures ranching from a high of 69.2 to a low of 51.0 degrees Fahrenheit (Western Regional Climate Center, 2019; NWSFO, 2019). Precipitation at nearby Moffett Field from July 1, 2018 through June 20, 2019 totaled 14.33 inches, which is 98% of the average annual rainfall (NWSFO, 2019). Therefore, the previous winter had approximately average precipitation, although the delineation fieldwork took place during the dry summer.

2.2 Soils

The Custom Soil Resource Report for Santa Clara County Area, California, Western Part (NRCS 2019, included as **Attachment A**), shows four soil units occurring within the study area (**Table 1**).Two of the four soil units present within the study area are listed on the hydric soils list for SantaClara County, California (NRCS, 2019). One of the soil units is not listed as hydric, but doescontain one hydric inclusion. A brief description of each soil unit is provided below.

- **Xerorthents, trash substratum 15 to 30 percent slopes**, is not listed as hydric by the Natural Resource Conservation Service (NRCS) (NRCS, 2019), and does not include minor components. This unit consists of well drained clay loams derived from human transported material. Mapped areas are on levees.
- **Novato clay, 0 to 1 percent slopes, tidally flooded**, is listed as hydric by the NRCS (NRCS, 2019). This map unit contains major 95 percent Novato, tidally flooded and similar soils, and minor components or water and typic xerothents, acid sulfate. Neither minor component is listed as hydric by the NRCS. This unit consist of very poorly drained clays derived from alluvial metamorphic and sedimentary rock parent material. Mapped areas are on levees and within the outfall channel.

- **Novato clay, 0 to 1 percent slopes, protected**, is listed as hydric by the NRCS (NRCS, 2019). This map unit contains major 95 percent Novato, tidally flooded and similar soils, and minor components or water and typic xerothents, acid sulfate. Neither minor component is listed as hydric by the NRCS. This unit consist of very poorly drained clays derived from alluvial metamorphic and sedimentary rock parent material. Mapped areas are on levees, within the outfall channel, and within Artesian Slough.
- **Campbell silt loam, 0 to 2 percent slopes, protected**, is not listed as hydric by the NRCS (NRCS, 2019). This map unit contains 90 percent Campbell, protected and similar soils, and minor components of Clear Lake and Newpark. The Clear Lake inclusion is listed as hydric by the NRCS (NRCS, 2019). This unit consist of moderately well drained silt loams derived from alluvial metamorphic and sedimentary rock. Mapped areas are on levees and developed areas.

TABLE 1
STUDY AREA SOIL UNITS

Soil Map Unit Name	Hydric Status	Landforms
Xerorthents, trash substratum 15 to 30 percent slopes	Non-hydric	Basin floors, marshes
Novato clay, 0 to 1 percent slopes, tidally flooded	Hydric	Marshes
Novato clay, 0 to 1 percent slopes, protected	Hydric	Marshes
Campbell silt loam, 0 to 2 percent slopes, protected	Non-hydric with one hydric inclusion	Alluvial fans

SOURCE: NRCS, 2019

2.3 Hydrology

The study area is located within USGS Hydrologic Map Unit Number 18050003 (Coyote). The RWFtreats domestic, industrial, and commercial wastewater from San José, Santa Clara, Campbell, LosGatos, Monte Sereno, Cupertino, Milpitas, and Saratoga; and parts of unincorporated Santa ClaraCounty. In total, the existing service covers approximately 300 square miles. The RWF discharges about 80 percent of its treated wastewater to the South San Francisco Bay by way of a leveed discharge outfall channel that flows into Artesian Slough. Artesian Slough is a 2.5-mile long tidal slough that begins at the RWF outfall channel and ends at Coyote Creek.

The RWF typically discharges approximately 100 million gallons per day (average dry weather effluent flow) into an outfall channel at the upstream end of Artesian Slough and is the sole source of fresh water to the slough (City of San José, 2019; Figure 2). The SFRWQCB regulates discharges from the RWF through waste discharge requirements set forth in the RWF's National Pollution Discharge Elimination System (NPDES) Permit. A weir structure constructed of reinforced concrete on concrete piles traverses the downstream end of the outfall channel; it functions to maintain a minimum water level in the channel sufficient to keep the outfall discharge pipes fully submerged during low tide cycles, ensuring the discharge pipes are operational at all times. During high tide cycles water overtops the weir structure and the water level within the outfall channel is subject to tidal influence.

Artesian Slough, a traditional navigable water (TNW), is bordered on both sides by former salt production ponds and downstream converges with Coyote Creek. Artesian Slough is bordered by tidal marsh in the immediate area surrounding the RWF outfall channel, and by an increasingly brackish marsh nearer to Coyote Creek due to the tidal influx from the Bay.

2.4 Natural Communities and Habitat Types

The tidal freshwater marsh community in the study area occurs around the margins of open water and is a wetland. The descriptions below include areas that may be largely or entirely unvegetated, including open water and disturbed areas.

2.4.1 Emergent Wetland

Emergent wetland is along the eastern boundary of Artesian Slough. Emergent wetland consists of vegetated areas subject to tidal influence. The freshwater flow from the RWF, combined with the low levels of saltwater influence from San Francisco Bay, result in dominance of freshwater emergent plant species. Dominant species in this habitat type include hardstem bulrush (OBL; *Schoenoplectus californicus*), narrow leaf cattail (OBL; *Typha angustifolia*), and western goldenrod (FACW*; Euthamia occidentalis*).

2.4.2 Channel

Channel includes all areas that are unvegetated (less than 5 percent vegetation cover) and remain inundated throughout the year. This includes the discharge outfall channel and Artesian Slough, both of which are subject to tidal influence.

2.4.3 Disturbed/Ruderal

Disturbed/ruderal habitats on levee crowns, levee slopes, access roads and smaller disturbed areas comprise the majority of the study area. They are upland areas dominated by ruderal, nonnative herbaceous vegetation that is mowed annually. Dominant species in this habitat type include bristly oxtongue (FAC; *Helminthotheca echioides*), black mustard (UPL; *Brassica nigra*), Italian thistle (UPL; *Carduus pycnocephalus*), and grasses such as Harding grass (FACU; *Phalaris aquatica*), foxtail brome (UPL; *Bromus madritensis* ssp. *rubens*), and slender oat (UPL; *Avena barbata*).

2.5 Regulatory Setting

2.5.1 Waters of the U.S.

In 2015, the USACE and the Environmental Protection Agency (EPA) issued the Clean Water Rule (CWR) detailing the process for determining Clean Water Act (CWA) jurisdiction over waters of the U.S. The rule is currently in effect in California and 21 other states. The 2015 Clean Water Rule includes a detailed process for determining which areas may be subject to jurisdiction under the CWA, and defines features that are and are not waters of the U.S. The CWR is summarized below.

2015 Clean Water Rule

The term "waters of the U.S." is defined at 33 CFR (Code of Federal Regulations) 328.3(a) as:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate wetlands;

(3) The territorial seas;

(4) All impoundments of waters otherwise identified as waters of the United States under this section;

(5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;

(6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;

(7) All waters in paragraphs (a)(7)(i) through (v) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (a)(7)(i) through (v) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

    (i) *Prairie potholes.* Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.

    (ii) *Carolina bays and Delmarva bays.* Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.

    (iii) *Pocosins.* Pocosins are evergreen shrub- and tree-dominated wetlands found predominantly along the Central Atlantic coastal plain.

    (iv) *Western vernal pools.* Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.

    (v) *Texas coastal prairie wetlands.* Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.

(8) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this

section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

The following are not ‘‘waters of the United States’’ even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section (33 CFR 328.3[b]).

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

- (i) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
- (ii) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
- (iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

- (i) Artificially irrigated areas that would revert to dry land should application of water to that area cease;
- (ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
- (iii) Artificial reflecting pools or swimming pools created in dry land;
- (iv) Small ornamental waters created in dry land;
- (v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
- (vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and
- (vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

The following terms are defined in 33 CFR 328.3(c):

(1) *Adjacent*. The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (a)(1) through (5) of this section, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like. For purposes of adjacency, an open water such as a pond or lake includes any wetlands within or abutting its ordinary high water mark. Adjacency is not limited to waters located laterally to a water identified in paragraphs (a)(1) through (5) of this section. Adjacent waters also include all waters that connect segments of a water identified in paragraphs (a)(1) through (5) or are located at the head of a water identified in paragraphs (a)(1) through (5) of this section and are bordering, contiguous, or neighboring such water. Waters being used for established normal farming, ranching, and silviculture activities (33 U.S.C. 1344(f)) are not adjacent.

(2) *Neighboring*. The term *neighboring* means:

  (i) All waters located within 100 feet of the ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section. The entire water is neighboring if a portion is located within 100 feet of the ordinary high water mark;

  (ii) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (5) of this section and not more than 1,500 feet from the ordinary high water mark of such water. The entire water is neighboring if a portion is located within 1,500 feet of the ordinary high water mark and within the 100-year floodplain;

  (iii) All waters located within 1,500 feet of the high tide line of a water identified in paragraphs (a)(1) or (a)(3) of this section, and all waters within 1,500 feet of the ordinary high water mark of the Great Lakes. The entire water is neighboring if a portion is located within 1,500 feet of the high tide line or within 1,500 feet of the ordinary high water mark of the Great Lakes.

(3) *Tributary* and *tributaries*. The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (a)(4) of this section), to a water identified in paragraphs (a)(1) through (3) of this section that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark. These physical indicators demonstrate there is volume, frequency, and duration of flow sufficient to create a bed and banks and an ordinary high water mark, and thus to qualify as a tributary. A tributary can be a natural, man-altered, or man-made water and includes waters such as rivers, streams, canals, and ditches not excluded under paragraph (b) of this section. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if, for any length, there are one or more constructed breaks (such as bridges, culverts, pipes, or dams), or one or more natural breaks (such as wetlands along the run of a stream, debris piles, boulder fields, or a stream that flows underground) so long as a bed and banks and an ordinary high water

mark can be identified upstream of the break. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if it contributes flow through a water of the United States that does not meet the definition of tributary or through a non-jurisdictional water to a water identified in paragraphs (a)(1) through (3) of this section.

(4) *Wetlands*. The term *wetlands* means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

(5) *Significant nexus*. The term *significant nexus* means that a water, including wetlands, either alone or in combination with other similarly situated waters in the region, significantly affects the chemical, physical, or biological integrity of a water identified in paragraphs (a)(1) through (3) of this section. The term ''in the region'' means the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. For an effect to be significant, it must be more than speculative or insubstantial. Waters are similarly situated when they function alike and are sufficiently close to function together in affecting downstream waters. For purposes of determining whether or not a water has a significant nexus, the water's effect on downstream paragraph (a)(1) through (3) waters shall be assessed by evaluating the aquatic functions identified in paragraphs (c)(5)(i) through (ix) of this section. A water has a significant nexus when any single function or combination of functions performed by the water, alone or together with similarly situated waters in the region, contributes significantly to the chemical, physical, or biological integrity of the nearest water identified in paragraphs (a)(1) through (3) of this section. Functions relevant to the significant nexus evaluation are the following:

(i) Sediment trapping,

(ii) Nutrient recycling,

(iii) Pollutant trapping, transformation, filtering, and transport,

(iv) Retention and attenuation of flood waters,

(v) Runoff storage,

(vi) Contribution of flow,

(vii) Export of organic matter,

(viii) Export of food resources, and

(ix) Provision of life cycle dependent aquatic habitat (such as foraging, feeding, nesting, breeding, spawning, or use as a nursery area) for species located in a water identified in paragraphs (a)(1) through (3) of this section.

(6) *Ordinary high water mark*. The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

(7) *High tide line*. The term *high tide line* means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be

determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

The limits of jurisdiction are identified in 33 CFR 328.4 as:

(a) *Territorial Seas*. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) *Tidal Waters of the United States*. The landward limits of jurisdiction in tidal waters:

  (1) Extends to the high tide line, or

  (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) *Non-Tidal Waters of the United States*. The limits of jurisdiction in non-tidal waters:

  (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or

  (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.

  (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Traditional Navigable Waters

Navigable waters of the United States are defined in 33 CFR § 329.4 as "…those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity."

Traditional navigable waters include all of the "navigable waters of the United States" as defined in 33 CFR § Part 329.4 as well as by numerous decision of the federal courts; those water bodies the USACE has determined are a navigable water of the U.S. pursuant to 33. CFR § 329.14; plus all other waters that are navigable-in-fact. The definition of "navigable-in-fact" comes from a long line of court cases originating with Daniel Ball, 77 U.S. 557 (1870).

Ephemeral, Intermittent, and Perennial Streams

An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow. An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. A perennial stream has flowing water year-round during a typical year (82 Federal Register 1860).

2.5.2 Waters of the State

The State Water Resources Control Board adopted a new statewide wetland definition and procedures for discharges of dredged and fill material on April 2, 2019. While these procedures will not become law until nine months after approval by the Office of Administrative Law, these procedures may become applicable in the near future and are therefore addressed herein.

"Waters of the state" includes all "waters of the U.S." In 2000, the State Water Resources Control Board determined that all waters of the U.S. are also waters of the state by regulation, prior to any regulatory or judicial limitations on the federal definition of waters of the U.S. (California Code of Regulations title 23, section 3831(w).) This regulation has remained in effect despite subsequent changes to the federal definition. Therefore, waters of the state includes features that have been determined by the U.S. Environmental Protection Agency (U.S. EPA) or the U.S. Army Corps of Engineers (Corps) to be "waters of the U.S." in an approved jurisdictional determination; "waters of the U.S." upon which a Corps permitting decision was based; and features that are consistent with any current or historic final judicial interpretation of "waters of the U.S." or any current or historic federal regulation defining "waters of the U.S." under the federal Clean Water Act.

The new state wetland definition is:

> *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.*

Based on the new statewide wetland definition, the following wetlands are defined as waters of the state:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state, and
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or

d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):

    i. Industrial or municipal wastewater treatment or disposal,

    ii. Settling of sediment,

    iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,

    iv. Treatment of surface waters,

    v. Agricultural crop irrigation or stock watering,

    vi. Fire suppression,

    vii. Industrial processing or cooling,

    viii. Active surface mining – even if the site is managed for interim wetlands functions and values,

    ix. Log storage

    x. Treatment, storage, or distribution of recycled water, or

    xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or

    xii. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state.

CHAPTER 3
Methodology

3.1 Pre-field Review

Prior to conducting the field investigation, the following background tasks were performed:

- Review of Milpitas, California USGS 7.5-minute topographic quadrangle map;
- Review of color aerial photography for vegetative, topographic, and hydrographic signatures;
- Review of the *Custom Soil Resource Report for Santa Clara County Area, Western Part, California* (NRCS 2019), for information about soils and geomorphology;
- Review of the National Hydric Soils List for Santa Clara County, California (NRCS 2019) to determine if any soils mapped within the study area are considered hydric at the level of soil series; and
- Review of the National Wetlands Inventory (U.S Fish and Wildlife Service [USFWS] 2016)

3.2 Field Survey Methods

The aquatic resources delineation was conducted within the study area by ESA botanist Joe Sanders and ESA biologist Sharon Dulava on August 14, 2019. The delineation used the "Routine Determination Method" as described in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), hereafter called the "1987 Manual." The 1987 Manual was used in conjunction with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008), hereafter called the "Arid West Supplement." For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed.

Three positive parameters must normally be present for an area to be considered a wetland: (1) a dominance of wetland vegetation, (2) presence of hydric soils, and (3) presence of wetland hydrology. Presence or absence of positive indicators for wetland vegetation, soils, and hydrology was assessed per the 1987 Manual and Arid West Supplement guidelines. Data points were taken within suspected wetland and a paired point taken in nearby uplands. Data points were recordedon Arid West wetland delineation forms, which are provided as **Attachment B**.

At each data point, a visual assessment of the dominant plant species within a 6-foot radius was made. Dominant species were assessed using the recommended "50/20" rule per the Arid West Supplement. Plants were identified to species using *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012). The *National Wetland Plant List: 2016 Update of Wetland Ratings* (Lichvar et al. 2016) was used to determine the wetland indicator status of all plants. Soils at each data point were characterized by color, texture, organic matter accumulation, and the presence or absence of hydric soil indicators. Color was described using Munsell soil color charts (Kollmorgen Instruments Corporation, 1990). Presence of wetland hydrology was determined at each data point by presence of one or more of the primary and/or secondary indicators, according to guidance in the Arid West Supplement.

3.3 Mapping and Acreage Calculations

All features, including data points, wetland boundaries, and channel courses were recorded within a custom Collector webmap on an iPad connected to an external Global Positioning System (GPS) unit (Trimble R1) with real-time differential correction and an instrument-rated mapping accuracy of less than a meter. Boundaries of wetlands were demarcated in the field using GPS by walking the margin of the wetland (where accessible) and taking points at set intervals.

In the office, data were downloaded from the webmap and further refined within GIS software. Topography data was used to extend the high tide lines that were collected in accessible areas in the field, and geo-referenced aerial photography was used to map vegetated areas within the high tide line. Acreage of wetland and waters of the U.S. polygons were determined using ArcGIS.

CHAPTER 4
Results

4.1 Aquatic Resources

The aquatic resources delineation identified 0.117 acre of aquatic features within the 4.84-acre study area. Aquatic features were classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Details of the wetlands and other waters are presented in **Table 2** and described below. **Figures 3, 3a and 3b** shows the location and extent of the wetlands and other waters. The Aquatic Resources Spreadsheet is provided in **Attachment C**. Study area photographs are provided in **Attachment D**.

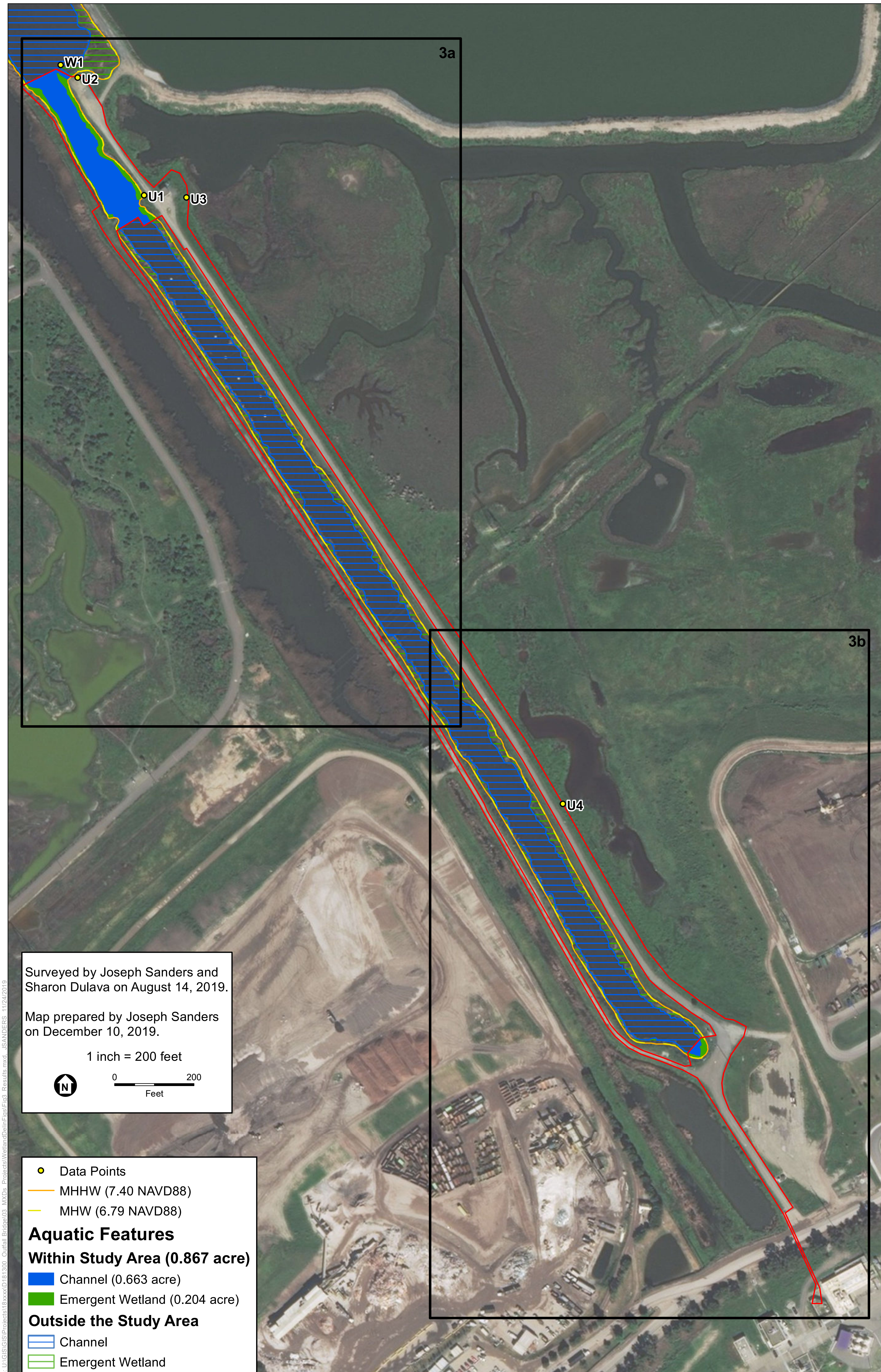
TABLE 2
AQUATIC RESOURCES

Map ID	Wetland Type – Cowardin Classification	*Below MHW	*Below MHHW
		Area in acres (square feet)	Area in acres (square feet)
Waters			
C1	Estuarine, Subtidal, Unconsolidated Bottom	0.583 (25,412 ft^2)	0.584 (25,424 ft^2)
C2	Estuarine, Subtidal, Unconsolidated Bottom	0.062 (2,717 ft^2)	0.062 (2,717 ft^2)
C3	Estuarine, Subtidal, Unconsolidated Bottom	0.017 (737 ft^2)	0.017 (737 ft^2)
Wetlands			
EM1	Estuarine, Intertidal, Emergent Wetland	0.092 (4,024 ft^2)	0.101 (4,393 ft^2)
EM2	Estuarine, Intertidal, Emergent Wetland	0.056 (2,420 ft^2)	0.065 (2,837 ft^2)
EM3	Estuarine, Intertidal, Emergent Wetland	0.014 (591 ft^2)	0.015 (636 ft^2)
EM4	Estuarine, Intertidal, Emergent Wetland	0.002 (69 ft^2)	0.002 (70 ft^2)
EM5	Estuarine, Intertidal, Emergent Wetland	0.020 (870 ft^2)	0.022 (964 ft^2)
Total Area of Aquatic Resources:		**0.846 acre (36,839 ft^2)**	**0.867 acre (37,779 ft^2)**

SOURCE: ESA 2019

* The aquatic feature acreages up to mean high water (MHW) elevation at 6.79 ft (NAVD88) are within the mean higher high water (MHHW) elevation at 7.40 ft (NAVD88).

* Minor differences in numbers and total are due to rounding error

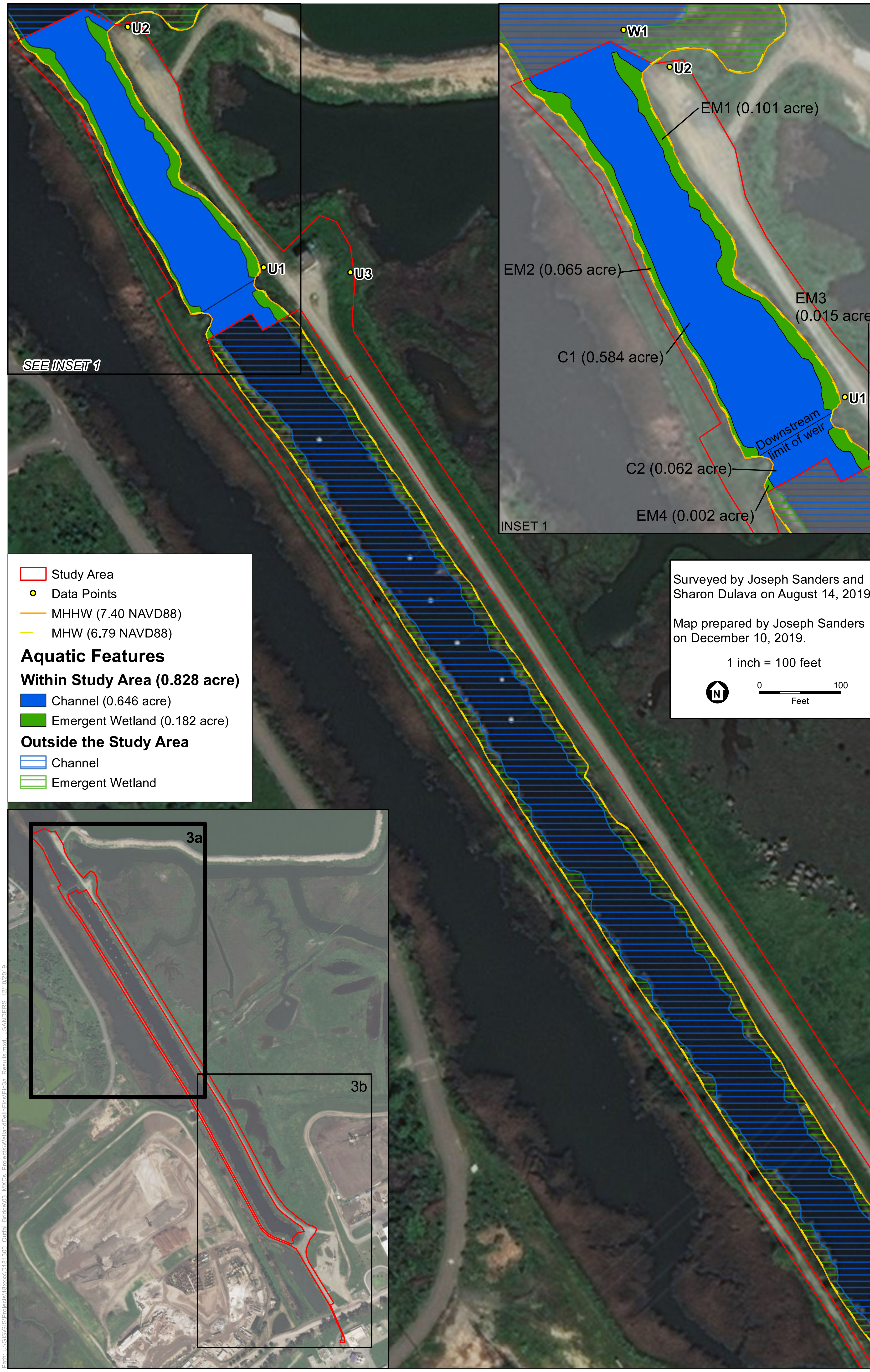


SOURCE: ESA 2019

D181300.00 San José-Santa Clara RFW Outfall Bridge and Instrumentation Improvements Project

ESA

Figure 3
Aquatic Resources Delineation Map

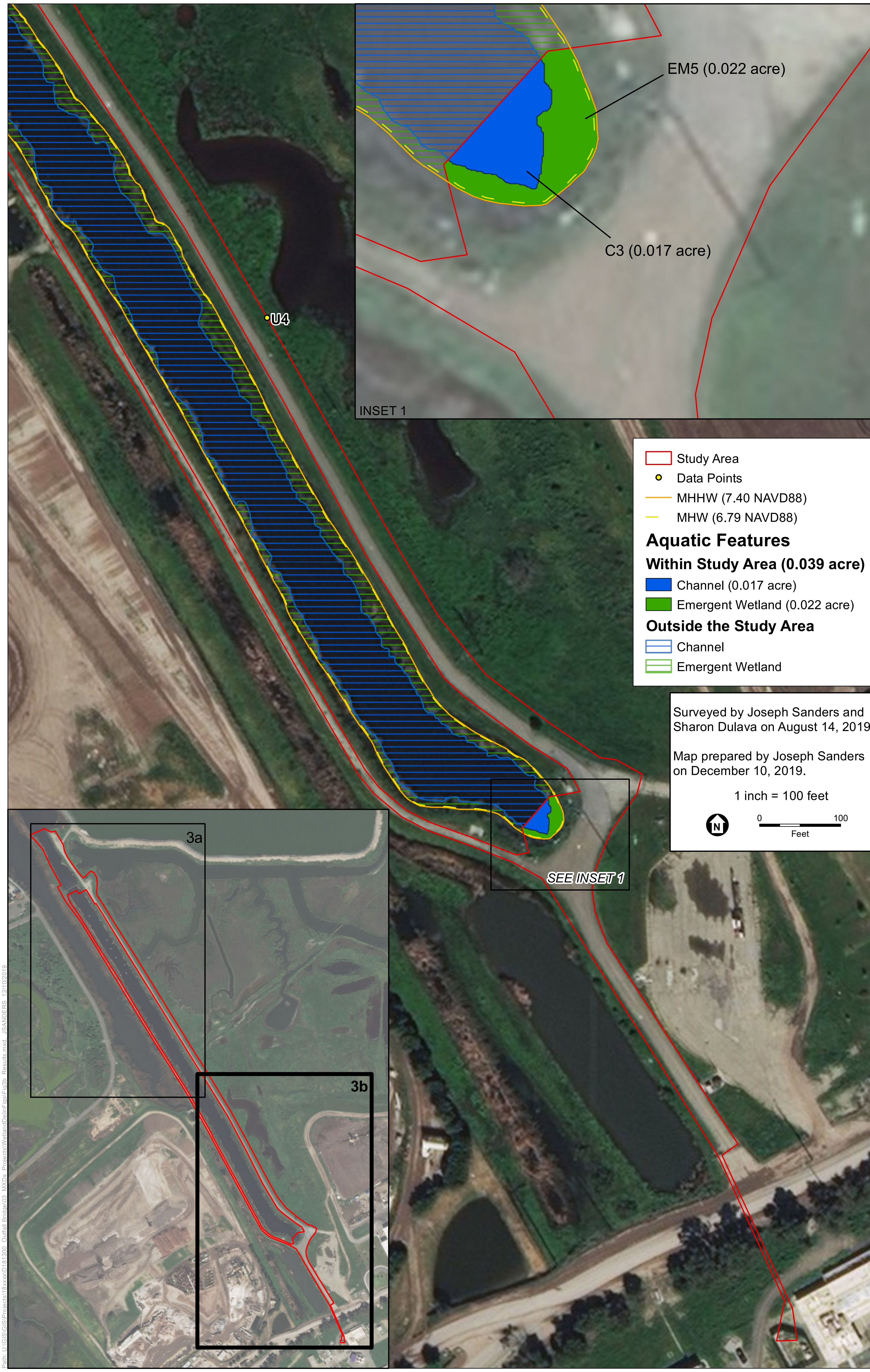


SOURCE: ESRI, 2017; AECOM, 2019; ESA, 2019

D181300.00 San José-Santa Clara RFW Outfall Bridge and Instrumentation Improvements Project

Figure 3a
Aquatic Resources Delineation Map

ESA



SOURCE: ESRI, 2017; AECOM, 2019; ESA, 2019

D181300.00 San José-Santa Clara RFW Outfall Bridge and Instrumentation Improvements Project

Figure 3b
Aquatic Resources Delineation Map

4.1.1 Other Waters

Channel

The channel consists of unvegetated submerged areas. The weir is also included because the elevation of the top of the weir is below the elevation of the high tide line (**Figures 3, 3a and 3b**). This feature type is identified as *Estuarine, Subtidal, Unconsolidated Bottom* according to the Cowardin classification system (Cowardin et al., 1979). This unvegetated area includes open water areas within the Artesian Slough and the outfall channel. Soil sampled during low tide (data point W1) was saturated and had a clay loam texture, a gleyed matrix (GLEY 1 3/5GY), and a hydrogen sulfide odor. This is characteristic of this aquatic feature type in the area.

4.1.2 Wetlands

Emergent Wetland

Emergent wetland is along the open water's edge on the levees in four parts of the study area (**Figures 3, 3a and 3b**). This feature type is identified as *Estuarine, Intertidal, Emergent Wetland* according to the Cowardin classification system (Cowardin et al., 1979). Cowardin et al. (1979) describes this type as semi-enclosed by land but with "open, partly obstructed, or sporadic access to the open ocean in which ocean water is at least occasionally diluted by freshwater runoff from the land". In this case, the freshwater source is the discharge of water from the RWF. While the water level during low tide within the outfall channel is controlled by a weir to cover the discharge pipes, the weir is overtopped by the incoming tide during high tide. Therefore, the high tide line is consistent across the weir, in both Artesian Slough and the outfall channel.

Characteristic vegetation consists of a mix of cattails and bulrushes that grow together in a narrow band that is inundated or saturated during high tide and is exposed to wave action during storm events. For the most part, the upper extent of this hydrophytic plant community is located below the mean higher high water line (MHHW at approximately 7.40 feet elevation NAVD88) as indicated on Figure 3.

4.2 Clean Water Rule Analysis

Table 3 summarizes the application of the 2015 Clean Water Rule to the aquatic resources in the study area.

4.2.1 Channel

The channel on both sides of the weir is subject to the tide. Artesian Slough, downstream of the weir is subject to the unaltered ebb and flow of the tide. The outfall channel, upstream of the weir, is still subject to the tide, although it has been altered. During high tide, water flows upstream over the weir and the water surface in Artesian Slough and the outfall channel is equalized. During low tide, the weir prevents water from draining completely from the outfall channel, and keeps the upstream water surface higher than Artesian Slough.

The 2015 Clean Water Rule, as well as the regulatory rule that will replace it effective December23, 2019 (84 FR 56626) excludes waste treatment systems as waters of the U.S. for the purposes of Section 404 of the Clean Water Act. The outfall channel, up to and including the weir, is part of the waste treatment system subject to an NPDES permit issued under Section 402 of the Clean Water Act. The outfall channel is specifically described as part of the wastewater treatment system in the facility description in an appendix to the NPDES permit (**Attachment E**). The outfall channel provides backup aeration and decholorination. The final point of release of treated effluent andthe final sensors monitoring water quality are at the weir.

The exclusion of waste treatment systems as waters of the U.S. dates from 1979. In 1980, the provision in the definition of waters of the U.S. excluding waste treatment systems read:

> *"Waste treatment systems, including treatment ponds or lagoons designed to meet requirement of CWA (other than cooling ponds as defined in 40 CFR § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as a disposal area in wetlands) nor resulted from the impoundments of waters of the United States."*

The EPA discussed the scope of the exclusion for "waste treatment systems" in consolidated permit regulations on May 19, 1980 (45 FR 33298), soon after the introduction of that term into the definition of waters of the U.S. EPA explained that the exclusion was specifically written so as not to be limited to treatment ponds and lagoons:

> *"To clarify that the scope of this exemption is not limited to treatment ponds or lagoons, it is now written to cover "waste treatment systems including treatment ponds or lagoons . . .." Because CWA was not intended to license dischargers to freely use waters of the United States as waste treatment systems, the definition makes clear that treatment systems created in those waters or from their impoundment remain waters of the United States. Manmade waste treatment systems are not waters of the United States, however, solely because they are created by industries engaged in, or affecting, interstate or foreign commerce."*

The explanation makes clear that the entire waste treatment system, not just treatment ponds and lagoons, are excluded as waters of the U.S., with the exception of treatment systems created in areas that were already waters of the U.S. The outfall channel at the RWF was created in an area that was previously a complex of tidal sloughs and lagoons that would have otherwise met the definition of waters of the U.S.

However, two months later, on July 21, 1980 (45 CFR 48620) the EPA revised the waste treatment exclusion language to suspend the second sentence recapturing waste treatment systems created in waters of the U.S. The EPA explained the purpose of the suspension:

> *"The Agency's purpose in the new last sentence was to ensure that dischargers did not escape treatment requirements by impounding waters of the United States and claiming the impoundment was a waste treatment system, or by discharging wastes into wetlands. Petitions for review were filed in several courts of appeals*

by industries and an environmental group seeking review of the May 19 consolidated regulations. Certain industry petitioners wrote to EPA expressing objections to the language of the definition of "waters of the United States." They objected that the language of the regulation would require them to obtain permits for discharges into existing waste treatment systems, such as power plant ash ponds, which had been in existence for many years. In many cases, they argued, EPA has issued permits for discharges from, not into, these systems. They requested EPA to revoke or suspend the last sentence of the definition. EPA agrees that the regulation should be carefully re-examined and that it may be overly broad. Accordingly, the Agency is today suspending its effectiveness. EPA intends promptly to develop a revised definition and to publish it as a proposed rule for public comment. At the conclusion of that rulemaking, EPA will amend the rule, or terminate the suspension." (Emphasis added)

Subsequent regulatory rules defining waters of the U.S. do not include the sentence recapturing waste treatment systems created in waters of the U.S. Neither the 2015 Clean Water Rule nor the new rule becoming effective on December 23, 2019 contain the recapture sentence for waste treatment systems created in waters of the U.S.

Based on the regulatory definition of waters of the U.S., the EPA's explanation of the term "waste treatment system", and the EPA's explicit removal of waste treatment systems created in waters of the U.S. as waters of the U.S., we conclude that the outfall channel, upstream of and including the weir, is not a waters of the U.S. per 33 CFR 328.3(b)(1).

The portion of the channel downstream of the weir is not part of the waste treatment system and is subject to the ebb and flow of the tide. This area is a waters of the U.S. per 33 CFR 328.3(a)(1).

TABLE 3
APPLICATION OF THE 2015 CLEAN WATER RULE TO AQUATIC RESOURCES

Map ID	33 CFR 328.3 Designation	Waters of the U.S. (ac)	Excluded by Rule (ac)	Rationale
Other Waters				
C1	(a)(1) – Navigable waters	0.584	--	Subject to the tide.
C2	(b)(1) – Waste treatment system	--	0.062	Part of an NPDES-permitted waste treatment system
C3	(b)(1) – Waste treatment system	--	0.017	Part of an NPDES-permitted waste treatment system
Wetlands				
EM1	(a)(6) – Adjacent	0.101	--	Borders an (a)(1) water.
EM2	(a)(6) – Adjacent	0.065	--	Borders an (a)(1) water.
EM3	(b)(1) – Waste treatment system	--	0.015	Part of an NPDES-permitted waste treatment system
EM4	(b)(1) – Waste treatment system	--	0.002	Part of an NPDES-permitted waste treatment system
EM5	(b)(1) – Waste treatment system	--	0.022	Part of an NPDES-permitted waste treatment system
Total:		**0.750**	**0.118**	

* Minor differences in numbers and Total are due to rounding error

4.2.2 Tidal Marsh

The tidal marsh borders the open water both upstream and downstream of the weir. Wetlands that border a waters of the U.S. meet the definition of adjacent and are also a waters of the U.S. (33 CFR 328.3(a)(6)). Therefore, EM1 and EM2, bordering the channel downstream of the weir are waters of the U.S.

EM3 and EM4 border the outfall channel upstream of the weir. Some wetlands are not waters of the U.S. per 33 CFR 328.3(b), even where they would otherwise qualify as a waters of the U.S. under 33 CFR 328.3(a)(6). EM3 and EM4 are part of the RWF waste treatment system upstream of the weir, as described in Section 4.2.1 above, and as such are not waters of the U.S.

4.3 Conclusions

A total of 0.750 acre of aquatic resources qualifying as waters of the U.S. occur within the study area. Another 0.118 acre of aquatic resources is excluded by rule as waters of the U.S. because it is part of a waste treatment system. The remainder of the study area is upland that does not meet the 3-parameter test for wetlands and is above the mean higher high water elevation.

Waters of the state includes all waters of the U.S. Therefore, the 0.750 acre of waters of the U.S. in the study area is waters of the state. The other 0.118 acre of aquatic resources also qualifies as waters of the state because they are "wetlands created by modification of a surface water of the state".

This report documents the aquatic resources boundary delineation and best professional judgment of ESA investigators. All conclusions presented should be considered preliminary and subject to change pending review and verification in writing by the USACE.

CHAPTER 5
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Attachment A
NRCS Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Santa Clara Area, California, Western Part

December 10, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

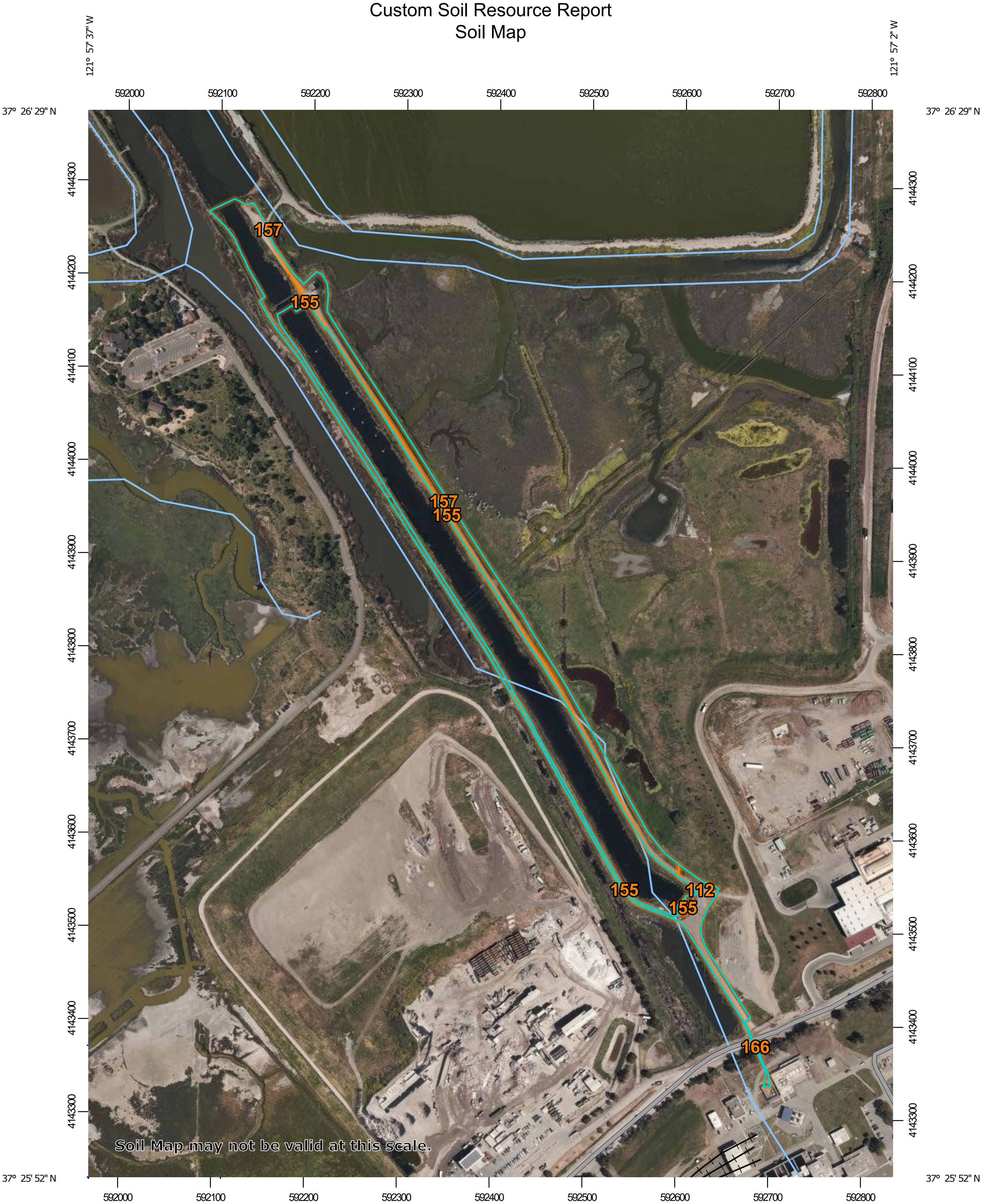
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:5,590 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 50, 100, 200, 300

Feet: 0, 250, 500, 1000, 1500

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 8, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 13, 2019—Apr 23, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
112	Xerorthents, trash substratum 15 to 30 percent slopes	0.8	16.8%
155	Novato clay, 0 to 1 percent slopes, tidally flooded	2.1	43.2%
157	Novato clay, 0 to 1 percent slopes, protected	1.9	39.2%
166	Campbell silt loam, 0 to 2 percent slopes, protected	0.0	0.8%
Totals for Area of Interest		**4.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Santa Clara Area, California, Western Part

112—Xerorthents, trash substratum 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 1qsvb
Elevation: 0 to 10 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition

Xerorthents, trash substrata, and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xerorthents, Trash Substrata

Setting

Landform: Basin floors, marshes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Human transported material

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
^A - 2 to 10 inches: loam
^C1 - 10 to 19 inches: clay loam
^C2 - 19 to 29 inches: clay loam
^C3 - 29 to 33 inches: clay loam
^C4 - 33 to 52 inches: sandy clay loam
2^Cdu - 52 to 60 inches: slightly decomposed plant material

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: About 52 inches to manufactured layer
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to moderately saline (1.0 to 15.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Hydric soil rating: No

155—Novato clay, 0 to 1 percent slopes, tidally flooded

Map Unit Setting

National map unit symbol: 1nszt
Elevation: 0 to 10 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition

Novato, tidally flooded, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Novato, Tidally Flooded

Setting

Landform: Marshes
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

Typical profile

Azg1 - 0 to 4 inches: clay
Azg2 - 4 to 11 inches: clay
Czg1 - 11 to 24 inches: clay
Czg2 - 24 to 39 inches: clay
Czg3 - 39 to 59 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 0 inches to natric; 0 inches to salic
Natural drainage class: Very poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Strongly saline (30.0 to 80.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 75.0
Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Water
Percent of map unit: 4 percent
Landform: Channels
Hydric soil rating: Unranked

Typic xerorthents, acid sulphate
Percent of map unit: 1 percent
Landform: Marshes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

157—Novato clay, 0 to 1 percent slopes, protected

Map Unit Setting
National map unit symbol: 220gy
Elevation: 0 to 10 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition
Novato, protected, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Novato, Protected

Setting
Landform: Marshes
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

Typical profile
Anzg1 - 0 to 4 inches: clay
Anzg2 - 4 to 11 inches: clay
Cnzg1 - 11 to 24 inches: clay
Cnzg2 - 24 to 39 inches: clay
Cnzg3 - 39 to 60 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 0 inches to salic; 0 inches to natric
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Strongly saline (30.0 to 80.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 75.0
Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Water

Percent of map unit: 4 percent
Hydric soil rating: Unranked

Typic xerorthents, acid sulphate

Percent of map unit: 1 percent
Landform: Marshes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

166—Campbell silt loam, 0 to 2 percent slopes, protected

Map Unit Setting

National map unit symbol: 1t6cf
Elevation: 0 to 80 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Campbell, protected, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Campbell, Protected

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

Typical profile

Ap - 0 to 10 inches: silt loam
A1 - 10 to 24 inches: silt loam
A2 - 24 to 31 inches: silty clay loam
A3 - 31 to 38 inches: silty clay loam
2A - 38 to 51 inches: silty clay loam
2Bw1 - 51 to 71 inches: silty clay
2Bw2 - 71 to 79 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (1.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Newpark

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Hydric soil rating: No

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Attachment B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region
Routine Wetland Determination
(September 2008 V2.0 COE Arid West Wetlands Delineation Manual)

Project/Site: San Jose Regional Wastewater Facility Outfall Bridge City/County: City of San Jose/Santa Clara County Sampling Date: August 14, 2019
Applicant/Owner: City of San Jose State: CA Sampling Point: **U1**
Investigator(s): Joseph Sanders and Sharon Dulava Section, Township, Range: T6S R1W Section 3
Landform (hillslope, terrace, etc.): Levee slope Local relief (concave, convex, none): None Slope (%): 8
Subregion (LRR): C – Mediterranean California Lat: 37.4399093251908 Long: -121.957939756848 Datum: NAD84
Soil Map Unit Name: Novato clay, 0 to 1 percent slopes, tidally flooded NWI classification: Estuarine
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☒ Soil ☐, Or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? Yes ☐ No ☒

Remarks: recently mowed

VEGETATION

Tree Stratum: ((Plot size:_____________)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			

Sapling/Shrub Stratum: (Plot size:__6' radius___)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
Total Cover:			

Herb Stratum: (Plot size:______6' radius_______)

	Absolute % Cover	Dominant Species?	Indicator Status
1. Helminthotheca echioides	15	Y	FAC
2. Brassica nigra	10	Y	UPL
3. Dittrichia graveolens	2		UPL
4. Avena barbata	2		UPL
5. Medicago polymorpha	2		FACU
6.			
7.			
8.			
Total Cover:	31		

Woody Vine Stratum: (Plot size:_____________)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species:		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
Thatch cover 60%

SOIL

Sampling Point: **U1**

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

Depth	Matrix		Redox Features					
Inches	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR3/1	100	--				Sand loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Fill
Depth (inches): 4

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:
Rocky fill, about 70% gravel

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ________
Water Table Present? Yes ☐ No ☒ Depth (inches): ________
Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ________

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region
Routine Wetland Determination
(September 2008 V2.0 COE Arid West Wetlands Delineation Manual)

Project/Site: San Jose Regional Wastewater Facility Outfall Bridge City/County: City of San Jose/Santa Clara County Sampling Date: August 14, 2019
Applicant/Owner: City of San Jose State: CA Sampling Point: **W1**
Investigator(s): Joseph Sanders and Sharon Dulava Section, Township, Range: T6S R1W Section 3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR): C – Mediterranean California Lat: 37.4408180758745 Long: -121.95865097516 Datum: NAD84
Soil Map Unit Name: Novato clay, 0 to 1 percent slopes, tidally flooded NWI classification: Estuarine
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☒ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

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

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

Remarks: Unvegetated mud flat, below high tide line, sample taken during low tide

VEGETATION

Tree Stratum: (Plot size:_____________)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum: (Plot size:__6' radius___)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum: (Plot size:______6' radius_______)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum: (Plot size:_____________)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: ________ (A)
Total Number of Dominant Species Across All Strata: ________ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ________ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species:		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: **W1**

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

Depth	Matrix		Redox Features					
Inches	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	Gley 1 4/5GY	100					Clay	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☒ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: ________
Depth (inches): ________

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:
Soil is recently deposited alluvium, in the active floodplain of the American River below OHWM

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface water (A1)
- ☒ High water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☒ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ______
Water Table Present? Yes ☒ No ☐ Depth (inches): 8
Saturation Present? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Fines deposited on leaf litter.

WETLAND DETERMINATION DATA FORM – Arid West Region
Routine Wetland Determination
(September 2008 V2.0 COE Arid West Wetlands Delineation Manual)

Project/Site: San Jose Regional Wastewater Facility Outfall Bridge City/County: City of San Jose/Santa Clara County Sampling Date: August 14, 2019
Applicant/Owner: City of San Jose State: CA Sampling Point: **U2**
Investigator(s): Joseph Sanders and Sharon Dulava Section, Township, Range: T6S R1W Section 3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): None Slope (%): 2
Subregion (LRR): C – Mediterranean California Lat: 37.4407275025626 Long: -121.958505309993 Datum: NAD84
Soil Map Unit Name: Novato clay, 0 to 1 percent slopes, tidally flooded NWI classification: Estuarine
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☒ Soil ☐, Or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? Yes ☐ No ☒

Remarks: recently mowed

VEGETATION

Tree Stratum: ((Plot size:______)	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum: (Plot size:____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum: (Plot size: 6' radius)			
1. Amaranthus deflexus	10	Y	UPL
2. Carduus pycnocephalus	5		UPL
3. Dysphania ambrosioides	2		FAC
4. Lepidium latifolium	20	Y	FAC
5. Hordeum murinum	5		FACU
6. Festuca myuros	5		FACU
7. Polygonum aviculare	3		FAC
8.			
Total Cover:	50		
Woody Vine Stratum: (Plot size:______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species:		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:45% thatch cover, area recently mowed

SOIL

Sampling Point: **U2**

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

Depth Inches	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 YR 3/2	100					Sandy loam	Rocky fill

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Rocks
Depth (inches): 5

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:
Rocky fill, about 70% gravel

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ______
Water Table Present? Yes ☐ No ☒ Depth (inches): ______
Saturation Present? Yes ☐ No ☒ Depth (inches): ______
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region
Routine Wetland Determination
(September 2008 V2.0 COE Arid West Wetlands Delineation Manual)

Project/Site: San Jose Regional Wastewater Facility Outfall Bridge City/County: City of San Jose/Santa Clara County Sampling Date: August 14, 2019
Applicant/Owner: City of San Jose State: CA Sampling Point: **U3**
Investigator(s): Joseph Sanders and Sharon Dulava Section, Township, Range: T6S R1W Section 3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): C – Mediterranean California Lat: 37.43988960639 Long: -121.957573055907 Datum: NAD84
Soil Map Unit Name: Novato clay, 0 to 1 percent slopes, protected NWI classification: Estuarine
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☒ Soil ☐, Or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

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

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

Remarks: Recently mowed

VEGETATION

Tree Stratum: (Plot size:______)	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum: (Plot size:_____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum: (Plot size: 6' radius)			
1. Frankenia salina	4	Y	FACW
2. Lepidium latifolium	6	Y	FAC
3. Carduus pycnocephalus	1		UPL
4. Foeniculum vulgare	1		UPL
5. Avena barbata	1		UPL
6.			
7.			
8.			
Total Cover:	13		
Woody Vine Stratum: (Plot size:______)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species:		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
☒ Dominance Test is >50%
☐ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:
90% thatch cover, recently mowed

SOIL

Sampling Point: **U3**

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

Depth Inches	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Clay loam	Some gravel mixed in
6-18	10YR 3/2	100					Clay loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches):
Water Table Present?	Yes ☐	No ☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region
Routine Wetland Determination
(September 2008 V2.0 COE Arid West Wetlands Delineation Manual)

Project/Site: San Jose Regional Wastewater Facility Outfall Bridge City/County: City of San Jose/Santa Clara County Sampling Date: August 14, 2019
Applicant/Owner: City of San Jose State: CA Sampling Point: **U4**
Investigator(s): Joseph Sanders and Sharon Dulava Section, Township, Range: T6S R1W Section 3
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): C – Mediterranean California Lat: 37.43988960639 Long: -121.957573055907 Datum: NAD84
Soil Map Unit Name: Novato clay, 0 to 1 percent slopes, protected NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of the year? Yes ☒ No ☐ (If no, explain in remarks.)
Are Vegetation ☒ Soil ☐, Or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐, Or Hydrology ☐ Naturally problematic? (If needed, explain any answers in remarks.)

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

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

Remarks: levee bench, recently mowed

VEGETATION

Tree Stratum: (Plot size: 10' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum: (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum: (Plot size: 6' radius)			
1. Lepidium latifolium	10	Y	FAC
2. Foeniculum vulgare	1		UPL
3. Carduus pycnocephalus	1		UPL
4. Bromus madritensis subsp rubens	1		UPL
5.			
6.			
7.			
8.			
Total Cover:	13		
Woody Vine Stratum: (Plot size:)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species:		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of Hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: 90% thatch cover, recently mowed

SOIL

Sampling Point: **U4**

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

Depth Inches	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Sandy loam	Gravel present

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: rocks
Depth (inches): 5

Hydric Soil Present? Yes ☐ No ☒

Remarks:
Rocky fill material

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface water (A1)
- ☐ High water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible-Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ______
Water Table Present? Yes ☐ No ☒ Depth (inches): ______
Saturation Present? Yes ☐ No ☒ Depth (inches): ______
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Attachment C

Aquatic Resources ORM Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude
C1	California	E1UB		Area	0.101	ACRE	A1	37.43982111	121.95810853
C2	California	E1UB		Area	0.062	ACRE	EXCLDB1	37.43396329	121.95323797
C3	California	E1UB		Area	0.017	ACRE	EXCLDB1	37.43976215	121.95792773
EM1	California	E2EM		Area	0.101	ACRE	A6BWB	37.43990340	121.95798489
EM2	California	E2EM		Area	0.065	ACRE	A6BWB	37.43977175	121.95822640
EM3	California	E2EM		Area	0.015	ACRE	EXCLDB1	37.43978972	121.95791595
EM5	California	E2EM		Area	0.022	ACRE	EXCLDB1	37.43396060	121.95320678
EM4	California	E2EM		Area	0.002	ACRE	EXCLDB1	37.43967952	121.95817382

Attachment D
Study Area Photographs

Photograph 1
Photo of data point U1 taken on 08/14/2019.

Photograph 2
Photo of data point U3 taken on 08/14/2019.

Photograph 3
Photo of data point U4 taken on 08/14/2019.

Photograph 4
Photo of data point W1 taken on 08/14/2019 at low tide.

Photograph 5
Photo taken from above weir, facing downstream taken on 08/14/2019.

Photograph 6
Photo of open water, tidal marsh, and disturbed/ruderal areas (the three vegetation communities present within the study area) taken on 08/14/2019.

Attachment E

RWF NPDES Permit Facility Description

ATTACHMENT F – FACT SHEET

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. As described in section II.B of the Order, the Regional Water Board incorporates this Fact Sheet as findings supporting the issuance of the Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility:

Table F-1. Facility Information

WDID	2 438014001
CIWQS Place ID	255333
Discharger	City of San Jose, City of Santa Clara, and San Jose/Santa Clara Water Pollution Control Plant, a joint powers authority
Name of Facility	San Jose/Santa Clara Water Pollution Control Plant, City of San Jose wastewater collection system, City of Santa Clara wastewater collection system
Facility Address	700 Los Esteros Road, San Jose, CA 95134
	Santa Clara County
Facility Contact, Title, and Phone	Eric Dunlavey, Wastewater Compliance Program Manager, (408) 635-4017
Authorized Person to Sign and Submit Reports	Kerrie Romanow, Director of Environmental Services, (408) 535-8550 Amit Mutsuddy, Deputy Director, Wastewater Management, (408) 635-6600
Mailing Address	Same as Facility Address
Billing Address	Harpal Singh, Senior Accountant, Same as Facility Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Recycling Requirements	Order No. 95-117
Mercury and PCBs Requirements	NPDES Permit No. CA0037352
Nutrients Requirements	NPDES Permit No. CA0038873
Facility Permitted Flow	167 Million Gallons per day (MGD) average dry weather effluent flow
Facility Design Flow	167 MGD – average daily dry weather design flow 261 MGD – peak daily wet weather design flow
Watershed	Santa Clara Hydrologic Unit
Receiving Water	Artesian Slough
Receiving Water Type	Estuarine

A. The City of San Jose and the City of Santa Clara own the San Jose/Santa Clara Water Pollution Control Plant through a Joint Powers Agreement entitled “Agreement between San Jose and Santa Clara Respecting Sewage Treatment Plant,” dated May 6, 1959. The City of San Jose operates the plant as the administering agency of the Joint Powers Agreement. The City of San Jose and the City of Santa Clara individually own and operate their own respective collection systems. The plant, the City of San Jose collection system, and the City of Santa Clara collection system (collectively, the Facility) provide advanced-secondary treatment of the wastewater collected from the plant’s service areas and discharge to Artesian Slough. The Joint Powers

Facility) provide advanced-secondary treatment of the wastewater collected from the Plant's service areas and discharge to Artesian Slough. The Joint Powers Agreement applies exclusively to the ownership and operations of the Plant, not the collection systems. The legal name of the Plant remains "The San Jose/Santa Clara Water Pollution Control Plant," but beginning early 2013, the Plant's common name was changed to the San José-Santa Clara Regional Wastewater Facility (Facility).

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Discharger is regulated pursuant to National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037842. It was previously subject to Order No. R2-2014-0034 (previous order). The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its Waste Discharge Requirements (WDRs) and NPDES permit on February 1, 2019.

The Discharger is authorized to discharge subject to WDRs in this Order at the discharge location described in Table 2 of this Order. Regulations in 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the effective period for the discharge authorization. Pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all requirements for continuation of expired permits. (See 40 C.F.R § 122.6[d].)

C. Order No. R2-2016-0008 amended the previous order to provide for an alternate monitoring program and remains in effect with this Order. The discharge is also regulated under NPDES Permit Nos. CA0038849 and CA0038873, which establish requirements on mercury and polychlorinated biphenyls (PCBs) and nutrients from wastewater discharges to San Francisco Bay. This Order does not affect those permits..

D. When applicable, State law requires dischargers to file a petition with the State Water Resources Control Board (State Water Board), Division of Water Rights, and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains separate jurisdictional authority to enforce such requirements under Water Code section 1211. This is not an NPDES permit requirement.

II. FACILITY DESCRIPTION

A. Wastewater and Biosolids Treatment and Controls

1. **Location and Service Area.** The Facility is located at 700 Los Esteros Road, San Jose, and provides advanced-secondary treatment of wastewater from domestic, commercial, and industrial sources. Ownership of the Facility by the City of San Jose and City of Santa Clara was established under the original Joint Powers Agreement. Through a series of additional "Master Agreements for Wastewater Treatment," five

additional satellite collection systems obtained rights to a share of the treatment capacity to treat their discharged sewage. The five additional satellite collection systems are: the City of Milpitas, Burbank Sanitation District, Cupertino Sanitation District, West Valley Sanitation District, and Santa Clara County Sanitation Districts No.2 and No. 3. (A sixth satellite collection system, Sunol Sanitation District, was annexed by the City of San Jose in 2010 and no longer exists.) The Facility serves a population of approximately 1.5 million.

2. **Collection System.** The City of San Jose and the City of Santa Clara individually own and operate their respective collection systems. The City of San Jose sanitary sewer system consists of approximately 2,041 miles of sewer pipes, including 12 miles of force main and 16 pump stations. The collected wastewater is conveyed to the Facility by interceptor pipelines located in northern San Jose.

   The City of Santa Clara sanitary sewer system consists of approximately 270 miles of sewer mains and two large pump stations, each with a flow meter, and four smaller un-metered lift stations. The system includes two force mains (totaling 4 miles), 26 siphons, and an additional main line meter station to measure flow at the Guadalupe outfall to the conveyance pipe to the Facility.

   The Facility also serves five additional satellite collection systems as described in the above paragraph A.1. Satellite collection systems are not part of the Facility subject to this Order. Each satellite collection system is owned, operated, and maintained independently and is responsible for ongoing maintenance and capital improvements to ensure adequate capacity and reliability.

3. **Wastewater Treatment.** The Plant provides treatment consisting of influent screening and grit removal; primary clarification; secondary treatment with an activated sludge process with two parallel aeration basin treatment trains configured and operated for biological nutrient removal (BNR); secondary clarifiers; dual media gravity filtration; and disinfection with chlorine (sodium hypochlorite), ammonia removal, and dechlorination (sodium bisulfite).

   Treated effluent is discharged to Artesian Slough, a tributary to Coyote Creek. The Facility has an average dry weather design capacity of 167 million gallons per day (MGD). Annual average effluent flows in 2017 and 2018 were approximately 91 MGD and 88 MGD, with daily maximum flows of approximately 187 MGD and 122 MGD. An 8-million-gallon emergency basin is available for temporary storage prior to the Plant headworks, along with an additional 16 million gallons of storage after the primary clarifiers.

   A 10-million-gallon overflow basin is also available for any overflows from the 16-million gallon equalization basin. The Plant is designed to route fully treated secondary effluent in excess of the filtration design capacity around the filters (250 MGD) during extreme wet weather flow events and to recombine it with filter effluent prior to disinfection.

a. **Preliminary Treatment.** Preliminary treatment consists of screens followed by grit removal. An iron salts dosing station doses ferric chloride at the Emergency Basin Overflow Structure for odor control.

b. **Primary Treatment.** Following preliminary treatment, wastewater is pumped into rectangular primary clarifiers to remove floatable and settleable material.

c. **Biological Treatment.** All wastewater receives biological treatment. A modified biological nutrient removal (BNR) process is employed that is designed to remove BOD and ammonia (NH3) in the same aeration basins. Each basin is divided into four sections referred to as "quads." The first and third quads are operated under anoxic conditions, while the second and fourth quads are operated under aerobic conditions. This configuration achieves effective filament control and allows for some denitrification.

d. **Filtration Process.** Following biological treatment, the wastewater undergoes filtration. There are 16 separate dual media filters, 4 of which are dedicated to producing Title 22 unrestricted-use reclaimed water and 12 of which produce water suitable for discharge to San Francisco Bay. Frequent filter backwashing to clean the filter media is a routine part of the filter operation. Filter backwash water is sent to a backwash equalization basin for storage, followed by flocculation and sedimentation. The treated backwash water is pumped to chlorine contact tanks for disinfection prior to discharge to San Francisco Bay. The settled solids from the backwash water are pumped back to primary treatment.

a. **Disinfection.** Sodium hypochlorite and ammonia are metered into the filter effluent at the head of four serpentine chlorine contact channels to produce a solution of chloramines for disinfection. As the effluent leaves the contact channels its chlorine residual is measured, and an appropriate amount of sodium bisulfite is added to neutralize the hypochlorite. The portion of the effluent diverted for recycled water use is not neutralized with sodium bisulfite.

b. **Outfall Channel.** Following dichlorination, the fully treated effluent flows by gravity under Los Esteros Road and daylights through two effluent discharge pipes into an approximately half mile long effluent channel. The channel provides additional stabilization of the treated effluent, backup aeration if low dissolved oxygen levels are detected, and a backup dichlorination system in case upstream meters indicate there is remaining residual chlorine. The final effluent flows over a weir structure at the downstream end of the outfall channel where the final measurements for chlorine, pH, and dissolved oxygen are taken before bay discharge.

4. **Sludge and Biosolids Management.** Sludge from primary and secondary clarification operations is processed using anaerobic digesters. The process consists of dissolved air flotation (DAF) thickening, anaerobic digestion, lagoon stabilization, and dewatering using sludge drying beds. Once dried, the biosolids are trucked to the Newby Island Landfill for use as alternative daily cover.

5. **Reclamation.** The Discharger provides an average of approximately 15 MGD of treated wastewater for non-potable purposes to customers throughout the service area via the South Bay Water Recycling Program. Uses include irrigation of golf courses, parks and playgrounds, farms, and industrial use. Recycled water is also available for construction use at remote locations. Approximately 0.10 MGD of treated wastewater is used onsite for landscape irrigation. Regional Water Board Order No. R2-1995-0117 sets forth water recycling requirements for the South Bay Water Recycling Program. A portion of the recycled water delivered by the South Bay Water Recycling Program is produced directly off of the tertiary filters and chlorine contact tanks, and a portion is produced by the Silicon Valley Advanced Water Purification Center, which is jointly owned by the City of San Jose and the Santa Clara Valley Water District. The Center is operated by the Santa Clara Valley Water District.

   In 2011, the City of San Jose, in collaboration with the Santa Clara Valley Water District, began construction of the Silicon Valley Advanced Water Purification Center. The Center has been operational since March 2015. When at operating at full capacity, the Center is capable of treating up to 10 MGD of the Facility’s secondary effluent using microfiltration, reverse osmosis, and ultraviolent light to produce approximately 8 MGD of high quality recycled water. The backwash waste stream from the microfiltration process is routed back to the Facility headworks. The reject waste stream from the reverse osmosis units is routed back to the Facility to the disinfection units, where it is blended with the Facility’s effluent prior to discharge to the Bay.

6. **Stormwater Management.** All stormwater at the plant is collected and directed to the headworks for treatment; therefore, no additional stormwater requirements are necessary.

B. Discharge Point and Receiving Waters

The effluent receives advanced secondary treatment and is discharged to Artesian Slough via a discharge channel, where it mixes with Coyote Creek and then San Francisco Bay water. When the Facility’s flow equalization capabilities are maximized, flows exceeding 250 MGD may bypass the advanced-secondary-treatment filters and recombine with the effluent flow prior to disinfection.

C. Previous Requirements and Monitoring Data

Effluent limitations contained in the previous order and representative monitoring data from the previous order term are presented below:

Table F-2. Previous Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitations			Monitoring Data (11/14 – 4/19)	
		Monthly Average	Weekly Average	Daily Maximum	Long – Term Average	Highest Daily Discharge
Carbonaceous Biochemical Oxygen	mg/L	10	---	20	---	5.9[1]

Parameter	Units	Effluent Limitations			Monitoring Data (11/14 – 4/19)	
		Monthly Average	**Weekly Average**	**Daily Maximum**	**Long – Term Average**	**Highest Daily Discharge**
Demand, 5-day @ 20°C ($CBOD_5$)						
Total Suspended Solids (TSS)	mg/L	10	---	20	---	2.8
BOD_5 percent removal	%	≥ 85	---	---	98.8	99.2[2]
TSS percent removal	%	≥ 85	---	---	99.4	99.6[2]
pH	standard units	6.5 – 8.5			---	6.9–7.9
Oil and Grease	mg/L	5	---	10	---	2.0
Total Residual Chlorine	mg/L	0.0			---	0.0
Turbidity	NTU	---	---	10	---	3.6
Enterococcus	MPN/100 mL	35[3]	---	---	---	9.6
Ammonia, Total	mg/L as N	3	---	8	---	424
Copper	µg/L	11	---	19	---	4.1
Nickel	µg/L	25	---	33	---	6.5
Cyanide	µg/L	5.7	---	13	---	1.9
Dioxin-TEQ	µg/L	1.4×10^{-8}[3]	---	2.8×10^{-8}[3]	---	0[4]
Indeno (1,2,3-cd) Pyrene	µg/L	0.049	---	0.098	---	<0.008
Acute Toxicity	% survival	[5]			---	93.3[6]
Chronic Toxicity	TU_c	No chronic toxicity in discharge as discharged			---	26.3

Unit Abbreviations:

mg/L = milligrams per liter
NTU = nephelometric turbidity units
µg/L = micrograms per liter
mg/L as N = milligrams per liter as nitrogen
MPN/100 mL = Most Probable Number per 100 mL
TU_c = chronic toxicity units, equal to 100/NOEL, where NOEL = IC25, EC25, or NOEC

Footnotes:

[1] Consistent with footnote 1 of Table 6 of the previous order, the Discharger elected to report BOD_5 as defined in the latest edition of Standard Methods for the Examination of Water and Wastewater.

[2] Lowest monthly average.

[3] The enterococcus bacteria limitation was expressed as the geometric mean of all samples in a calendar month.

[4] Dioxin-TEQ was calculated in accordance with Attachment G section V.C.1.c.3 of the previous order.

[5] The three-sample median was not to be less than 90% survival; the single-sample maximum was not to be less than 70% survival.

[6] Lowest percent survival.