INITIAL STUDY/MITIGATED NEGATIVE DECLARATION SLEEPY HOLLOW STEELHEAD REARING FACILITY RAW WATER INTAKE AND WATER SUPPLY SYSTEM UPGRADE

Prepared for

Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, California 93940

Prepared by

Anchor QEA, LLC
130 Battery Street, Suite 400
San Francisco, California 94111

February 2017

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/L	microgram per liter
µ·Ws/cm^2	micro-watt seconds per square centimeter
CAAQS	California Ambient Air Quality Standards
Cal-Am	California American Water Company
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CCR	California Code of Regulations
cfs	cubic feet per second
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CRLF	California red-legged frog
dB	decibel
dBA	A-weighted decibel
District	Monterey Peninsula Water Management District
FEMA	Federal Emergency Management Agency
ft^3	feet cubed
GHG	greenhouse gas
gpm	gallons per minute
hp	horsepower
IS/MND	Initial Study/Mitigated Negative Declaration
kg	kilogram
LOS	level of service
MBUAPCD	Monterey Bay Unified Air Pollution Control District
mg/L	milligrams per liter
MMRP	Mitigation Monitoring and Reporting Plan
MPWMD	Monterey Peninsula Water Management District
NAAQS	National Ambient Air Quality Standards

NCCAB	North Central Coast Air Basin
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NMFS	National Marine Fisheries Service
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
sf	square feet
SHSRF	Sleepy Hollow Steelhead Rearing Facility
TSS	total suspended solid
USACE	U.S. Army Corps of Engineers
UV	ultraviolet
VFD	variable frequency drive

1 INTRODUCTION

The Monterey Peninsula Water Management District (the District) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to address the potential environmental effects of the Sleepy Hollow Steelhead Rearing Facility (SHSRF) Raw Water Intake and Water Supply System Upgrade Project (proposed project). The proposed project is located in Monterey County (Figure 1). The District is the lead agency for the proposed project under the California Environmental Quality Act (CEQA).

1.1 California Environmental Quality Act Process

This document has been prepared in accordance with the CEQA Public Resources Code Section 21000 et seq. and the State CEQA Guidelines, California Code of Regulations (CCR) Section 15000 et seq. One of the main objectives of CEQA is to disclose to the public and decision makers the potential environmental effects of proposed activities. CEQA requires that the potential environmental effects of a project be evaluated prior to implementation. This IS/MND includes a discussion on the proposed project's impacts on the existing environment, including the identification of avoidance, minimization, and mitigation measures.

Under CEQA, the lead agency is the public agency with primary responsibility over approval of a proposed project. The District has directed the preparation of an environmental document that complies with CEQA and will consider the information in this document when determining whether to approve the proposed action. The preparation of initial studies is guided by Section 15063 of the State CEQA Guidelines; whereas Sections 15070–15075 guide the process for the preparation of a Negative or Mitigated Negative Declaration. Where appropriate and supportive to an understanding of the issues, reference will be made to the statute, the State CEQA Guidelines, or appropriate case law.

This IS/MND meets CEQA content requirements by including a project description; descriptions of the environmental setting, potential environmental impacts, and mitigation measures for any significant impacts; discussion of the proposed project's consistency with plans and policies; and names of the document preparers. The IS/MND was circulated for public review from September 30 to October 31, 2016; the responses to public comments are presented in Appendix F and have been integrated into this version of the IS/MND as appropriate.

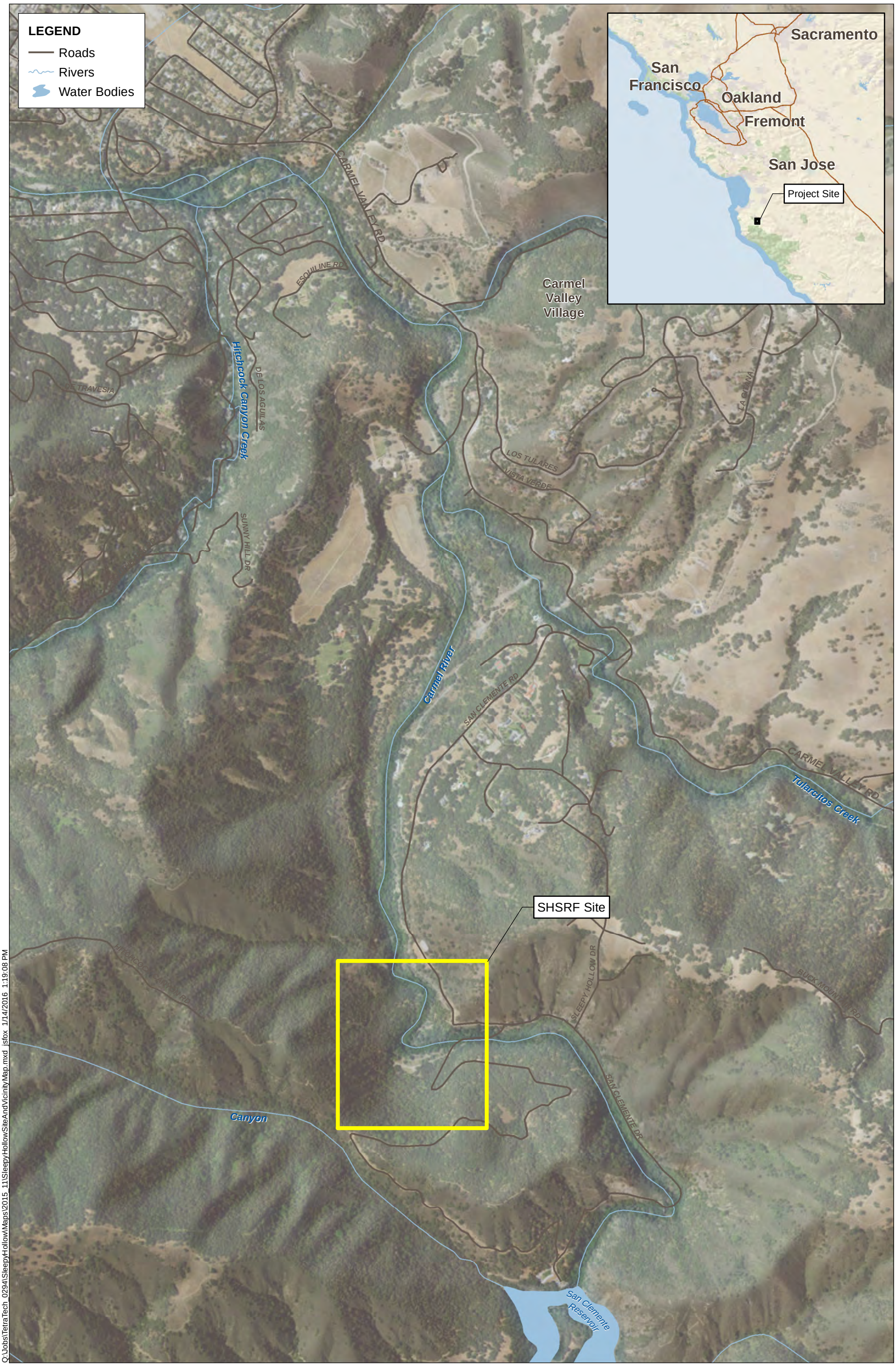

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Figure 1
Vicinity Map
Sleepy Hollow Steelhead Rearing Facility

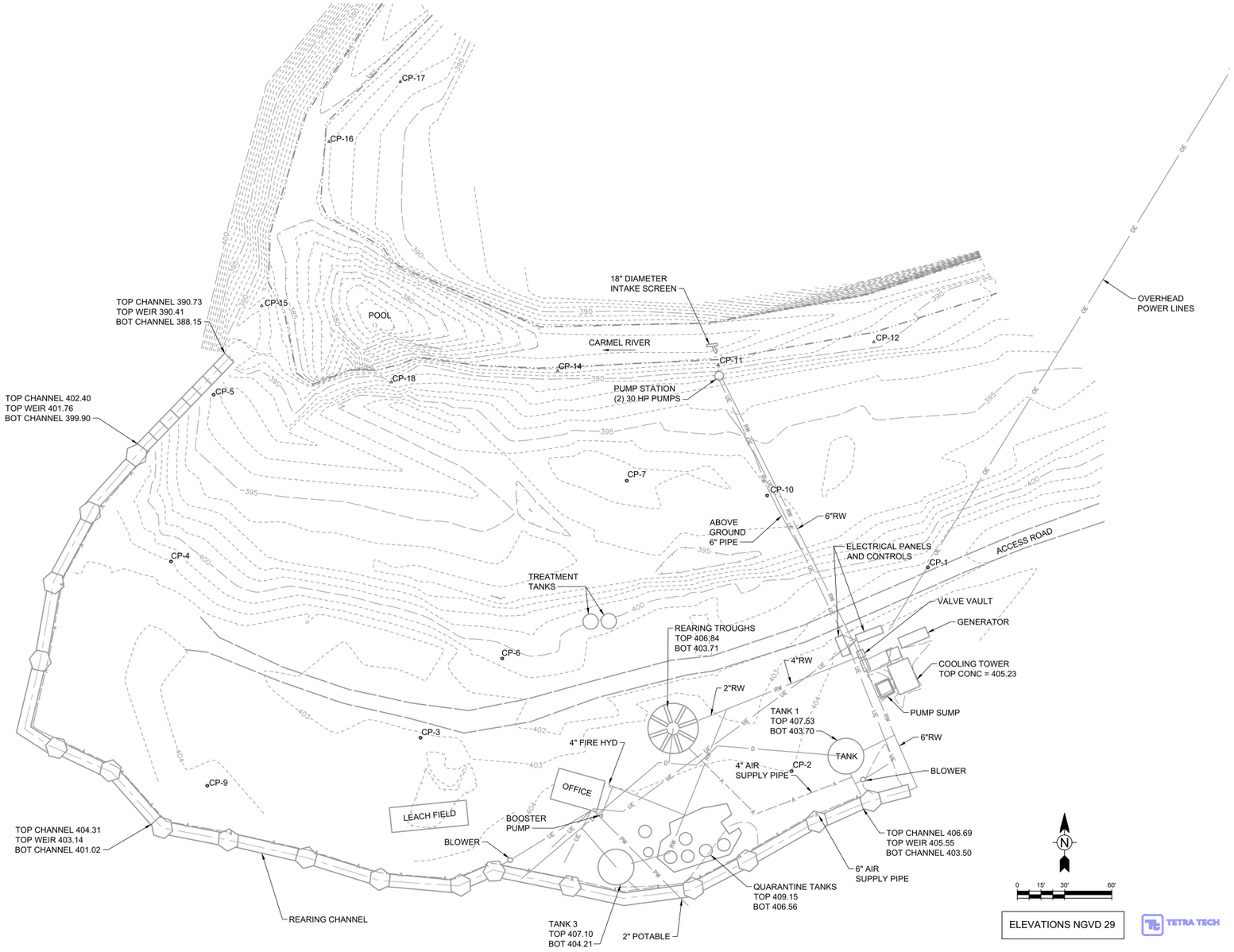
2 PROJECT BACKGROUND

The proposed project involves upgrading the SHSRF in order to improve both the reliability of the water supply intake and the quality of the intake water. District staff designed the SHSRF in the early 1990s to hold juvenile steelhead rescued from the lower Carmel River during the low flow periods. Construction of the SHSRF began in 1995 and was completed in 1996, and the first fish were received at the facility in late 1996. At this time, the District is proposing upgrades to the facility to improve its performance.

2.1 Existing Facility Components and Operations

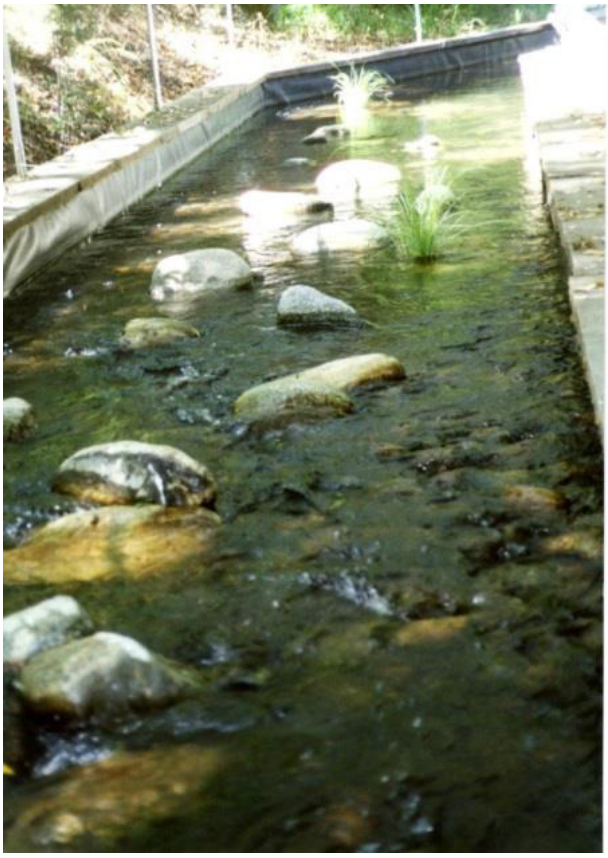
The biological program for the SHSRF involves rescuing steelhead annually from May through September. Steelhead are reared at the facility until December/January, after which they are collected, transported downstream, and released back into the Carmel River. The timing for releasing fish back into the river is dictated by river flows; once high flows have been established for 2 to 4 weeks, fish are released. February is the latest month that fish have been released back to the river. The long-term annual average number of steelhead rescued and brought to the SHSRF is 17,000; however, the number of fish brought to and reared at the facility annually is highly variable, with a high of 50,000 and a low of 2,000. More than 200,000 steelhead have been placed in the facility since operations began.

The primary fish rearing capacity of the SHSRF is provided by its 800-foot long natural rearing channel (Figure 2). The channel has 17 pairings of 6-foot-wide riffle (rocky or shallow areas) and 9-foot diameter pool sections (Photograph 1). The approximate gross volume of the channel is 14,900 ft^3; however, the channel is filled with cobble in almost all riffle sections, significantly reducing the volume of water available for fish rearing. It is estimated that the volume of water available for fish rearing is approximately 4,000 cubic feet (30,000 gallons). The SHSRF also includes two large holding tanks (22- and 30-foot diameter), eight insulated fiberglass rearing troughs, and six 8-foot-diameter quarantine/holding tanks (Photographs 2 and 3). These tanks are used for initial quarantine and sorting larger-sized fish for stocking into the mixed-sized population in the natural rearing channel, while smaller fish are held in the troughs and tanks.



Source: Tetra Tech 2016

Figure 2
Existing Conditions
Sleepy Hollow Steelhead Rearing Facility

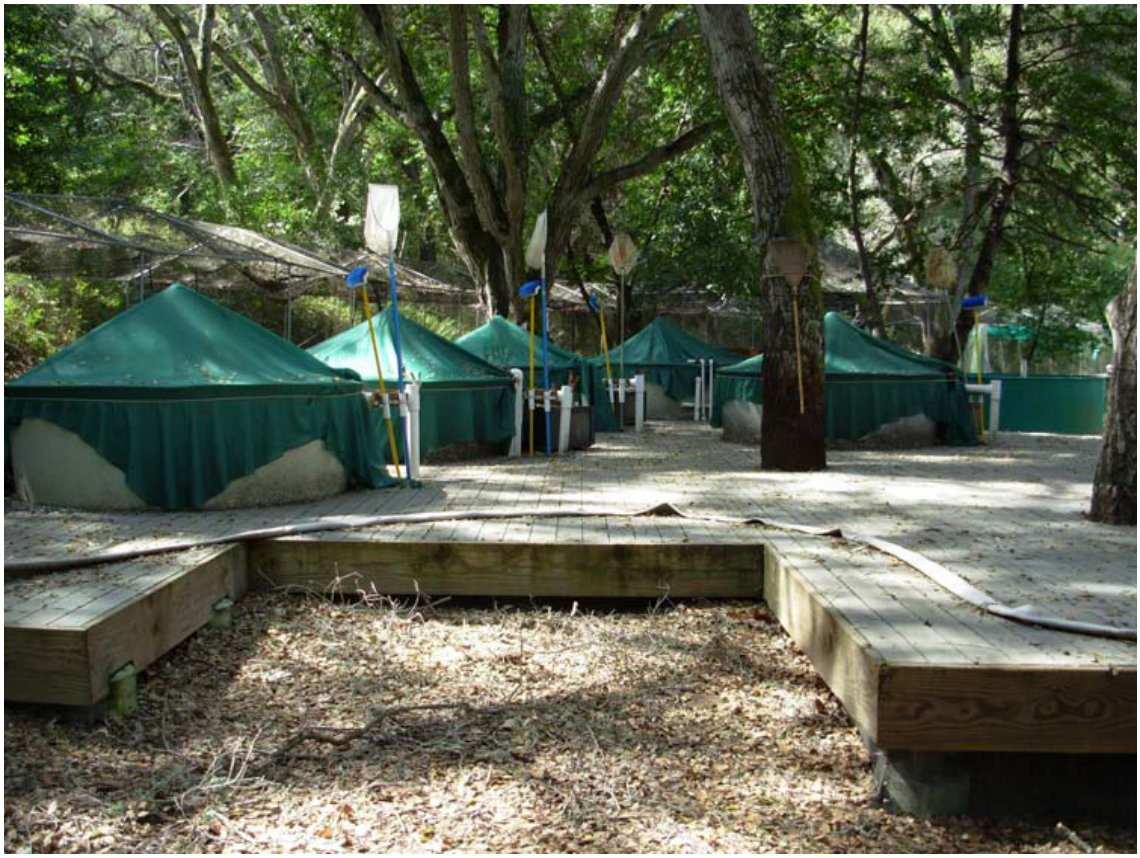


Photograph 1

Rearing Channel

Photograph 2

Rearing Tank



Photograph 3

Quarantine Tanks

Water for the SHSRF is supplied from a screened freshwater intake located in the Carmel River approximately 250 feet from the facility (Photograph 4). An existing wet well and intake pumps deliver up to 900 gallons per minute (gpm) of water to the facility via a 6-inch-diameter buried PVC pipe. A portable irrigation pump provides an auxiliary backup water supply of 500 gpm for use in emergency situations. The intake pumps deliver water to the top of a cooling tower before water is distributed to the rearing channel and tanks.

The existing intake screen is a non-active horizontal Tee screen made of 3/32-inch wedge wire. Because the screen is not self-cleaning, buildup of silt, leaf debris, and algae on the screen has resulted in significant maintenance requirements. The screen is located at an elevation that is not submerged under river water when flows are less than 4 cubic feet per second (cfs). Due to a lack of adequate upstream surface storage at Los Padres Reservoir, evapotranspiration, and surface water diversions between Los Padres Dam and the SHSRF,

there can be reduced surface flow at the intake screen to less than 1 cfs in critically dry periods. Additionally, the existing intake screen becomes inaccessible for maintenance needs as flows increase in early winter.

Photograph 4

Intake Screen

The facility currently has two 30 horsepower (hp) river intake pumps, each sized to deliver 900 gpm at 85 feet total dynamic head. In the past, problems have occurred when river sediment fouled the mechanical seals in the river pumps. The existing river pump station housing structure is also undersized for two large pumps, and it is in a flood prone area (Photograph 5). The structure is inundated at a flow of about 1,000 cfs, which is a magnitude slightly lower than that of the ordinary high water (Photograph 6). At flow levels of about 1,000 cfs, the river pump housing is underwater and, while it can still operate, maintenance cannot be performed if it is needed. Furthermore, the back-up river pump cannot operate while the other river pump is being serviced.

Photograph 5

Intake Pump Housing during Servicing

Photograph 6

Intake Pump Housing at 850 cfs

With the removal of San Clemente Dam and Reservoir in 2015, the existing intake screen is more vulnerable to inundation by sand and fine sediment. In the past, there has occasionally been a need for sand separation downstream of the river pumps to minimize the buildup of sand and fine sediment in the cooling tower and rearing systems. These conditions are worse given the increase in the amount of fine sediment in the Carmel River after removal of San Clemente Dam, which previously prevented all bedload from moving downstream. The current system for separating sand from river water consists of a centrifugal-action

mechanical sand separator manufactured by LAKOS that is capable of up to 90% sand removal efficiency at a maximum capacity of 525 gpm. The sand separator works less efficiently with finer sands and sediment. When the separator is operating, it requires that the river pumps operate at a higher discharge pressure, making them less efficient and requiring them to use more power for the amount of water being pumped. The sand separator is located next to the cooling tower and requires purging the separated sand into a drain pipe that discharges it back into the floodplain.

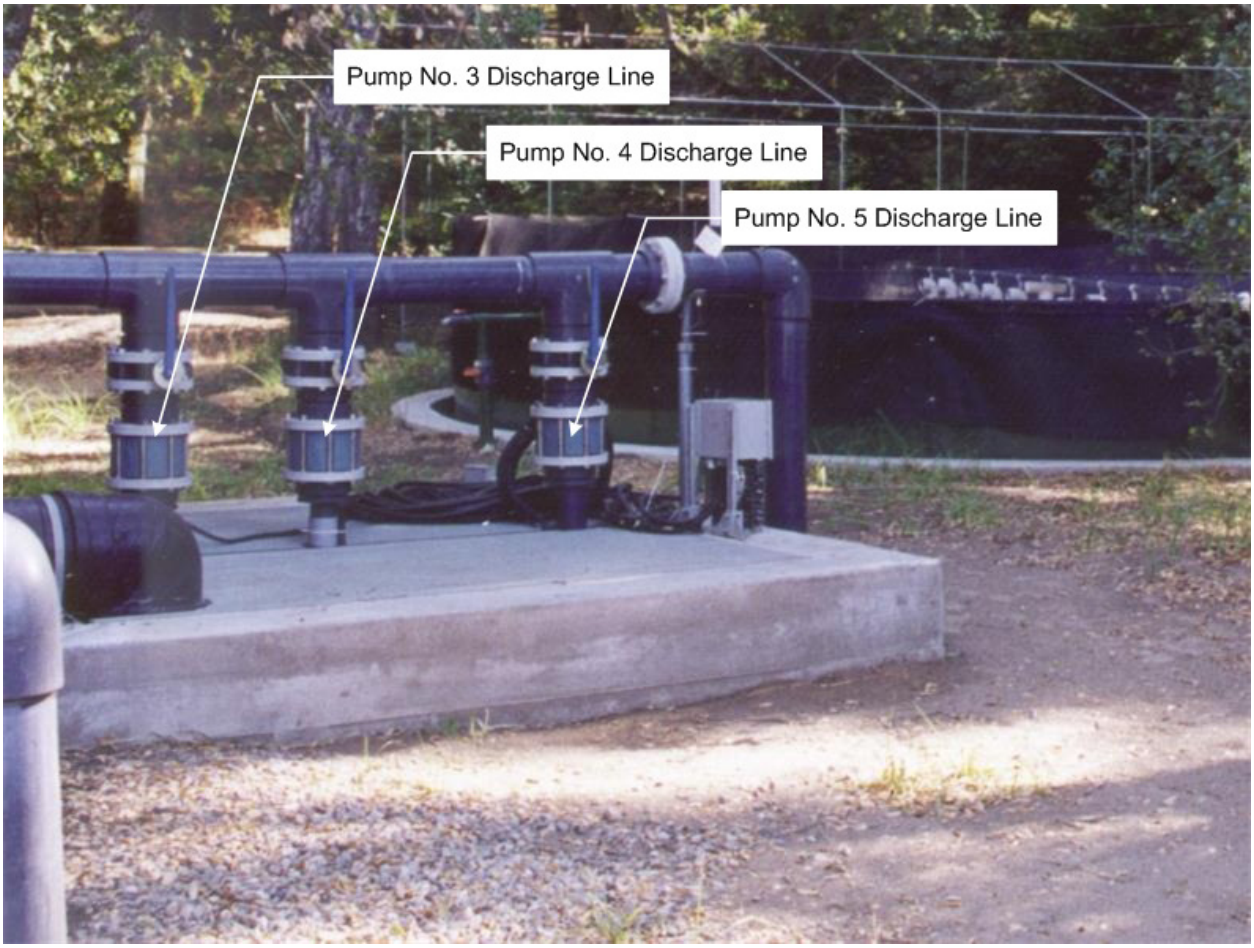
Water is cooled in a cooling tower prior to use within the SHSRF (Photograph 7). The design goals are to keep maximum daily water temperature below 65°F and maintain mean daily water temperatures below 60°F. Within the tower, warm river water sprays over and drips through a stack of plastic media trays as a large fan pulls dry air from the bottom of the tower up through the dripping water. As the dry air passes through the dripping water, a small portion of the water evaporates, saturating the incoming air and cooling the remaining water in the process. About 50% of the time (primarily from early June through October), when the river water is warmer than 58°F, incoming water passes through the tower and the 30 hp fan is turned on to cool the water. At other times when the water is cooler than 58°F the incoming river water bypasses the cooling tower.

Photograph 7

Cooling Tower

The cooling tower discharges water to a cold well which is then pumped for use by the facility (Photograph 8). Supply water is distributed between the tank systems and rearing channel by manually adjustable valves. Flow is distributed to the rearing channel and tank

system using three pumps located in the cold well sump; one pump is 10 hp and the other two are 7.5 hp. One of the 7.5 hp pumps runs constantly, and the second is a redundant backup that alternates operation with the first pump. The newer 10 hp pump runs at variable speeds to maintain a constant level in the cold well. Flow to the rearing channels can be measured with an existing flow meter on the influent pipe just upstream of the rearing channels.



Photograph 8

Cold Well and Pumps

Flow in the rearing channel moves by gravity and is regulated by weirs at each pool. Flows are discharged directly to the Carmel River at the downstream end of the channel near a deep pool created by bedrock that is regularly scoured out during high flows. Fish waste settles in the rearing channel between the rocks and cobbles in each pool as well as in the

deep pool at the end of the rearing channel. The rearing channel is cleaned at the end of the operating season by draining each rearing pool and flushing the entire channel into the river using a fire hose.

Water from the quarantine system that is not used in the treatment of fish (i.e., contains no chemicals) is discharged onto the cobble bar where it percolates into the shallow groundwater adjacent to the SHSRF. District staff discharge treatment water containing formalin or antibiotics into a pair of 8-foot-diameter holding tanks and treat the formaldehyde-laden water with ozone for three or more days to oxidize the residual formaldehyde into formic acid, carbon dioxide, and water. Once treated and tested, the District discharges the water onto the cobble bar.

A full description of the existing facility components and the biological program can be found in the Rescue and Rearing Management Plan prepared by the District for review by NMFS (Urquhart et al. 2014). The summary of the program in this document focuses on elements that impact the design of the proposed project.

Due to the described limitations with the existing intake system, and conditions in the Carmel River, the facility was unable to operate in 2014 and 2015, but did operate in 2016. The intake system cannot operate when bedload and suspended sediment levels are too high or when river flows are too low. Factors that contribute to this deficiency include difficulty accessing the water supply intake pump and in-stream intake screen for maintenance (especially during high flows or during the fall when large amounts of organic matter pass the intake); high sediment loads during storm events; and recent low flow conditions in the Carmel River. At the other extreme, the flashy nature of the watershed can cause the river to rise up within a few days to a level that prevents access to the pump intake and screen. In either case, to prevent steelhead mortality due to pump failure, the District has had to release steelhead back into the river at suboptimal times when overcrowding and food availability in the river can be serious issues.

2.2 Project Location and Setting

The SHSRF is situated in unincorporated Monterey County at approximately river mile 17.5 on the west bank of the Carmel River (latitude: 36.443508, longitude: 121.715974), about 1 mile downstream of the former San Clemente Dam location (Figure 1). The facility is located in an isolated area of the County, more than 0.5 mile away from the nearest residences and public roadways. Vehicle and personnel access to the facility is available only via a dirt road off of San Clemente Road on California American Water Company (Cal-Am) property. Areas immediately surrounding the SHSRF are undeveloped, with the exception of the access roadway.[1]

The SHSRF occupies a broad floodplain terrace bench above the river at 401 feet above sea level, covering approximately seven acres. SHSRF features cover approximately 9,300 square feet (sf) of land, including 480 sf for the storage/office building, 2,400 sf for rearing pools, and 6,400 sf for a rearing channel. A single-story office, lab, and storage building is located adjacent to the tanks and rearing channel. A mature canopy of coast live oak (*Quercus agrifolia*), several large California sycamores (*Platanus racemosa*), and other riparian trees shade the site, along with local topography (i.e., adjacent hillsides). A broad floodplain exists between the SHSRF buildings and the Carmel River.

Carmel River streamflow at the site is perennial, and augmented during the dry months by releases from Los Padres Reservoir. With completion of the Carmel River Reroute and Dam Removal Project, bedload and suspended load in the river has increased, which may lead to effects on pump operations and alter the existing condition of the river in the vicinity of the intake.

2.3 Project Objectives

The objective of the proposed project is to maintain and improve the SHSRF's ability to operate and contribute to the restoration and conservation of steelhead populations. Under existing conditions, the facility cannot achieve the water requirements for operation due to

[1] Cal-Am owns 960 acres, including the access road, the SHSRF, the former San Clemente Dam site, and water treatment facilities. Cal-Am provides about 95% of the municipal water supply for the Monterey Peninsula. The District operates the SHSRF under a long-term lease agreement with Cal-Am.

existing limitations with the intake system and conditions in the Carmel River. As a result, the facility has been unable to operate during several recent seasons. Additionally, during operating seasons, steelhead releases have needed to occur during suboptimal times when overcrowding and food availability in the river can be serious issues. The water requirements presented in Table 1 are required for the SHSRF to achieve its desired services.

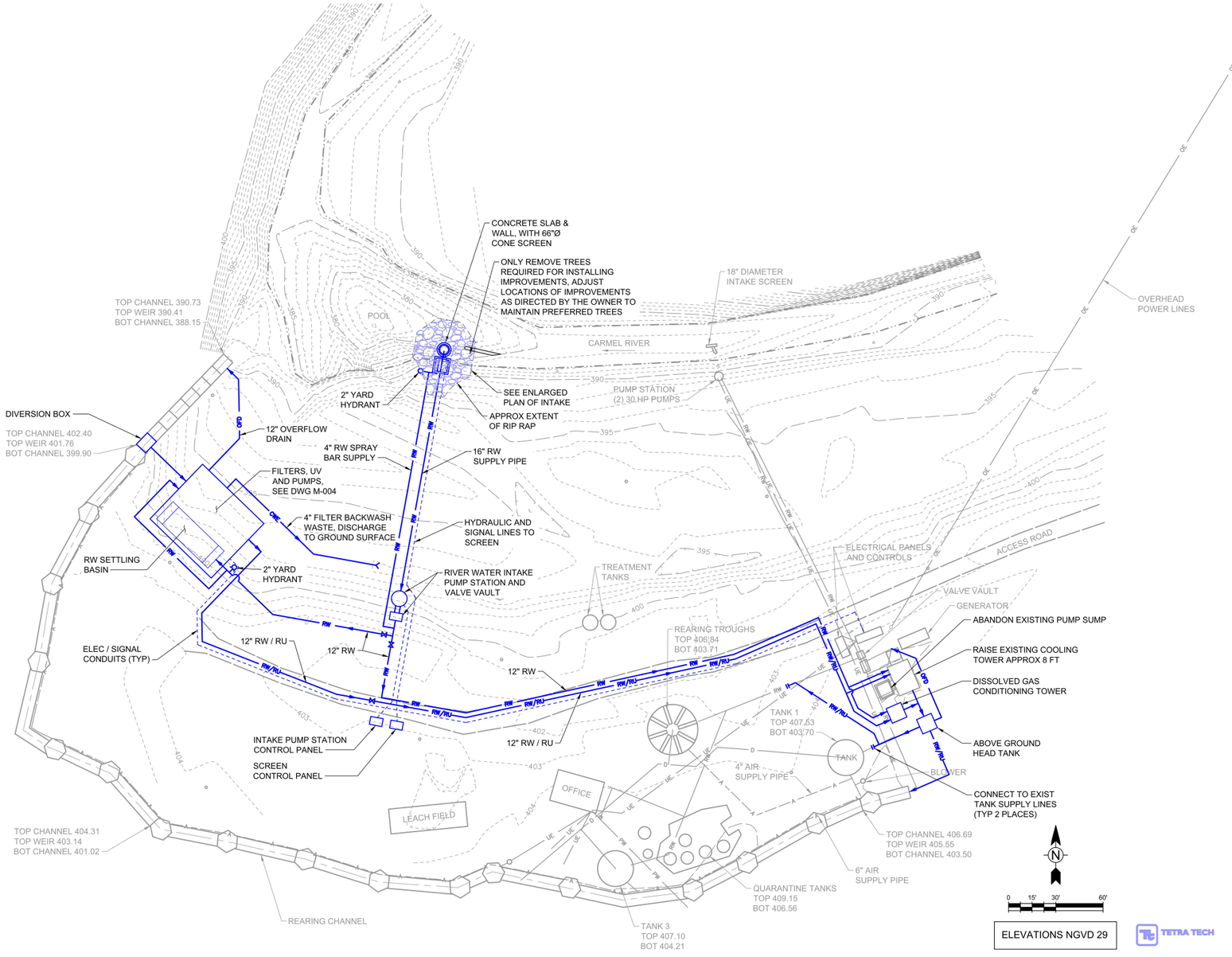
Table 1
Sleepy Hollow Steelhead Rearing Facility Water Requirements

Rearing Area	Flow Required (gpm)	Total Flow Desired (gpm)
Rearing Channel	685	1,080
Tank Field – 5 Quarantine Tanks	75	75
Tank Field – 8 Rearing Troughs	40	40
Tank Field – Recirculation System	100	100
Cushion (Reserve Capacity)	--	55
Total	**900**	**1,350**

Note: gpm = gallons per minute; 900 gpm is the manufacturer's rated maximum pumping capacity.

2.4 Project Description

The proposed project involves improving the facility's water supply intake and cooling tower as well as installing a water recirculation (or reuse) system to meet the identified water requirements and the objectives of the proposed project (Figure 3). Improvements to the water supply intake are needed to address existing maintenance issues, operational constraints, and increases in sandy bed load in the Carmel River due to removal of the San Clemente Dam; to allow for easier water supply intake pump access; and to provide greater in-stream intake screen reliability and ease of maintenance. The addition of an intake water reuse system would allow for the facility's operation when river flows fall below 3 cfs and when sediment load is extraordinarily high during storm events. The proposed project would also improve the facility's efficiency by removing the need for re-pumping from the cooling tower. This section provides more information on these project elements and associated construction methods.



Source: Tetra Tech 2016

Figure 3
Proposed Site Plan
Sleepy Hollow Steelhead Rearing Facility

2.4.1 Intake System Improvements

The following components of the intake system would be improved by the proposed project:

- Intake location
- Intake screen and associated improvements
- Bank protection
- River intake pump station and water conveyance
- Sediment removal

2.4.1.1 Intake Location

The proposed project would relocate the intake location to the head of a relatively deep pool in the Carmel River located about 120 feet upstream from the present location of the outlet discharge point (Figure 3). The intake would be positioned in an intermediate portion of the water column, which would minimize the short-term potential for the intake to be buried by bedload deposition.

Prolonged bedload deposition in this area is not anticipated to be a long-term concern given that annual high discharge flows will create adequate velocity to flush localized sediment as predicted by HEC-RAS modeling completed for the project. The Carmel River Reroute and Dam Removal Project upstream from the Sleepy Hollow Facility increased sediment delivery to the intake area over the winter of 2015/16 due to the river capturing some of the sediment that had been impounded behind San Clemente Dam. While this increased sediment loading does not appear to be a significant design constraint, additional modeling will be performed to estimate bedload transport volumes in the vicinity of the intake structure over a range of flows.

2.4.1.2 Intake Screen and Associated Improvements

Design criteria for the intake screen would meet the requirements of Anadromous Salmonid Passage Facility Design, 2011, National Marine Fisheries Service (NMFS), Northwest Region, Portland, Oregon. It would also comply with the lower approach velocity stipulated in the 1997, NMFS, Southwest Region Screen Criteria. A single 66-inch-diameter replacement active cone screen equipped with an external cleaning brush would be installed in a deeper river area than the current screen location (Figure 4). A hydraulic motor would actuate the

screen brush and would be powered by a hydraulic pump installed in a screen control panel located above the river flood stage. The brush would operate on a timed interval set by the operator. A signal output from the screen control panel would allow for any screen alarms to be communicated to the facility's centrally located control system to notify operators if the screen is operating incorrectly and needs attention. A water line from the pump station would be installed to recirculate water to a spray bar manifold next to the screen, which would allow periodic flushing of sediment from under and around the screen.

The new cone screen would be bolted to the top of a precast concrete base installed at the proposed intake location. The concrete base would weigh up to about 37,000 pounds and would measure 9 feet in diameter by 3.75 feet thick. The top of the base would be an average of 1 foot higher than the river bottom. At this location, the river's low water level would be at an elevation of 385.4 feet, which would be the approximate elevation for the top of the screen. The bottom of the screen would be located at an elevation of 383.75 feet, and the bottom of the concrete base would be installed at an elevation of 380 feet.

The concrete base would be underlain, supported, and surrounded with rock riprap at grade. A scour analysis was performed to identify required foundation improvements; in order to protect the new intake and concrete base from scour, the river bed would need to be excavated to a maximum depth of 6-feet or until bedrock is encountered (estimated maximum 175 cubic yards of excavation required). The excavated area would be backfilled with angular rock riprap with a minimum weight of 3 tons and size of 42 inches in diameter. Smaller riprap would be placed directly under the screen base location and leveled with an excavator bucket prior to placement of the precast concrete base. The maximum total riprap volume is 160 cubic yards. Native river rock removed during excavation would be stockpiled for reuse, and spread over the riprap at a 6-inch thickness to fill voids in the riprap surface. These improvements are shown in Figure 5.

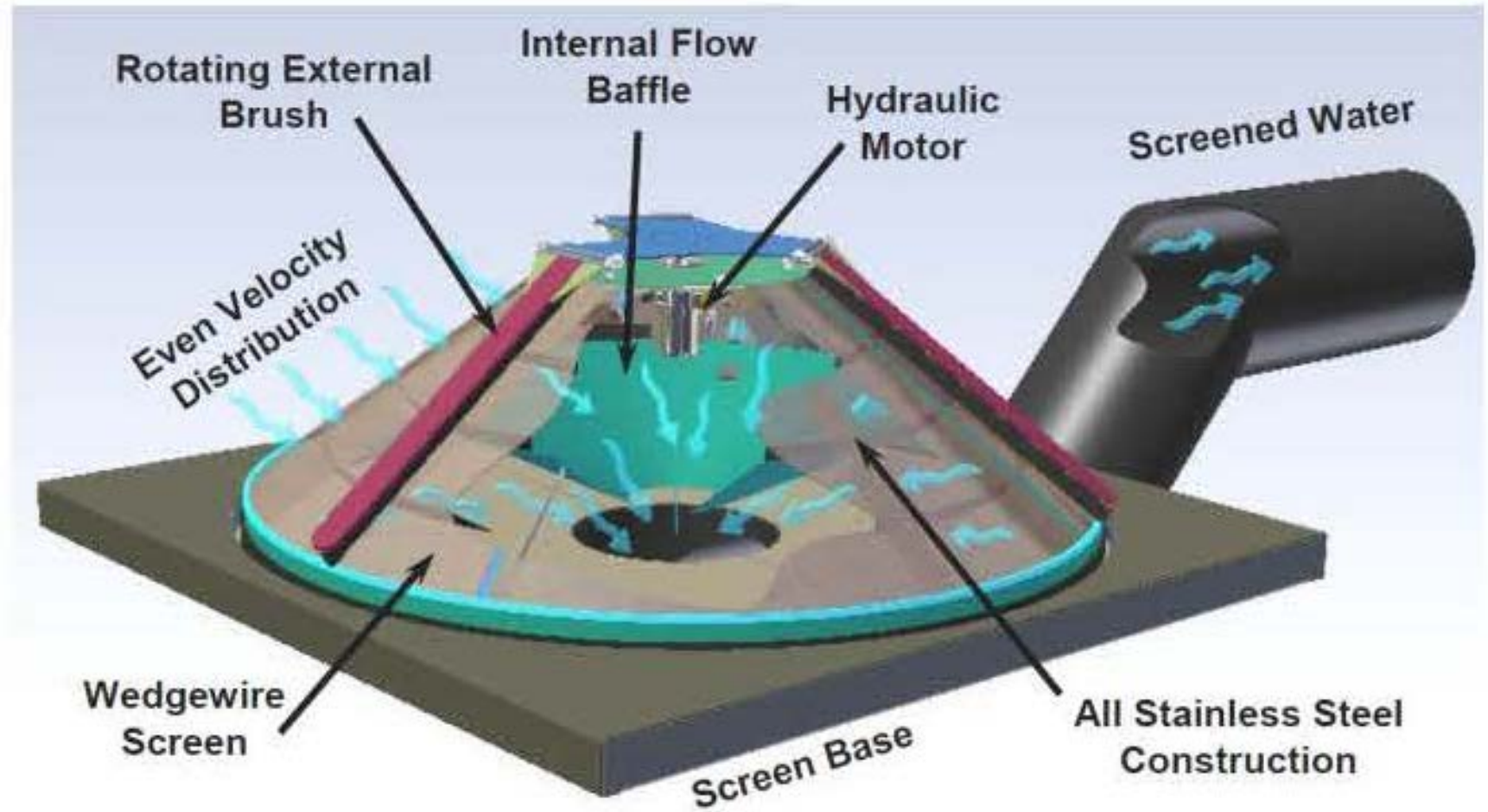


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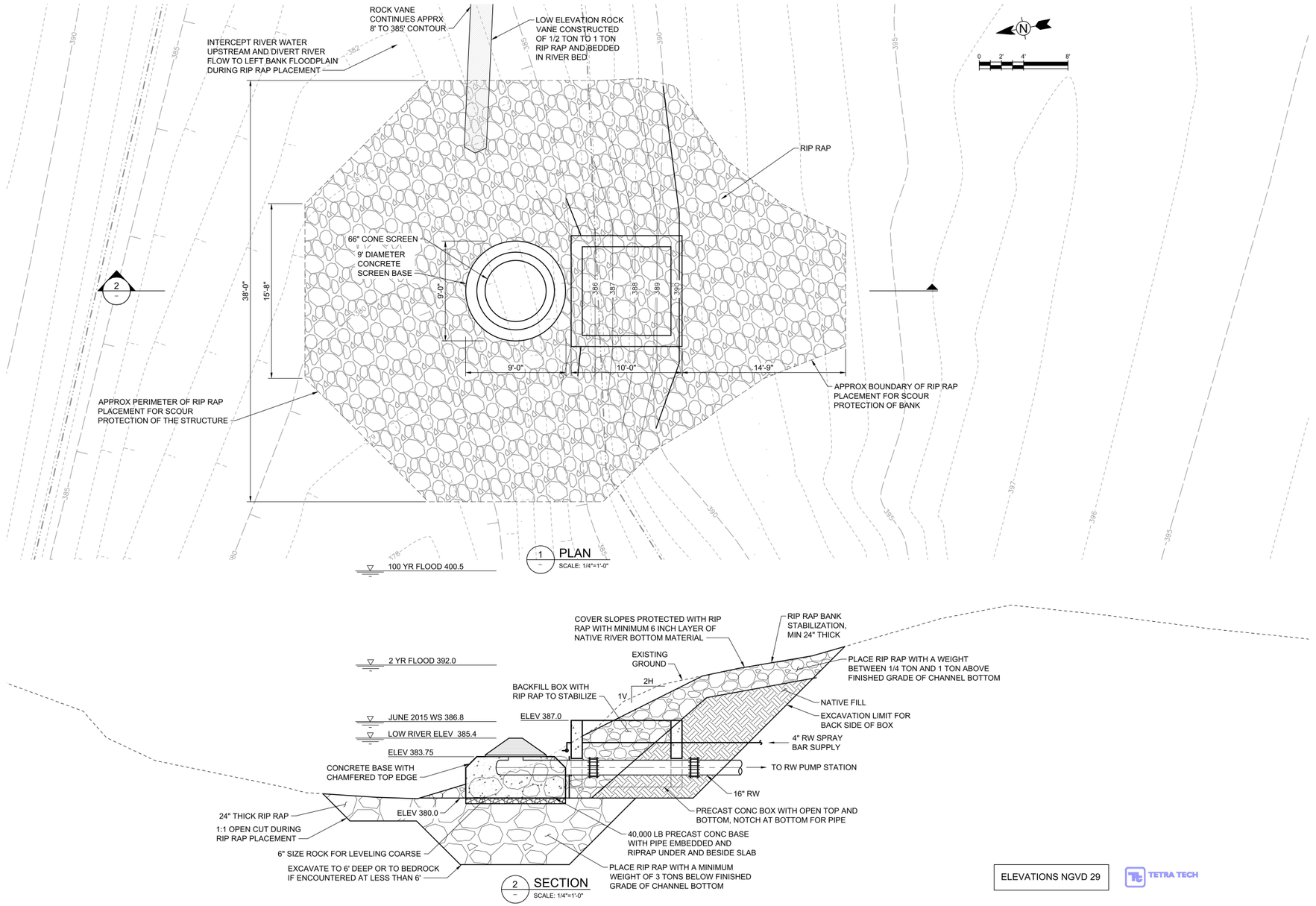
Figure 4
Proposed Cone Screen Design
Sleepy Hollow Steelhead Rearing Facility



Source: Tetra Tech 2016

Figure 5
Intake Screen Plan and Cross Section
Sleepy Hollow Steelhead Rearing Facility

An upstream rock vane may be needed to deflect bedload away from the intake screen. During final design, additional sediment transport modeling will be performed to make an accurate estimate of sediment impacts in the vicinity of the intake structure over the full range of river and intake flow conditions. This modeling will indicate if the design should incorporate a low-elevation rock vane, likely consisting of 4 cubic yards of 12- to 24-inch diameter boulder material buried in the river bed upstream from the intake. It is anticipated that the single vane (if needed) would be linear when viewed from an overhead perspective. The upstream end of the vane would be located against the river bank about 30 feet upstream of the new intake and would gradually angle away from the river bank to align with the front of the new intake screen (Figures 3 and 5). The purpose of the vane would be to minimize regular maintenance, including reducing the need for staff to enter the river and remove sediment from the intake screen. The total area of the proposed in-channel improvements is estimated to be 1,030 sf (below toe of bank), including a 1,000-sf area for placement of the intake screen, concrete base, and riprap, as well as a 30-sf area from removal of the existing pump station (pump station removal discussed in Section 2.4.1.3).

2.4.1.3 Bank Protection

Bank protection is proposed to protect the river bank from erosion behind the screen and to reinforce the bank where it will have been disturbed during installation of the intake structure and connection pipe. Bank protection would include installation of a precast concrete box embedded into the river bank forming a short reinforced concrete wall, and installation of rock riprap around the box and on the upper bank (Figures 3 and 5). The precast concrete base would measure 9 feet in diameter by 3.25 feet high with wall thickness of 12 inches, and would be open at the top and bottom so that it can be filled with riprap and native rock. Excavation of approximately 230 cubic yards from the river bank would be required to accommodate placement of the box and bank recontouring.

The box would be placed with its river-facing edge immediately adjacent and parallel to the concrete base at bottom elevation 383.75 feet. Following placement, the precast box would be backfilled with a combination of rock riprap and native fill removed during excavation. Only the river-facing side of the box would be visible following backfill. Additional rock riprap would be installed to the top of bank elevation of 390 feet. The total volume of riprap

installed would be 110 cubic yards. The total volume of native material reused for backfill would be 120 cubic yards. The reinforced bank would be sloped at 2:1 (horizontal to vertical), with the exception of the vertical precast box face. The total area of the proposed bank protection is estimated to be 500 sf (above toe of bank). Although many practitioners and civil engineering references recommend against using riprap on slopes steeper than 1.5:1, failure of 1.5:1 streambanks—even with riprap—has been common along the Carmel River. Reinforced banks sloped at 2:1 that are revegetated with native riparian trees and other native riparian plantings have been found to be highly resistant to bank erosion once vegetation is established.

2.4.1.3.1 River Intake Pump Station and Water Conveyance

The proposed river water intake pump station would consist of two submersible non-clog pumps installed in a concrete wet well, with each pump sized to provide the total desired flow of 1,350 gpm. Two pumps are proposed in order to provide redundancy in the event that the primary pump goes out of service. In order to allow for easier maintenance during river flows greater than 1,000 cfs and to coincide with the relocated intake screen, the pump station wet well would be relocated to the 400-foot contour line at the location shown in Figure 3.

The existing pump station, enclosed in a circular concrete wet well constructed in the streambank, would be dismantled. Mechanical and electrical equipment from the pump station would be disconnected with hand tools and removed with a hoist for salvage. The pump station concrete wet well would be removed using an excavator and loaded into a road dump truck for disposal off site. Connecting pipes would be plugged with grout. Surplus native river rock excavated from other site work would be reused to fill the void remaining from the wet well removal. Some smaller riprap (up to one-quarter ton) may be mixed into the native material placed into the void to provide some stability during high flows until vegetation is fully established. The streambank would be revegetated with appropriate native plants. The existing drum screen in the riverbed would be removed using an excavator and the void would be backfilled with native material excavated from other site work, resulting in the restoration of a 30-sf area of riverbed.

Pumps would be installed on a slide rail system for easy retrieval when service, maintenance, or replacement is required. A valve vault would be located next to the wet well, with an isolation valve, check valve, and pressure gauge for both discharge lines. River water would be conveyed from the intake screen to the wet well via a 16-inch diameter pipe. A gate or valve would be installed on the end of the 16-inch diameter pipe inside the wet well to allow for dewatering and maintenance.

The proposed river water intake pumps would be sized to deliver flow directly to the cooling tower. With the addition of reuse, an optional operating mode would be to utilize the reuse pump station for settling and re-pumping the river water. Pipes and valves would be installed that allow operators to direct the river water to the reuse pump station when desired due to high sediment load or other river conditions. This allows the option of receiving flow that would settle and be filtered before being re-pumped to the cooling tower. The river water pumps (either operating alone or in unison with the reuse pump station) would typically need to deliver between 810 gpm and 1,350 gpm depending on level of reuse.

Controls at the river water pump station would be provided by variable frequency drives (VFDs) and a flow meter. The VFDs would control the pump speed to maintain an operator entered flow set-point. A submersible pressure transducer would be provided to monitor the wet well level and shut off the pumps if the water level is too low. Alarms would be activated in the event of pump motor temperature exceedance, motor seal leakage, low wet well water level, and if the pump is running with zero flow at the flow meter.

2.4.1.4 Sediment Removal

Historical total suspended solid (TSS) levels in the river have been primarily low (less than 10 milligrams per liter [mg/L]) with spikes of greater than 25 mg/L due to storm events. The recent removal of the San Clemente Dam has made the Carmel River subject to more spikes of TSS due to sediment transporting more easily in the river system. The proposed project includes sediment removal facilities to help reduce wear on reuse pumps, reduce buildup of sediment in the process systems, and increase the effectiveness of the proposed ultraviolet (UV) equipment. With water reuse added to the facility, sediment concerns would also

reduce; during events when the river stage, bedload, and turbidity are high, the facility could run on 50% water reuse, resulting in less water being withdrawn from the river.

The proposed approach for sediment settling involves use of the existing LAKOS sand separator in conjunction with the addition of a sediment settling basin. The LAKOS would be relocated to the reuse pump station location, which is at a lower elevation, to allow for its use without increasing the reuse pump size. The current design assumes that the settling basin would be 13 feet wide, 35 feet long, and 5 feet deep. With the addition of the settling basin, the reuse sump would also include a chamber for raw river water settling and filtering prior to using the reuse pumps for re-pumping river water. The reuse pumps would be sized for higher capacity so that they can pump the total flow of 1,350 gpm. In order to control solids so that UV transmissivity is increased, water would be filtered in a microscreen filter with 30-micron screen media. The level of settling and filtration would be further evaluated during future design efforts, with the goals of capturing 40% of the solids and controlling TSS to less than 10 mg/L during moderate river stages.

2.4.2 Cooling Tower

The existing cooling tower would continue to be used for aeration to increase dissolved oxygen levels and reduce dissolved carbon dioxide levels, as well as for cooling. The existing cold well would be abandoned, which would eliminate any re-pumping after the cooling tower. The cold well would be left in place or filled with native rock and soils excavated from other site work. In order to accomplish this, the cooling tower would need to be raised by approximately 8 feet and a new elevated headbox would be constructed to receive cooling tower flows before discharging to the rearing channel. The headbox would consist of a raised water tank with the bottom elevation about 5 feet above the ground, and would be used for collecting oxygenated water and distributing flow.

2.4.3 Partial Water Reuse

Installation of a partial water reuse system is proposed to address the challenges of limited water quality and quantity at the facility. With a partial water reuse system, water that would leave the fish rearing tanks in a traditional flow-through system would be treated and

returned to the rearing tanks. The amount of water reuse would be limited to 50%. Critical performance objectives for the proposed partial reuse system are listed in Table 2.

Table 2
Sleepy Hollow Steelhead Rearing Facility Reuse System Critical Design Values

Design Element	Design Value
Total number of fish: Steelhead	34,000
Final fish size: Steelhead	39 grams (6-inch)
Total fish biomass	1,326 kg
Maximum feed rate	1.0% body weight per day
Maximum feed rate	13.3 kg per day
Final fish density	11.7 kg/m^3
Minimal normal dissolved oxygen concentration	80% saturation
Maximum dissolved carbon dioxide concentration	15.0 mg/L
Maximum unionized ammonia concentration	0.0125 mg/L

Notes:
mg/L = milligrams per liter
kg = kilograms
kg/m^3 = kilograms per cubic meter

Treatment of reuse water would include the following solids filtration, carbon dioxide removal through aeration, and oxygenation as illustrated in Figures 6 and 7 and described below.

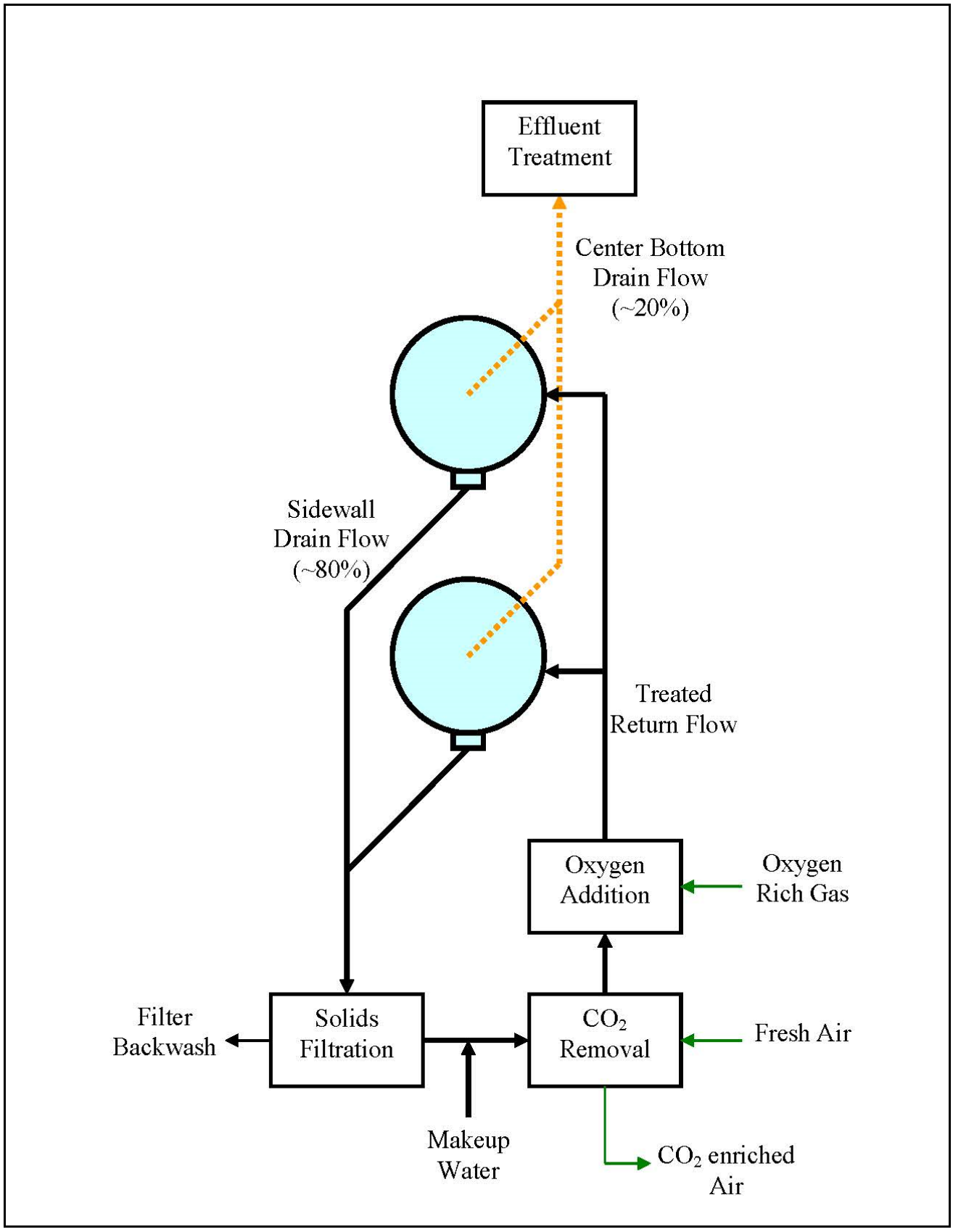
While three options for implementing water reuse were initially considered by the District, the selected water reuse process involves directing 540 gpm of the 1,080 gpm of effluent water from the natural rearing channel to a separate water reuse sump structure for microscreen filtration. After filtration, reuse water would be joined by 810 gpm of river water that has been treated for heavy solids in a settling basin and fine solids in a microscreen filter. The combined 1,350 gpm of process water would be pumped through a UV irradiation unit and then to the top of the existing cooling tower when cooling is required. When cooling is not required, the combined flow would bypass the existing cooling tower and be directed to a new dissolved gas conditioning tower for aeration and low-level oxygenation. After the combined 1,350 gpm of process water is treated in the

cooling tower or in the dissolved gas conditioning tower, it would flow by gravity to a new head tank to supply water to the rearing channel (1080 gpm) and tank field (270 gpm).

2.4.3.1 Solids Control

Solids control is critical for implementing a successful reuse system at the SHSRF. To control solids, any water being reused would be filtered in a microscreen filter with 90-micron screen media. The amount of water reuse would initially be limited to 50% (540 gpm), which improves the likelihood that solids would be controlled to maintain a low level of TSS (5 to 10 mg/L). Microscreen filters for the reuse process flow would be sized to treat the entire channel flow requirement of 1,080 gpm; this sizing allows for the full range of operations, from 50% reuse (540 gpm) to 100% reuse (1080 gpm) of the channel rearing water.

Microscreen filters would also be required to treat the river water when it has a high sediment load. It is anticipated that the reuse system would be in operation when there is a high sediment load in the river, and the river water flow requiring filtration would be 810 gpm. It is possible that the river water flow requiring filtration could range as low as 270 gpm for times when 100% of the rearing channel water is being reused, to as high as 1,350 gpm when the entire river water flow is being treated. Microscreen filters for the river water would be sized for the range of flows from 270 gpm to 1350 gpm with a minimum of 40-micron screen media.



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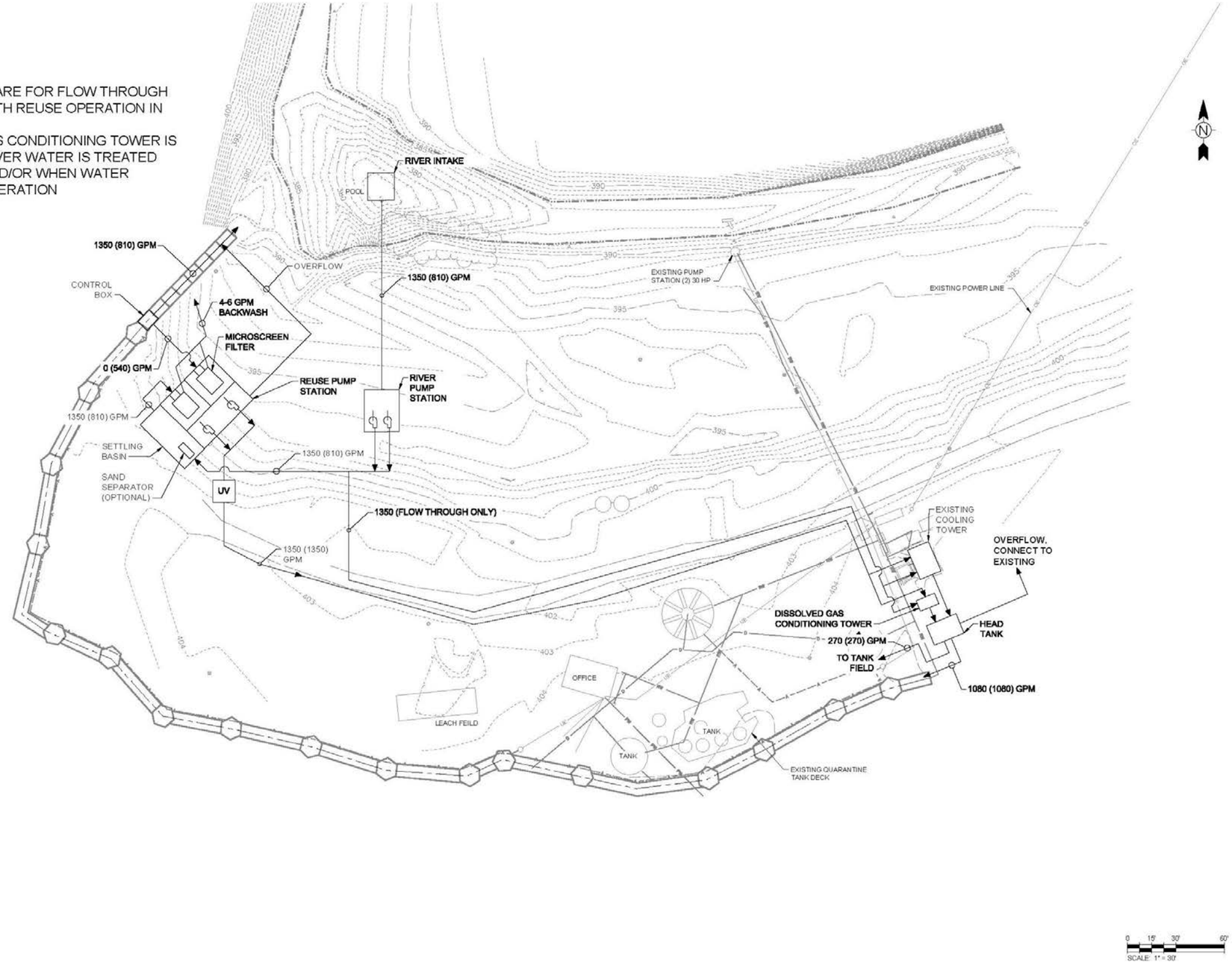
ANCHOR QEA

Figure 6
General Process Flow Diagram for a Partial Water Reuse System
Sleepy Hollow Steelhead Rearing Facility

NOTES:

1. FLOW VALUES ARE FOR FLOW THROUGH OPERATION WITH REUSE OPERATION IN PARENTHESES
2. DISSOLVED GAS CONDITIONING TOWER IS USED WHEN RIVER WATER IS TREATED FOR SOLIDS AND/OR WHEN WATER REUSE IS IN OPERATION



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ANCHOR QEA

Figure 7
Process Flow Plan
Sleepy Hollow Steelhead Rearing Facility

2.4.3.2 Dissolved Gas Conditioning

Reusing 50% of the water that has already been used in the natural rearing channel would require that dissolved oxygen levels be increased and dissolved carbon dioxide levels be decreased to maintain required water quality conditions for the fish in the natural rearing channel. These needs are typically accomplished with an aeration process, such a packed column aerator. The SHSRF already has a force-ventilated packed column aerator in the form of its existing cooling tower, which can provide the aeration needed to increase dissolved oxygen and reduce dissolved carbon dioxide for the water being reused. Employing the existing cooling tower as an aeration tower would require that the fan used for cooling be operated continually to provide a minimum amount of air flow for aeration. The existing 30 hp fan delivers 200 times more air than is needed for aeration.

The proposed project addresses this mismatch by including a combined aeration and oxygenation column for dissolved gas conditioning. When cooling is needed, the process flow (i.e., reuse water, river water, or a combination of the two) would be directed to the existing cooling tower and the tower fan would be operated. When cooling of the process flow is not required, the flow would bypass the cooling tower and be directed to the combined aeration and oxygenation tower to removed dissolved carbon dioxide and add dissolved oxygen. Commonly called an OxyTower, this unit would be sized for 1,350 gpm at a hydraulic loading rate of approximately 40 gpm per sf, resulting in a 7-foot diameter unit. The OxyTower also allows for the addition of pure oxygen gas to boost dissolved oxygen levels to 100% of saturation, which can be beneficial for fish culture at the facility.

2.4.3.3 Pathogen Disinfection

Particle filtration prior to UV disinfection is required to prevent shadowing of pathogens within or behind particles. The proposed project would disinfect process water (after filtration with a microscreen filter) with UV irradiation. UV irradiation unit(s) would be installed on the line after the reuse pump station; a UV dose of 30,000 micro-watt seconds per square centimeter ($\mu \cdot Ws/cm^2$) would be used for equipment sizing in order to achieve the desired reduction in the most common fish pathogens, including *Flavobacterium columnare*. The power required for UV treatment is directly proportional to the UV transmittance of the

water. The higher the transmittance, the lower the energy input required by the UV bulbs. The UV transmittance criteria used for sizing the UV unit would be 50%.

2.4.3.4 Reuse Water Pumping and Conveyance

The reuse pump station would be located in the same structure as the microscreen filters. The pumps would be sized to deliver the full facility flow of 1,350 gpm. River water from the intake pump station would be settled and filtered at the treatment structure, and the reuse pumps would be sized to deliver the entire facility flow through the UV unit, to the cooling tower, and/or the OxyTower.

2.4.3.5 Operations and Controls

The water reuse system has three operating modes, as follows:

1. Discharging from the river water pump station directly to the cooling tower or OxyTower. This is a flow-through-only mode.
2. Discharging from the river water pump station to settling and filtration prior to being mixed with reuse water and pumped by the reuse pumps to the cooling tower.
3. Discharging from both the river water pump station and reuse pump station directly to the cooling tower and OxyTower, after which mixing would occur in the head tank.

A hydraulic control box would divide flow between the existing effluent channel and the reuse pump station. An adjustable weir would be installed to balance the amount of flow being reused. When reuse pumps are operating, the level would drop downstream of the reuse drum filter so that water could pass through the filter. Any water not pumped would continue flowing down the effluent channel. A gate at the control box would allow flow to be shut off to the reuse sump, as well as draining and maintenance of the system.

Each drum filter (the unit process depicted as Solids Filtration in the process flow diagram) would use a local control panel that controls the filter cleaning cycle with a timer, level float, or both. Filter cleaning includes rotating the filter drum and operating a backwash pump that flushes solid debris from the filter. The water and solids removed from the filter during cleaning would discharge to the floodplain gravel bed. During the cleaning cycle, the water

level in the reuse pump sump downstream of the filter would increase as the filter becomes clean. Between cleaning cycles as the filter becomes dirty, the downstream water level would drop. This may cause some overflow at the end of the cleaning cycle. The drum filter local controller would have an output for a general filter alarm that would be input to the facility controller.

Reuse pumps would use floats or an ultrasonic level sensor to monitor the water level in the reuse pump sump. Pumps would run at a set speed and when the level sensor indicates a low level, the controller would shut the pump off to protect it from running dry.

Under all operating modes, the reuse pumps would have the capacity to deliver 1,350 gpm. Pump protection alarms would include pump motor over temp, motor seal leakage, low wet well level, and pump running with zero flow at the flow meter.

2.4.4 Fish Culture Facilities and Effluent Treatment

No changes to the existing fish culture systems are anticipated as a result of the proposed project. It is expected that the overall impact on the facility on the river would remain equivalent to baseline conditions as no changes to the fish rearing program are proposed. Implementing water reuse would result in solids being collected at additional locations besides the cobble bed of the rearing channel, but all collected solids would be discharged to the gravel river bed and flushed during high river stage events similar to the method solids are currently handled. In the future, solids captured in the microscreen filters could be sent to settling basins for storage and periodic removal as required.

2.4.5 Construction Activities

Project construction is anticipated to begin in late 2016 or early 2017, with completion by May 2018. Construction may be phased depending on the actual start date and the facility's operating schedule. The initial phase of construction, planned for completion in 2017, would include modification or replacement of existing equipment, including the building in which the reuse infrastructure would be housed, pump station, pipelines, and intake screen. The second phase, planned for completion from January 2018 to May 2018, would include

installation of infrastructure for partial water reuse and solids filtration, and connections to existing infrastructure.

Anticipated upland site work includes excavation for pipe trenches, water holding structures, the sediment settling basin, and reuse pump station. Pipe trenches from the new intake screen to the new pump station would be located in the floodplain. To minimize surface disruption, pipe and utility features would be installed in common trenches and situated in existing roads where possible. Trees would be avoided wherever possible and excavated material would be placed back into any trenches. Trenches would be excavated using a medium sized excavator. Additional equipment used would include a road dump truck, rubber tire backhoe, small roller compactor, and 10-ton crane for elevating the cooling tower.

Improvements within the Carmel River channel would include removal of the existing drum screen and intake structure, installation of the new intake screen, placement of a concrete base near the river bottom, excavation and installation of rock riprap in the channel bottom to support the concrete base and intake screen as well as prevent scour, installation of bank protection including a precast concrete box and rock riprap, and potential installation of a rock vane. These improvements would require work in and adjacent to the Carmel River, and would require dewatering or flow diversion (passing flow around the worksite) prior to and during construction within the channel. Limited vegetation removal would likely be required to construct these improvements. The exact dewatering or flow diversion method would be determined by the contractor, but is likely to consist of cofferdam structure(s) (or similar structures) installed at one or both ends of the improvement area to allow for construction activities to be completed in dry conditions and to isolate the work area from channel waters. In-channel work would occur during a relatively low-flow period between July and October when flows are normally at their lowest (4 to 10 cfs). The flow diversion or dewatering would be gravity fed if possible; a pump would only be used if needed. Water diverted from the channel would be drained onto nearby gravel bars with high infiltration rates on either side of the river. Discharge to the gravel bars would also disperse the flow and prevent erosion. Any pumps or bypass pipes required during dewatering would be screened as appropriate to avoid entrainment of sensitive species.

After dewatering at the existing intake, the existing pump station, enclosed in a circular concrete wet well constructed in the streambank, would be dismantled. Mechanical and electrical equipment from the pump station would be disconnected with hand tools and removed with a hoist for salvage. The pump station concrete wet well would be removed using an excavator and loaded into a dump truck for disposal off site. Connection pipes would be plugged with grout. Surplus native river rock excavated from other site work would be reused to fill the void remaining from removal of the wet well. Some smaller riprap (up to one-quarter ton) may be mixed into the native material placed into the void to provide some stability during high flows until vegetation is fully established. The streambank would be revegetated with appropriate native plants. The existing drum screen in the riverbed would be removed using an excavator and the void would be backfilled with native material excavated from other site work.

Once the dewatering system is in place at the new intake location, excavation of the channel bottom and bank would be required prior to placement of the riprap, concrete base, intake, bank protection, and rock vane (if needed). Excavation would occur using a long reach excavator operating from the top of bank adjacent to the channel. Removal or trimming of several native trees would be required to accommodate construction equipment and the proposed improvements, although trees would be avoided wherever possible.

Following excavation and while the dewatering system is operating, installation of the new intake and associated components would occur. The concrete base, intake screen, supporting riprap, bank protection, and rock vane (if needed) would be installed by construction workers within the dewatered channel with use of a long reach excavator with bucket or other attachments operating from the top of bank. Only after placement and construction of these improvements would the cofferdam be removed from the in-water work area.

3 ENVIRONMENTAL CHECKLIST, IMPACTS, AND MITIGATION MEASURES

1.	**Project Title:**	Sleepy Hollow Steelhead Rearing Facility Raw Water Intake and Water Supply System Upgrade
2.	**Lead Agency:**	Monterey Peninsula Water Management District 5 Harris Court, Building G Monterey, California 93940
3.	**Contact Person:**	Larry Hampson, Tel: (831) 658-5620, larry@mpwmd.net
4.	**Project Location:**	The SHSRF is situated in unincorporated Monterey County at approximately river mile 17.5 on the west bank of the Carmel River (latitude: 36.443508, longitude: 121.715974), about 1 mile downstream of the former San Clemente Dam location.
5.	**General Plan Designation:**	Greater Monterey Peninsula Study Area
6.	**Zoning:**	Permanent Grazing or Farmland
7.	**Description of Project:**	Monterey Peninsula Water Management District (District) desires to upgrade the SHSRF in order to improve water supply intake reliability and improve intake water quality. The proposed upgrades are needed to address increases in sandy bed load in the Carmel River due to removal of the San Clemente Dam; provide water supply intake pump access; and improve in-stream intake screen reliability and maintenance. In addition, the District desires to install a partial water recirculation system that would allow the SHSRF to operate when river flows fall below 3 cfs and when sediment load is extraordinarily high during storm events. Proposed activities include relocating and installing an improved water intake and intake screen; relocating and improving water conveyance infrastructure (e.g., pumps and piping); installing a new partial water recirculation system; and improving the existing water cooling tower.
8.	**Surrounding Land Uses and Setting:**	With the exception of access roads, land uses surrounding the proposed project area are undeveloped and natural, consisting mostly of woodland, riparian, grassland, and shrub habitats.
9.	**Other Public Agencies Whose Approval is Required:**	• U.S. Army Corps of Engineers • National Marine Fisheries Service • U.S. Fish and Wildlife Service • Central Coast Regional Water Quality Control Board • California Department of Fish and Wildlife • Monterey County

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is potentially significant (after incorporation of mitigation measures) as indicated by the checklist.

☐ Aesthetics	☐ Agricultural and Forestry	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

3.2 Determination

On the basis of this initial evaluation:

☐ I find that the proposed subsequent activity could not have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

☐ I find that the subsequent activity may have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

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

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

Signature	Date
Printed Name	For

3.3 Evaluation of Environmental Impacts

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
    a. the significance criteria or threshold, if any, used to evaluate each question; and
    b. the mitigation measure identified, if any, to reduce the impact to less than significance.

3.3.1 Aesthetics

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☐	☒
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

3.3.1.1 Affected Environment

3.3.1.1.1 Regional Setting

The proposed project is located in the Carmel River Valley, approximately two miles south of the town of Carmel Valley. The region is in the foothills of the Santa Lucia Mountains, which are part of the Pacific Coast Range system. The Carmel River Valley is sparsely populated. The town of Carmel Valley (population 4,325 in 2013) is the furthest upstream populated place, approximately 2 miles northwest of the proposed project location. The city of Carmel-by-the-Sea (population 3,769 in 2013) is on the Pacific Coast at Carmel Bay, approximately 14 miles northwest of the proposed project location (U.S. Census 2013).

Carmel Valley Road (Monterey County Road G16) runs east from the coast and terminates in the Arroyo Seco, just west of the Salinas Valley. San Clemente Drive runs from Carmel Valley Road past the project area to the former San Clemente Dam location, and San Clemente Road, a short dirt road, runs from San Clemente Drive to the facility. Carmel Valley Road is a designated Scenic Road between Carmel-by-the-Sea and its intersection with San Clemente Drive, and is a proposed scenic highway from Carmel-by-the-Sea to its intersection with Sand Creek Road 20 miles southeast of the proposed project location.

3.3.1.1.2 Study Area Setting

The study area for the proposed project is located in Sleepy Hollow, set in an area of sparsely populated hills and valleys. Osborne Ridge is located to the west, Long Ridge is located to the south, and Tularcitos Ridge is located to the north and east.

The proposed project viewshed includes all areas within view of the facility to approximately 600 feet elevation. The steepness of the terrain and the vegetation in the area limit visibility beyond that approximate elevation from the valley floor. The proposed project viewshed includes Sleepy Hollow and a limited portion of San Clemente Drive (approximately 600 feet).

3.3.1.2 Impact Evaluation

Would the project:

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

   No Impact. The facility already exists at this location, which is not visible from or part of any identified scenic vista. Modifications to the facility would not change the setting. Therefore, there would be no impacts.

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

   No Impact. The proposed project location is not along an existing or proposed scenic road or highway. Therefore, there would be no impacts.

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

   Less than Significant Impact. The proposed project includes installation of infrastructure within both the Carmel River and upland areas. Visible components to be installed within the Carmel River include the new intake, intake screen, intake support base, bank protection, and a rock vane (if needed). Visible upland components

include the elevated cooling tower, elevated headbox, and new piping and control boxes for the improved intake and new partial recirculation system.

The proposed in-water components would replace and expand existing infrastructure within the channel. The new intake, concrete base, riprap, and rock vane (if needed) would be located within the lower portion of the active channel and would largely be concealed by river flows outside of the dry season. The intake base (9-foot diameter) and cone screen (6-foot diameter base and 4 feet high) would be visible in the river during dry periods. The proposed intake protection would include rock riprap below the existing riverbed elevation and a concrete box embedded into the river bank forming a short (3.5-foot) reinforced concrete wall up to the existing riverbed elevation with a visible surface area of about 35 sf (3.5 feet by 10 feet). Bank protection would extend from the toe of the existing riverbed up to a level of about the 2-year return flow (about 12 feet above the channel bottom). Other bank protection measures were considered but dismissed due in part to greater aesthetic impacts, including but not limited to a 10-foot concrete retaining wall. The bank protection proposed may be considered a degradation of the existing visual character at the site. However, the bank protection area will be re-vegetated with native riparian trees that will serve to reduce the visual impact from installation of riprap on the streambank. In addition, the aesthetic impact of this component of the proposed project would be consistent with the visual character of the site, which includes infrastructure essential to the operations of the SHSRF, which is located in an otherwise natural setting.

Upland improvements would have a negligible effect on the site's visual quality. The elevated cooling tower and elevated headbox would modify existing structures, and would be consistent with the existing visual character of the SHSRF. Similarly, new piping and control boxes would have similar visual impact as existing structures.

Proposed improvements may require vegetation removal, which would constitute a temporary aesthetic impact. Tree removal is addressed in the Biological Resources section. It is anticipated that any grasses, shrubs, or other groundcover disturbed by trenching or other construction activities would recolonize the area shortly after construction.

Under present conditions, in-water and upland improvements would only be visible to SHSRF visitors and the occasional boater in the winter.[2] In the future, however, most of the land near the SHSRF will be conveyed to the Bureau of Land Management and plans for public access to areas surrounding the facility are unknown at this time. The nearest public vehicular access would be a few miles away from the SHSRF and it is anticipated that any non-SHSRF personnel access to the area would be limited to very few hikers and the occasional boater in the future. Therefore, the relatively minor aesthetic impacts from the proposed project as compared to existing conditions at the facility would therefore be visible to very few individuals. Based on this analysis, the proposed project would have a less than significant impact on the existing visual character or quality of the site.

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

No Impact. No additional light or glare sources would be constructed as part of the proposed project. Therefore, daytime and nighttime views would remain unchanged, and there would be no impact.

[2] The Carmel River from Los Padres Dam to the Robles Del Rio area is rated a Class II to III recreational river run; however, even with the removal of San Clemente Dam in 2015, few boaters now make this run due to significant vegetation encroachment into the channel that makes the river extremely difficult and dangerous to navigate.

3.3.2 Agricultural and Forestry Resources

	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.3.2.1 Affected Environment

The Monterey County General Plan (Monterey County 2010) places the proposed project area in the Greater Monterey Peninsula Study Area, which is zoned as Farmland (160-acre minimum) in the General Plan. The statewide Farmland Mapping and Monitoring Program, however, does not designate the proposed project area as Prime Farmland, Unique Farmland,

or Farmland of Statewide Importance (FMMP 2012). There are no Williamson Act-contracted lands in the vicinity of the proposed project (Monterey County 2010). The proposed project location is currently not in agricultural cultivation or used as grazing land. It consists of maintained lawn around the facility structures, surrounded by forest (though, no part of the proposed project site or surroundings is zoned as timberland).

3.3.2.2 Impact Evaluation

Would the project:

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

   No Impact. There is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance in the proposed project area. Therefore, there would be no impact.

b. *Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?*

   No Impact. Continued use of the site as a steelhead rearing facility does not conflict with the existing zoning. There are no Williamson Act lands in the proposed project area. Therefore, there would be no impact.

c. *Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*

   No Impact. The proposed project would not conflict with or change any zoning or use of forest land, timberland, or timberland zoned Timberland Production. Therefore, there would be no impact.

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

No Impact. The proposed project would not result in the conversion of forest land or timberland. Therefore, there would be no impact.

e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The proposed project does not include any changes in land use, and would not result in any conversion of farmland or forest land. Therefore, there would be no impact.

3.3.3 Air Quality

		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e.	Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

3.3.3.1 Affected Environment

3.3.3.1.1 Regulatory Setting

The United States Environmental Protection Agency enforces federal air quality regulations. The federal Clean Air Act of 1970, amended in 1990, authorized the establishment of national health-based air quality standards, set deadlines for their attainment, and established actions required of areas that exceed these standards. Air agencies in areas that exceed the National Ambient Air Quality Standards (NAAQS) are required to develop state implementation plans to show how they would achieve the NAAQS. The U.S. Environmental Protection Agency's responsibility to control air pollution in individual states is primarily to review submittals of state implementation plans that are prepared by each state.

In California, the California Air Resources Board (CARB) prepares and enforces federally required state implementation plans in an effort to achieve and maintain NAAQS and

California Ambient Air Quality Standards (CAAQS), which were developed as part of the California Clean Air Act adopted in 1988. CAAQS for criteria pollutants are equal to or more stringent than NAAQS, and include other pollutants for which there are no NAAQS. In addition, CARB is responsible for assigning air basin attainment and nonattainment designations in California. Air basins are designated as being in attainment if the levels of a criteria air pollutant meet the CAAQS for the pollutant, and are designated as being in nonattainment if the level of a criteria air pollutant is higher than the CAAQS.

The proposed project is located in the Monterey Bay Unified Air Pollution Control District (MBUAPCD), the air district for the North Central Coast Air Basin (NCCAB) including Monterey, Santa Cruz, and San Benito counties. MBUAPCD maintains three air quality monitoring stations (Salinas, Monterey, and Mid-Carmel Valley) in Monterey County to measure air quality in the basin. MBUAPCD prepares air quality plans for NCCAB to comply with national and state standards that are used to assess potential air quality impacts. The MBAUPCD is responsible for regulating stationary, indirect, and area sources of pollution within the NCCAB.

NCCAB is in attainment for all NAAQS, and is classified as nonattainment for the CAAQS 24-hour and annual PM10 standards, and the CAAQS 1-hour and 8-hour ozone standards (MBUAPCD 2015). MBUAPCD is 1 out of 35 air quality management districts that have prepared Air Quality Management Plans to accomplish the 5% annual ozone reduction goal required by the California Clean Air Act.

The MBUAPCD-recommended thresholds for determining whether projects have significant adverse air quality impacts are provided in its CEQA Air Quality Guidelines (MBUAPCD, 2008). These thresholds are applied separately to construction and operational emissions.

MBUAPCD significance thresholds for construction are as follows:

- Construction activities such as excavation, grading, and onsite vehicle/equipment use that generate 82 pounds or more of PM10 would have a significant impact on local air quality when they are located nearby and upwind of sensitive receptors.

  - A construction site with minimal earthmoving activity would have potentially significant PM10 impacts when active construction covers 8.1 acres or more per day.
  - A construction site with earthmoving activity would have potentially significant PM10 impacts when active construction covers 2.2 acres or more per day.
  - A project with dust emissions exceeding 82 pounds per day in a region with nonattainment for PM10 would make a significant contribution to that condition.
- Construction activities involving typical construction equipment (defined by the MBUAPCD CEQA Guidelines as scrapers, tractors, dozers, graders, loaders, and rollers) that temporarily emit precursors of ozone (i.e., reactive organic gases or oxides of nitrogen) are accommodated in the emission inventories of state and federally required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS.
- Construction projects that may cause or substantially contribute to the violation of other State or National AAQS or that could emit toxic air contaminants that would present a substantial health risk to sensitive receptors could result in temporary significant impacts.

MBUAPCD significance thresholds for operations are shown in Table 3.

Table 3
MBUAPCD Significance Thresholds for Operation

Pollutant	Pounds per day
Volatile Organic Compounds (VOC)	137
Oxides of Nitrogen (NO_x)	137
Particulate Matter (PM10)	82
Carbon Monoxide (CO)	550
SO_x as SO_2	150

Source: Monterey Bay Unified Air Pollution Control District (MBUAPCD), CEQA Air Quality Guidelines 2008.

3.3.3.1.2 Environmental Setting

NCCAB's air quality is regulated by a limited local source of emissions, and by the overall marine character of the climate. A semi-permanent high pressure cell in the eastern Pacific is the basic controlling factor in the climate of the NCCAB. Air frequently flows in a southeasterly direction out of the Salinas and San Benito valleys in the NCCAB. The predominant offshore flow during this time of year tends to aid in pollutant dispersal producing relatively healthful to moderate air quality throughout the majority of the region. Winter daytime temperatures in the NCCAB average in the mid-50s °F during the day, with nighttime temperatures averaging in the low 40s °F. Summer daytime temperatures average in the 60s °F during the day, and nighttime temperatures average in the 50s °F. Precipitation varies within the region, but in general, annual rainfall is lowest in the coastal plain and inland valley, higher in the foothills, and highest in the mountains.

3.3.3.2 Impact Evaluation

Would the project:

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

Less than Significant Impact. A proposed project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds estimates used to develop applicable air quality plans. MBUAPCD has adopted and periodically revises an Attainment Plan that addresses PM10 and ozone emissions, and has air quality plans set in place to reduce emissions, meet, and maintain attainment status of the NAAQS and CAAQS. Construction activities involving typical construction equipment (defined by the MBUAPCD CEQA Guidelines as scrapers, tractors, dozers, graders, loaders, and rollers) that temporarily emit precursors of ozone (i.e., reactive organic gases or oxides of nitrogen) are accommodated in the emission inventories of state- and federally required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS. The proposed project would not result in changes in the local population or increase the inventory of mobile source emissions within MBUAPCD. Consequently, the proposed project would not conflict with or obstruct implementation of MBUAPCD's air quality plans. Therefore, the proposed project would result in less than significant impact.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction. Less than Significant Impact. Construction activities to be undertaken as part of the proposed project are minimal and include excavation for pipe trenches and water holding structures, constructing a small coffer dam in the river, excavation at the river bank, placement of a concrete base near the river bottom, and constructing a retaining wall at the river's edge. This work, estimated to take one month, would require periodic use of a medium-sized excavator, a dump truck, a rubber tire backhoe, a small roller compactor, and 10-ton crane for elevating the cooling tower at an isolated location not near sensitive receptors. The proposed project would result in minimal earthmoving activity over approximately 1 acre of land. Therefore, construction emissions would be less than MBUAPCD's significance thresholds and impacts would be less than significant.

Operation. Less than Significant Impact. The proposed project's goal is to maintain and improve SHSRF's ability to operate and contribute to the restoration and conservation of steelhead populations. The proposed project would increase operations at the facility. At least one daily trip by District staff is required to maintain the facility and vehicles for other operations and maintenance activities are occasionally required. The proposed project would therefore result in an increase in vehicle trips during years with extended operations; however, this increase is expected to be minor (on the order of several vehicles per day at the maximum). Operational sources of emissions include pumps and motors, all of which are powered by electricity; therefore, there would be no increases in local emissions. For these reasons, operational air quality impacts would be less than significant.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

Construction. Less than Significant Impact. Any project-level significant impacts would also be considered significant at the cumulative level. As discussed in checklist item (b), construction impacts were determined to be under MBUAPCD's significance thresholds and

impacts would be less than significant. Therefore, construction of the proposed project would not contribute to cumulative increases in criteria pollutants.

Operation. Less than Significant Impact. The proposed project would not significantly increase operations, including vehicular traffic, at the facility. Therefore, operation of the proposed project would not contribute to cumulative impacts.

d. *Would the project expose sensitive receptors to substantial pollutant concentrations?*

No Impact. The proposed project is located in a remote and isolated area. There are no sensitive receptors located in close proximity to the site; therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations from either construction or operations. Therefore, there would be no impact.

e. Would the project create objectionable odors affecting a substantial number of people?

No Impact. The proposed project would require minimal construction and would result in no change in operations. The proposed project is located in a remote and isolated area. There are no sensitive receptors located in close proximity to the site, therefore, the proposed project would not expose sensitive receptors to objectionable odors from either construction or operations. Therefore, there would be no impact.

3.3.4 Biological Resources

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

3.3.4.1 Affected Environment

The SHSRF is located along the 36-mile main stem of the Carmel River. The river's headwaters are in the Ventana Wilderness. The upper Carmel River is characterized by steep canyons and is relatively undeveloped. The lower 16 miles of river run through

moderate to highly developed areas along the alluvial valley before reaching the Carmel River Lagoon (Monterey Peninsula Water Management District 2009).

The SHSRF lies on the inside of a large meander on a stable gravel bar deposit, created by a canyon wall bedrock outcrop. This terrain creates an extensive backwater at high flows. The existing intake screen and pump structure is located in a riffle where the channel bottom is relatively narrow (about 15 feet). The proposed new intake is located near the upstream end of the large pool scoured out by the canyon wall outcrop. The channel and floodplain widths are variable along this 400-foot-long river segment. Streambank slopes are steep, varying from nearly 1:1 to a more gradual 2:1. The first overbank (or floodplain) area varies from about 8 feet at the head of the gravel bar to nearly 20 feet above the channel bottom in the pool area. The office and most of the rearing channel are located on a terrace that was likely last occupied by the river during the 1911 flood, which was estimated to be about 20,000 cfs at the facility.[3] Carmel River channel and floodplain data in the vicinity of the SHSRF are listed in Table 4.

Depth of flow in the channel adjacent to the Sleepy Hollow Facility is dependent on rainfall and runoff during the winter and spring and can be up to 10 feet deep. Flow is normally at its lowest during the proposed construction season (July 1 through October 31) and has normally ranged from about 2 feet at the existing intake to up to 5 feet at the proposed intake; however, due to sand transported out of the Carmel River Reroute project in the winter of 2015/2016, these depths are shallower, but may change by the time construction begins.

[3] The January 2006 Carmel River Flood Insurance Study (FIS) Hydrology Report shows an estimate of 12,100 cfs in a 100-year flood and 16,600 cfs in a 500-year return event for "Below San Clemente Dam." However, most previous studies by others have estimated a 100-year flood at the San Clemente Dam site to be in the 17,000 to 20,000 cfs range and a 500-year flood to be closer to 30,000 cfs. During the 1911 flood, the dam tender at the Old Carmel River Dam (Chinese Dam) reported that the gage was swept away at 18,000 cfs and the river continued to rise to an estimated flow of 20,000 cfs at the site. The report of the 1911 flood was not taken into account in the 2006 FIS Study.

Table 4
Carmel River Channel Widths Upstream and Downstream of the SHSRF Intake

Range of Channel Widths (General Locations)	Channel Width at 10 cubic feet/second (feet)	Channel Width at Top of Bank (feet)	Floodplain Width at 100-year Flood Event (feet)
Maximum Width (Downstream of Intake)	70	110	350
Average Width (Near the Intake)	30	85	250
Minimum Width (Upstream of Intake)	10	35	150

3.3.4.1.1 Habitat Communities

Habitat types at the SHSRF site were documented in a botanical assessment conducted in 1994 (Nedeff 1994). Site conditions today remain largely similar to the conditions observed during the 1994 assessment, as confirmed during a site visit conducted on May 22, 2015 (Anchor QEA 2015). Changes at the site since the 1994 survey include:

- Construction of the rearing channel and tanks, office building, cooling tower, roadway, and associated infrastructure within areas formerly covered by annual grassland vegetation
- Installation of the intake within the Carmel River.

Four plant communities typical of central California occur at the SHSRF: riparian forest, coastal sage scrub, coast live oak forest, and annual grassland. The proposed project site also includes freshwater riverine habitat in the Carmel River. These habitats and commonly associated wildlife species are described in the following paragraphs.

Riparian forest and scrub habitat are present along the bank of the Carmel River. The riparian forest along the Carmel River streambanks is dominated by white alder (*Alnus rhombifolia),* with occasional black cottonwood (*Populus balsamifera* ssp. *trichocarpa),* red willow (*Salix laevigata),* and arroyo willow (*Salix lasiolepis).* Understory species include mugwort (*Artemisia douglasiana),* bulrush (*Scirpus microcarpus),* poison oak (*Toxicodendron diversilobum),* and blackberry (*Rubus ursinus).* Immediately adjacent to the river, cattail (*Typha latifolia)* and several species of sedges (*Carex* spp.) and rushes (*Juncus* spp.) can be

found. Numerous sycamore (*Platanus racemose)* occur on higher floodplain topography, where areas of open cobbles and river boulders in the high flow channel are sparsely vegetated with riparian scrub species like California brickellbush (*Brickellia californica),* seep willow *(Baccharis salicifolia),* and several weedy species, including bush lupine (*Lupinus arboreus),* French and Scotch broom (*Cytisus monspessulanus* and *C. scoparius),* and fennel (*Foeniculum vulgare*; Nedeff 1994; Anchor QEA 2015). Typical riparian species in the Carmel watershed include western pond turtle (*Emys marmorata*), garter snakes (*Thamnophis* spp.), swallows, vireos, flycatchers, bats, and raccoon (*Procyon lotor*; CDWR and USACE 2008).

Within the wide floodplain terrace upland from the river, riparian forest transitions to annual grassland that is composed primarily of introduced, weedy species and a variety of forbs. Annual grasses identified include slender oat (*Avena barbata),* hair grass (*Aira caryophyllea),* ripgut grass (*Bromus rigidus),* and red brome (*Bromus rubens),* among others. Poison oak (*Toxicodendron diversilobum),* California wild rose (*Rosa californica),* slender buckwheat (*Eriogonum gracile),* and several species of everlasting (*Gnaphalium)* also occur. In several locations, dense stands of western bracken (*Pteridium aquilinum)* reach beyond the oak canopy into the grassland area (Nedeff 1994; Anchor QEA 2015*).* Common wildlife species typical of annual grassland habitat include western fence lizard (*Sceloporus occidentalis*), western rattlesnake (*Crotalus atro*x), turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), black-tailed jackrabbit (*Lepus californicus*), and coyote (*Canis latrans*; CDWR and USACE 2008).

Annual grassland habitat transitions to coast live oak forest within the south side of the SHSRF. Coast live oak forest is typified by a dense tree canopy dominated by coast live oak (*Quercus agrifolia*). Occasional California bay (*Umbellularia californica*) and buckeye (*Aesculus califomica*) occur. Where the forest extends onto the flat terrace, the open understory is composed primarily of grasses, sedges and western bracken, with widely scattered shrubs, including toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californica*), poison oak (*Toxicodendron diversilobum*), and both creeping and common snowberry (*Symphoricarpos mollis,* S. *albus*). Several species of fem were observed in well

shaded areas, with maidenhair (*Adiantum jordanii*), wood fern (*Dryopteris argute*), and goldback fern (*Pentagramma triangularis*) being common (Nedeff 1994; Anchor QEA 2015). Wildlife species characteristic of oak habitats include western fence lizard, western rattlesnake, western scrub jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), Botta's pocket gopher, and California ground squirrel (CDWR and USACE 2008).

Coastal sage scrub occurs in only a very small portion of the site northwest of the rearing channel outlet in the Carmel River. The steep, rocky slope bordering the terrace near the terminus of the fish rearing channel supports an open habitat of grasses and occasional shrubs and sub-shrubs. California sagebrush (*Artemisia californica),* coyote brush (*Baccharis pilularis* var. *consanguinea*), sticky monkey flower (*Mimulus aurantiacus*), California fuchsia (*Epilobium canum*), and black sage (*Salvia mellifera*) occur with annual grasses (Nedeff 1994; Anchor QEA 2015). A wide variety of wildlife use chaparral habitat; wildlife commonly found in this habitat type includes common kingsnake (*Lampropeltis getula*), California quail (*Callipepla californica*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird (*Calypte anna*), greater roadrunner (*Geococcyx californianus*), black-tailed jackrabbit, and coyote (CDWR and USACE 2008).

The most important fish species supported by the Carmel River are native steelhead. Other native populations supported by the Carmel River include Pacific lamprey *(Entosphenus tridentatus*), river lamprey *(Lampetra ayresi*), Sacramento hitch *(Lavinia exilicauda*), Sacramento blackfish (*Orthodon microlepidotus*), threespine stickleback *(Gasterosteus aculeatus*), prickly sculpin *(Cottus asper*), and coast range sculpin *(Cottus aleuticus;* MPWMD 1994). Introduced fishes found in the Carmel River include goldfish *(Carassius auratus*), carp *(Cyprinus carpio*), black bullhead *(Ictalurus melas*), brown trout *(Salmo trutta*), mosquitofish *(Gambusia affinis*), green sunfish *(Lepomis cyanellus),* and bluegill (*L. macrochirus*; MPWMD 1994). Striped bass (*Morone saxatilis*) continue to be a problem in the Carmel River lagoon and have been observed as far upstream as River Mile 6 in 2016. There are two non-native crayfish found in the Carmel River, the signal crayfish (*Pacifasticus leniusculus*) and red swamp crayfish (*Procambarus clarkii;* CDWR and USACE 2008).

3.3.4.1.2 Jurisdictional Waters, Wetlands, and Riparian Habitat

Portions of the proposed project site occur within the areas under the jurisdiction of the U.S. Army Corps of Engineers (USACE), Central Coast Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW). These agencies would provide project review in consideration of biological resources and water quality.

As determined in the Sleepy Hollow Wetland Delineation (Denise Duffy & Associates 2016; Appendix A), USACE jurisdictional wetlands are not present anywhere in the proposed project area, based on a lack of wetland vegetation and hydrology. Carmel River waters below the ordinary high water mark would qualify as jurisdictional waters of the U.S. and State, falling under the jurisdiction of the USACE and RWQCB. Improvements within the channel, channel banks, and adjacent riparian areas would also be subject to review and approval by CDFW and RWQCB. A small wetted area in the upper floodplain resulting from existing up-slope tank discharge via a 4-inch pipe may also qualify as waters of the State, which would be under the jurisdiction of the RWQCB; however, this area occurs outside of the proposed project footprint.

3.3.4.1.3 Special Status Wildlife Species

CNDDB identifies 25 special status (threatened or endangered under the federal Endangered Species Act or California Endangered Species Act or state species of special concern) wildlife species within the proposed project's study area, as identified through a search of the project quad and eight surrounding quads (Appendix B; CDFW 2015a). Potential species occurrence was determined based on habitat requirements and on-site conditions. These species are described in the following paragraphs. Additional discussion is provided for bird species protected under the Migratory Bird Treaty Act (MBTA) as well as protected raptors.

California Red-legged Frog (*Rana draytonii*). California red-legged frogs (CRLF) spawn in marshes, springs, natural and artificial ponds, slack water pools of rivers and streams (Jennings and Hayes 1994; Hayes and Jennings 1988, Stebbins 2003), and tidally influenced freshwater marshes (Smith and Reis 1996). Typical spawning pool habitat includes moderately deep water (to 1.25 meter in depth), dense bordering and emergent vegetation (e.g., tules [*Scirpus* sp.], cattails [*Typha*], sedges and rushes [*Carex* and *Juncus*]), and willows

(*Salix* spp.), mud or silt substratum, nearly full to full sun exposure, and abundant forage for adults and tadpoles including benthic and suspended algae, benthic macroinvertebrates, and small terrestrial vertebrates such as tree frogs and mice (Jennings and Hayes 1994). Adult CRLF may remain nearly all year along the margins of suitable spawning habitat, but during the summer in many regions adult frogs may move from sunlit spawning pools to well-shaded streams with bank undercuts and exposed root masses (USFWS 2003).

CRLF was recorded in the steelhead rearing channel at the SHSRF in April 2010. There are additional recorded observations within a mile both upstream and downstream of the facility on the Carmel River (CDFW 2015a). The proposed project site is within designated CRLF critical habitat (USFWS 2015a).

Townsend's Big-eared Bat *(Plecotus townsendii townsendii)*. Townsend's big-eared bat populations are widely distributed throughout California; its habitats include coastal forests and woodlands. Big-eared bats primarily use caves, but are also known to use mines, tunnels, barns, attics, and abandoned buildings that mimic cave environments. This species is most common in moist habitats (CDWR and USACE 2008). There are no recorded occurrences of this species within the project quadrangle or within a 2-mile radius of the proposed project site (CDFW 2015a). If left unused or abandoned, structures such as the cooling tower or office building may provide suitable roosting habitat for this species.

Western Red Bat *(Lasiurus blossevillii).* The western red bat roosts primarily in trees, less often in shrubs. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Preferred roost sites are protected from above, open below, and located above dark ground-cover. The western red bat generally prefers edges or habitat mosaics that have trees for roosting and open areas for foraging (Zeiner 1988-1990). There are no recorded occurrences of this species within the project quadrangle or within a 2-mile radius of the proposed project site (CDFW 2015a). Trees at the SHSRF site may provide suitable roosting habitat for this species.

Monterey Dusky-footed Wood Rat (*Neotoma fuscipes*). The Monterey dusky-footed wood rat is common to abundant in deciduous and evergreen woodland habitats that provide dense overstory and understory cover. It can also be commonly found in chaparral, coastal scrub,

and riparian habitats. Wood rats build houses of sticks, bark, leaves, and other forest debris at the base of, or within the canopy of a shrub, tree, or other structure (CDWR and USACE 2008). Although oak woodland, riparian, and scrub habitat at the project site may be suitable for the Monterey dusky-footed wood rat, there are no recorded occurrences of this species within the project quadrangle or within a 2-mile radius of the proposed project site (CDFW 2015a).

South Central California Coast DPS Steelhead (*Oncorhynchus mykiss*). Steelhead are the anadromous, or ocean-going, form of the species Oncorhynchus mykiss. The life cycle of steelhead generally involves rearing in freshwater for one to three years before migrating to the ocean, and spending from one to four years maturing in the marine environment before returning to spawn in freshwater (NMFS 2013). Steelhead are capable of surviving in a wide range of temperature conditions. They do best where dissolved oxygen concentration is at least 7 parts per million. In streams, deep low-velocity pools are important wintering habitats. Spawning habitat consists of gravel substrates free of excessive silt (NMFS 2015). The South Central California Coast DPS is comprised of a suite of steelhead populations that inhabit coastal stream networks from the Pajaro River south to, but not including, the Santa Maria River (NMFS 2016).

The Carmel River contains extensive and well-documented South Central California Coast DPS steelhead habitat, and the purpose of the SHSRF is to promote survivorship of steelhead individuals and the species itself.

Western Pond Turtle (*Emys marmorata*). The western pond turtle is associated with permanent or nearly permanent water in a wide variety of habitat types throughout California. Individuals normally associate with permanent ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams. Pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. A small population of western pond turtles lives on the right (east) bank of the Carmel River, upstream of the Sleepy Hollow Ford, about 1,000 feet from the SHSRF (Chaney 2016). The next nearest western pond turtle occurrence was recorded on San Clemente Creek approximately 1.5 miles southwest of the SHSRF site in July 1993 (CDFW 2015a); western pond turtles have also been frequently observed along the Carmel River (CDWR and USACE

be suitable for the western pond turtle, there have been no recorded occurrences of this species at the site.

Coast Horned Lizard (*Phrynosoma coronatum*). The coast horned lizard occurs in valley-foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper, and annual grassland habitats. They especially inhabit sandy areas, washes, flood plains, and wind-blown deposits (Zeiner 1988-1990). Although riparian and grassland habitat at the SHSRF site may be suitable for the coast horned lizard, there are no recorded occurrences of this species within the project quadrangle or within a 2-mile radius of the site (CDFW 2015a).

Two-striped Garter Snake (*Thamnophis hammondii*). The two-striped garter snake is highly aquatic and normally found in the immediate vicinity of permanent or semi-permanent sources of water. During the day, this garter snake often basks on streamside rocks or on densely vegetated stream banks (Zeiner 1988-1990). There are no CNDDB recorded occurrences of this species within the project quadrangle or within a 2-mile radius of the proposed project site (CDFW 2015a), although two-striped garter snakes were observed in the Carmel River arm of San Clemente Reservoir during the 2003 and 2005 drawdowns (CDWR and USACE 2008). Habitat at the SHSRF site and throughout the Carmel River area above San Clemente Reservoir appears to offer suitable habitat for this species.

Protected Birds. The proposed project site may provide habitat to bird species protected by the Migratory Bird Treaty Act (MBTA), including but not limited to tricolored blackbird, Swainson's hawk, turkey vulture, American kestrel, swallows, vireos, flycatchers, jays, acorn woodpecker, Bewick's wren, greater roadrunner, and burrowing owl. The MBTA prohibits the taking, killing, trading, or possessing of migratory birds. This includes disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young). Raptors are provided additional protection under California Fish and Game Code, Sections 3503, 3503.5, 3505 and 3513, and California Code of Regulation, Title 14, Sections 251.1, 652 and 783-786.6. The word "raptor" is the term used for a group of birds consisting of hawks, falcons, kites, eagles, vultures, and owls. These regulations prohibit take or harassment of raptors, raptor nests, and raptor eggs.

Special Status Plant Species. There are 34 plant species considered rare, threatened, or endangered by the California Native Plant Society (CNPS; a CNPS Rank 1 or 2 species) with recorded occurrences in the vicinity of the proposed project, as identified through a search of the project quad and eight surrounding quads (Appendix C). Botanical surveys of the SHSRF site have not occurred since the 1994 survey. Of the 34 CNPS Rank 1 or 2 species with recorded observations in the vicinity of the site, five are state or federal threatened or endangered: Monterey spineflower (*Chorizanthe pungens var. pungens*; federal threatened), seaside bird's-beak (*Cordylanthus rigidus ssp. littoralis*; state endangered), Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*; federal endangered and state threatened), Contra Costa goldfields (*Lasthenia conjugens*; federal endangered), Yadon's rein orchid (*Piperia yadonii*; federal endangered). Due to the lack of suitable habitats at the SHSRF site (e.g., dunes, coniferous forest, vernal pools), none of these state or federal threatened plant species have the potential to occur within the proposed project area.

3.3.4.2 Impact Evaluation

Would the project:

a. *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Effects on Habitat

As described in Section 3.3.4.1, several special status species and their habitats may occur within the study area. The proposed project would result in permanent and temporary impacts to aquatic, riparian, and terrestrial habitats within the study area, which may in turn affect associated special status species. The following section describes permanent habitat impacts related to the proposed project, including proposed mitigation measures.

Aquatic and Riparian Habitat. Less than Significant Impact after Mitigation. The proposed project includes placement of fill over an area of 1,530 sf (0.035 acre) below the ordinary

high water mark, which would affect aquatic and riparian habitat suitable for special status species. This includes:

- 936 sf (0.021 acre) from placement of riprap in the channel bed to underlay, support, and surround the new intake cone screen and concrete base and to construct the proposed rock vane (if needed)
- Approximately 500 sf (0.011 acre) from placement of the embedded concrete box and rock riprap at 2:1 slope for bank protection
- Placement of the proposed intake screen and concrete base, which would occur over an area of 64 sf (less than 0.002 acre)
- Removal and backfill of the existing intake screen, which currently occupies 30 sf (less than 0.001 acre) of streambed.

An additional 20 sf of channel bank would also be affected by removal of the existing pump station. Bed excavation may also require removal of riparian vegetation.

Although placement of 1,436 sf of rock riprap within the channel bed and bank could constitute a permanent change to existing conditions, this alteration of the Carmel River channel is not anticipated to significantly degrade aquatic habitat in the long-term or change channel dynamics. Native river rock removed during excavation would be reused and spread over new riprap about 6 inches thick to restore the native bed and bank material and fill voids in the riprap surface. Placing native material on the channel will initially restore a more natural gradation in the river bottom. It is expected that this material may move downstream during high flows, but bedload material contributed from the 80-square-mile watershed above the site will likely re-populate the channel bottom in the project reach.[4] Thus, roughness (or shear stress) in the reach is not likely to change. The purpose of a rock vane at the new screen would be to redirect sediment (mostly sand) that is rolling and saltating down the channel away from the screen; however, this would not alter sediment transport through the reach over the long term.

[4] Mussetter Engineering, Inc., estimated that 576 acre-feet of bedload will pass the former San Clemente Dam site over a 41-year period modeled with a HEC-6T sediment transport model. A portion of the material transported into the Sleepy Hollow reach will be similar to material washed out of the site. See Chapter 4 – Hydrology in the Final EIR/EIS for the San Clemente Dam Seismic Safety Project, January 2008.

Permanent alteration of the streambed over an area of 64 sf (less than 0.002 acre) would also occur from installation of the proposed intake screen and associated concrete base, although these impacts would be partially offset through removal of the existing 30 sf intake screen from the channel bottom, resulting in a net loss of 34 sf (less than 0.001 acre) of streambed. The intake cone screen and concrete base would affect a relatively small amount of cross-sectional flow area (about 23 sf). A 10-year flood event has about 960 sf of flow area, whereas a 100-year flow event has more than 2,000 sf of flow area. At the screen location, the top width of the 10-year flow is estimated at 270 feet and is about 350 feet at the 100-year flow. Hydraulic modeling indicates that obstructing 23 sf of flow area could result in a water surface elevation rise of about 0.08 foot in a 10-year flow (5,700 cfs), and an imperceptible amount of rise in a 100-year flow (12,100 cfs); however, there are no habitable structures that would be affected and changes in water surface elevation would have no impact on any river function. During the 2-year and 5-year return flows, water surface elevation could increase slightly more, to an estimated 0.10 foot; however, at these flows this increase would have no impact. At the dry season low flow level, when flows are expected to be in the range of 4 to 10 cfs, diversion may result in a slight depression of the water surface in the immediate vicinity of the cone screen at the maximum diversion rate of 3 cfs (note that the rearing channel discharges to the pool where the screen is located).

The pool in the immediate area surrounding the proposed intake location may provide deep water aquatic habitat, but the proposed concrete base would only reduce the pool area by about 2% and the pool volume by less than 2% (at low flow). In addition, removal of the existing intake screen would increase the area for aquatic food production, as it is located in relatively fast moving water in a riffle.

The combination of rock vane and concrete base to support the screen could influence the transport of sediment and woody debris past the intake. Improvements have been designed to encourage sediment and debris to pass through the channel without collecting at or near the screen. There could be short-term effects from deposition; however, flow velocity at the site during winter flows and the persistence of a large scour pool immediately downstream of the intake indicate that any deposition of material due to installation of the intake screen and rock vane would be temporary. Average velocity in the channel during a 10-year flow event (5,700 cfs peak) is about 8 feet per second, which is more than adequate to move any material

deposited near the screen at low flows. A scour analysis at high flows (100-year event) indicates that bed scour depths could approach 6 feet.

In order to mitigate for potential impacts to 34 sf of streambed from installation of the new screen, the proposed project includes implementation of mitigation measure BIO-MM-1.

- **BIO-MM-1:** Placement of anchored large wood would be proposed as mitigation for loss of streambed, if required by permitting agencies. Anchored large wood would be placed at a suitable location in the Carmel River to enhance habitat value for aquatic species as mitigation for any loss of streambed habitat. Large wood will be partially buried and anchored in the streambank nearby and downstream of the intake facility. Suitable wood material, such as redwood, Douglas fir, pine, or other suitable material would be used. An approximately 15- to 20-foot piece of large wood, preferably with a rootball attached, with a diameter of 24 inches or more, would be cabled and anchored into the streambank to counteract sliding and buoyancy forces. The structure would form the nucleus for complex habitat to develop in the channel bottom in the vicinity of the structure. Placement of large wood would occur per the methods detailed in the National Large Wood Manual (USBR and USACE 2016).

Given the negligible reductions (less than 0.002 acre) in native streambed and pool areas, the availability of other pools, riffles, and runs within a short distance from the intake site, and with implementation of mitigation measure BIO-MM-1, impacts to aquatic streambed habitat from the proposed project would be less than significant.

For all impacts to waters of the U.S. and State, the proposed project will undergo review in accordance with the Clean Water Act (CWA), federal Endangered Species Act (ESA), the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), Section 1600 of the California Fish and Game Code prior to construction, and the California Endangered Species Act (CESA). Any additional measures required to minimize impacts on aquatic habitat by the permitting agencies would be integrated into the project's Mitigation Monitoring and Reporting Plan (MMRP; Appendix D). A comprehensive list of permitting agencies is included in Section 3.

Bank protection (placement of the embedded concrete box and rock riprap at a gentle 2:1 slope over an area of 500 sf) and removal of the existing pump station (area of 20 sf) would additionally require removal of native riparian vegetation during excavation. Loss of riparian vegetation has the potential to temporarily degrade habitat value for species associated with riparian and aquatic habitats; riparian vegetation provides a host of environmental benefits, including regulating water temperatures and serving as a food resource. As with riprap in the channel bed, riprap placed on slopes would be covered in native material following placement. Material placed on the streambank provides a medium for riparian vegetation to root in and helps retain moisture. It is anticipated that native vegetation would recolonize voids in the bank protection riprap following construction. Similarly, the area of the existing pump station proposed for removal would be likely be recolonized with native riparian vegetation. The proposed embedded concrete box would replace native bank with a concrete vertical face over a relatively small area (less than 3.5 feet in height by 10 feet in length), which would not constitute a significant impact given the small area of change. The majority of impacts to streambank and riparian habitat are therefore anticipated to be temporary, including associated indirect impacts to adjacent riverine habitat, such as from loss of shading. Understory vegetation would likely become established soon after construction, although riparian trees may take longer to establish. In order to ensure successful recolonization of riparian trees, and to mitigate for the effects of riparian tree removal from construction, the proposed project includes implementation of mitigation measure BIO-MM-2.

- **BIO-MM-2:** Prior to construction, a qualified botanist or riparian specialist would identify and record the number, type, and size of trees to be removed or trimmed. Replacement planting for riparian trees would occur at a ratio determined through consultation with permitting agencies.

Therefore, with implementation of mitigation measure BIO-MM-2, the proposed project would result in less than significant impacts to streambank and riparian habitat which may be valuable to special status species.

As with impacts to streambed, any additional measures to minimize impacts on riparian habitat required by CDFW, USACE, and RWQCB through the permitting process would be

integrated into the project's Mitigation Monitoring and Reporting Plan (MMRP; Appendix D).

Terrestrial Habitat. Less than Significant Impact after Mitigation. Upland site work would affect grassland and woodland habitats and has the potential to affect special status species associated with these habitats. Upland improvements include pipe trenches, water holding structures, the sediment settling basin, the reuse pump station, and the head tank. These activities would require work in annual grassland and coast live oak understory habitat. Trench excavation for the intake pipe and overflow drain would temporarily impact a total area of approximately 6,480 sf. Pipe and utility features would be installed in common trenches and situated in existing roads where possible. Trees would be avoided wherever possible and excavated material would be placed back into any trenches. In addition, excess native material excavated to construct the settling basin, filters, pumps, river water intake pump station, and valve vault would be spread over an approximately 5,000 sf area of annual grassland. Grassland and understory vegetation removed during trenching is likely to rapidly recolonize following construction, and areas where excess native excavation is spread would similarly revegetate. Therefore, effects from trenching and spread of native excavated material are temporary and negligible.

Permanent loss of upland habitat would occur from installation of the settling basin, filters, pumps, intake pumps and screen controls, river water intake pump station and valve vault, above ground head tank, and dissolved gas conditioning tower. These improvements would permanently displace a maximum total area of 3,000 sf of annual grassland and 200 sf of coast live oak forest habitat. This permanent loss of upland habitat suitable for terrestrial special status species would be small in area, and extensive areas of high quality and similar habitat is available in the surrounding areas. Any unavoidable loss of oak trees that may degrade terrestrial habitat would be mitigated through implementation of mitigation measure BIO-MM-3.

- **BIO-MM-3**: Any oak tree removal will occur in compliance with the Monterey County Oak Preservation Ordinance. The ordinance requires a permit for removal of oaks greater than 6 inches in diameter in most sections of the county, and 1:1 replacement. Removal of more than 3 protected trees per lot per year requires a Forest Management Plan, Use Permit, and is subject to CEQA. Monterey County will

be the regulatory authority responsible for oversight of the replacement of the oak trees.

Any oak trees planned for removal under the proposed project would be assessed for sudden oak death. If trees are found to have the disease, the District will implement additional measures to prevent spreading the disease and will replace the lost oaks with species that are resistant to sudden oak death.

With implementation of mitigation measure BIO-MM-3, the proposed project would result in less than significant impacts to terrestrial habitat that may be valuable to special status species.

Effects on Species

The following paragraphs provide a discussion of potential impacts to special status species that may be affected by the proposed project. As described above, mitigation measures BIO-MM-1 through BIO-MM-3 would be implemented to address long-term impacts to aquatic, riparian, and terrestrial habitats that may be used by a variety of special status species.

For all potentially affected special status species and habitats, the proposed project will undergo future review in accordance with the federal Endangered Species Act (ESA) and California Endangered Species Act (CESA) prior to construction. Upon completion of these consultations and reviews, any additional measures required to minimize impacts on these species by the U.S. Fish and Wildlife Service (USFWS), NMFS, or CDFW, or implemented through permits issued by the USACE or RWQCB, would be integrated into the project's Mitigation Monitoring and Reporting Plan (MMRP; Appendix D).

Steelhead. Less than Significant after Mitigation. Steelhead are known to occur in the Carmel River, and the Carmel River is within designated critical habitat for this species. Project construction would occur during the low flow period of the Carmel River, outside of the adult and juvenile steelhead migration season. However, juvenile and young-of-the-year steelhead may be present during the construction period, and could be directly impacted during construction if not relocated to another site. This includes impacts from direct take of

juvenile and young-of-the-year steelhead during in-water construction activities, including excavation, placement of material, and dewatering (dewatering would occur over an area of approximately 3,480 sf and 87 linear feet of streambed). If improperly managed, construction may also result in erosion or hazardous material spills that could adversely affect aquatic and steelhead habitat. Implementation of mitigation measures BIO-MM-4 through BIO-MM-6 would ensure that significant construction impacts to steelhead during construction are avoided.

- **BIO-MM-4:** To avoid impacts to water quality and aquatic habitats, erosion control BMPs would be developed and implemented to minimize any wind- or water-related erosion and would comply with permitting agency requirements. Protective measures would include the following, at a minimum:
  - No discharge of pollutants from vehicle and equipment cleaning would be allowed into any storm drains or watercourses.
  - Vehicle and equipment fueling and maintenance operations would be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities.
  - Spill containment kits would be maintained on site at all times during construction operations and/or staging or fueling of equipment.
  - Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting would be installed along or at the base of slopes during construction to capture sediment.
  - Graded areas would be protected from erosion using a combination of silt fences, fiber rolls, or other similar protection along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.
  - A speed limit of 15 miles per hour in the project footprint in unpaved areas would be enforced to reduce dust and excessive soil disturbance.
  - All food and food-related trash items would be enclosed in sealed trash containers and properly disposed of off site.
  - Pets would not be allowed within the work area or environmentally sensitive areas.

  - No firearms would be allowed on the project site except for those carried by authorized security personnel or local, State, or federal law enforcement officials.
  - A Spill Response Plan would be prepared. Hazardous materials (e.g., fuels, oils, or solvents) would be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.

- **BIO-MM-5:** Prior to the start of construction, a qualified biologist would conduct an educational training program for all construction personnel. The training would include, at a minimum, a description of the species identified as potentially present in Appendix B; an explanation of the status of these species and protection under federal or State laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the environmentally sensitive areas and wildlife exclusion fencing and the importance of maintaining these structures. A fact sheet conveying this information would be prepared and distributed to all construction personnel. Upon completion of the program, personnel would sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the ESA and CESA.
- **BIO-MM-6**: The following project design or avoidance measures would be implemented to avoid construction impacts to steelhead:

  - Monterey Peninsula Water Management District (MPWMD) staff trained in steelhead relocation would remove and relocate any steelhead within construction areas that are to be dewatered.
  - Pumps or bypass pipes required during dewatering would be screened as appropriate to avoid entrainment of steelhead.
  - Turbid water pumped from in-channel sites would be discharged onto adjacent gravel bars and not directly into the river.

As described in the preceding section, impacts within the Carmel River are anticipated to be temporary and minimal, and are thus also unlikely to result in permanent adverse impacts to steelhead or their habitat. There would be temporary adverse impacts to both steelhead and their habitat. Although rock riprap would be placed over an area of approximately 1,436 sf of streambed and bank, placement of native channel material over rock riprap would ensure

that roughness (or shear stress) in the reach is not likely to change, and the post-project streambed would be similar to existing conditions. Similarly, the project is not anticipated to result in significant changes to sediment deposition rates.

While net loss of 34 sf of streambed would occur from installation of the proposed intake screen and associated concrete base, the pool in the immediate area surrounding the proposed intake location is not suitable for steelhead spawning and does not produce food, but may be suitable for fish trying to occupy deep water habitat. It is estimated that the concrete base would reduce pool area by about 2% and volume by less than 2% (at low flow). To mitigate for these aquatic habitat impacts, the project includes implementation of mitigation measure BIO-MM-1.

Loss of riparian trees and understory vegetation has the potential to adversely affect steelhead; riparian vegetation provides a host of environmental benefits, including regulating water temperatures and serving as a food resources. As described, it is anticipated that native understory vegetation would rapidly recolonize riparian areas disturbed during construction. Implementation of mitigation measure BIO-MM-2 would ensure successful recolonization of riparian trees, and would address associated effects on steelhead from loss of riparian trees.

Therefore, with incorporation of mitigation measures BIO-MM-1, BIO-MM-2, BIO-MM-4, BIO-MM-5, and BIO-MM-6, the proposed project would result in less than significant impacts to steelhead and steelhead critical habitat.

California Red-legged Frog, Western Pond Turtle, and Two-striped Garter Snake. CRLF has been observed in the steelhead rearing channel at the SHSRF, and is known to occur in aquatic and riparian habitats in the project vicinity. The project reach is also within designated CRLF critical habitat. Clearing, grubbing, excavation, and grading within the project footprint could inadvertently harm or take CRLF.

Western pond turtles and two-striped garter snakes are also known to occur in the watershed, and aquatic and riparian habitats in the project site may be suitable for these species. Similarly to CRLF, clearing, grubbing, excavation, and grading within the project footprint could inadvertently harm or take these species.

BIO-MM-7 would be implemented to avoid construction impacts to these species.

- **BIO-MM-7:** The following project design or avoidance measures would be implemented to avoid construction impacts to amphibious special status species:
  - Seasonal Avoidance. Work would be limited to the work window for steelhead, from June 1 through October 31, or as required by consultations with permitting agencies. Work outside of the channel or at other times of the year would be carried out in consultation with permitting agencies.
  - Wet Weather Restrictions. No work would occur during or within the 24 hours following a rain event exceeding 0.2-inch as measured by Cal-Am at the former San Clemente Dam site.
  - Environmentally Sensitive Areas. Prior to the start of construction all environmentally sensitive areas, defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed, would be clearly delineated. Construction work areas include the active construction site and all areas providing support for the proposed action (e.g., areas used for vehicle parking, equipment and material storage and staging, and access roads). Delineation of the environmentally sensitive areas would remain in place throughout the duration of the active construction phase and would be regularly inspected and fully maintained at all times.
  - Wildlife Exclusion Fencing. Prior to the start of construction and after wildlife surveys have been completed, MPWMD, in consultation with permitting agencies, will determine if wildlife exclusion fencing is to be installed within the project footprint, including access road and staging areas. If the fencing is necessary, it would comprise a material that frogs, turtles, or snakes cannot climb or traverse and be a minimum of 36 inches tall, with the bottom edge buried a minimum of 4 inches deep. The fencing would be backfilled with soil, sand bags, or other means to prevent CRLF, western pond turtles, or two-striped garter snakes from passing underneath the fence and entering the project site. Vegetation would be cleared within 18 inches of either side of the fence and remain clear while the fence is operational to prevent species from using vegetation to gain access to the project site by climbing over the fence. The wildlife exclusion fencing would remain in place throughout the construction

phase of the project, and would be regularly inspected and fully maintained. Upon project completion, the fencing would be completely removed, and the area cleaned of debris and trash and returned to natural conditions.

- Proper Use of Erosion Control Devices. To prevent CRLF, western pond turtle, or two-striped garter snake from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting would not be used within the project area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.
- Avoidance of Entrapment. To prevent inadvertent entrapment during construction, all excavated steep-walled holes or trenches more than 1 foot deep would be covered with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The biological monitor would inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled.
- Preconstruction Surveys. Preconstruction surveys would be conducted by a qualified biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing. The qualified biologist or biological monitor would conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring.
- Species Observation and Stop Work Authority. If individuals of CRLF, western pond turtles, or two-striped garter snakes are encountered, work activities within 50 feet of the individual must cease immediately and the on-site construction supervisor notified. Based on the professional judgment of the on-site biologist, if project activities can be conducted without injuring or killing the individual, it may be left at the location of discovery and monitored by the biologist. All project personnel would be notified of the finding and at no time would work occur within 50 feet of the animal without a qualified biologist present. Capture and relocation would only be allowed if directed by the USFWS or CDFW.

Loss of streambed habitat suitable for aquatic or amphibious species would be mitigated for through implementation of mitigation measure BIO-MM-1. As described previously, it is

anticipated that native understory vegetation would rapidly recolonize voids in the bank protection riprap following construction. Similarly, the area of the existing pump station proposed for removal would be likely be recolonized with native riparian vegetation. The proposed project also includes implementation of mitigation measure BIO-MM-2, which includes replacement planting of riparian trees. The majority of impacts to riparian and amphibious species habitat are therefore anticipated to be temporary. The proposed embedded concrete box would replace native bank with a concrete vertical face over a relatively small area (less than 3.5 feet in height by 10 feet in length), which would have a negligible effect on habitat for CRLF, western pond turtle, or two-striped garter snake. Therefore, with incorporation of mitigation measures BIO-MM-1, BIO-MM-2, BIO-MM-4, BIO-MM-5, and BIO-MM-7, the proposed project would result in less than significant impacts to CRLF, western pond turtle, or two-striped garter snake; and less than significant impacts to CRLF critical habitat.

Coast Horned Lizard. Less than Significant after Mitigation. The coast horned lizard may be present in riparian or grassland habitat within the proposed project area. Clearing, grubbing, excavation, and grading within the project footprint could inadvertently harm or take coast horned lizards. Implementation of mitigation measures BIO-MM-4, BIO-MM-5, and BIO-MM-8 would minimize the potential for take or injury to coast horned lizards.

- **BIO-MM-8:** The following project design or avoidance measures would be implemented to avoid construction impacts to coast horned lizard:
  - Minimize habitat disturbance. Excavation within upland habitat would be the minimum required to complete the proposed improvements. To minimize surface disruption, pipe and utility features would be installed in common trenches and situated in existing roads where possible.
  - Preconstruction surveys and relocation. Preconstruction surveys would be conducted by a qualified biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing. The qualified biologist or biological monitor would conduct daily clearance surveys when construction activities are occurring. Any coast horned lizards encountered would be relocated away from the work area by a qualified biologist.

Project impacts to riparian and terrestrial habitats are unlikely to adversely affect coast horned lizards. Riparian understory, grassland, and upland understory vegetation is expected to rapidly recolonize following construction. Loss of riparian trees would be mitigated for through implementation of mitigation measure BIO-MM-2, and loss of oak trees would be mitigated for through implementation of mitigation measure BIO-MM-3. Any permanent loss of terrestrial habitat suitable for special status species would be small in area (maximum of 3,000 sf of grassland and 200 sf of coast live oak habitat), and extensive areas of high quality and similar habitat is available in the surrounding areas.

With incorporation of mitigation measures BIO-MM-2, BIO-MM-3, BIO-MM-4, BIO-MM-5, and BIO-MM-8, the proposed project would result in less than significant impacts to the coast horned lizard.

Monterey Dusky-footed Woodrat. Less than Significant after Mitigation. Oak woodland, riparian, and scrub habitat at the proposed project site may be suitable for the Monterey dusky-footed wood rat. Clearing, grubbing, excavation, and grading within the project footprint could inadvertently harm or take Monterey dusky-footed woodrats. Implementation of mitigation measures BIO-MM-4, BIO-MM-5, and BIO-MM-9 would ensure that significant construction impacts to Monterey dusky-footed woodrats during construction are avoided.

- **BIO-MM-9:** A pre-construction survey would be conducted in and adjacent to the limits of grading to identify any woodrat nests that could be impacted by project activities. All nests would be mapped and flagged in the field. If nests are encountered, the following measures would be implemented:
  - Nest Protection. To the extent feasible, woodrat nests would be avoided during construction. If the nest can be avoided, it would be isolated from the work zone by installation of environmentally sensitive area fencing.
  - Nest Removal – Non-Breeding Season. If a woodrat nest is detected in the work zone and it cannot be avoided, site clearing would be performed during the non-breeding season (i.e., September 1 through November 30). During the non-breeding season, the nest would be disassembled by hand and the nest materials (e.g., sticks) moved outside the project footprint. Any adult animals

present would be permitted to disperse into adjacent habitat. This work may only be performed by a qualified biologist in coordination with the CDFW.

- Nest Removal – Breeding Season. If site clearing must proceed during the breeding season (i.e., December 1 through August 31), it will be necessary to determine whether or not the nest is occupied. This may be done by direct observation over the course of at least two evenings no more than 48 hours prior to nest disassembly. Direct observation may consist of installation of camera traps at the nest or by a biologist on the ground. If no animals are observed, the nest may be disassembled by hand. If, during the process of disassembling the nest, live animals are encountered, nest materials would be replaced on top of the nest and the effort abandoned. The nest may not be disassembled if young woodrats are present. Construction must then be postponed until the end of the breeding season when juveniles are able to survive on their own.

Project impacts to riparian and terrestrial habitats are unlikely to adversely affect Monterey dusky-footed wood rats. Riparian understory, grassland, and upland understory vegetation is expected to rapidly recolonize following construction. Loss of riparian trees would be mitigated for through implementation of mitigation measure BIO-MM-2, and loss of oak trees would be mitigated for through implementation of mitigation measure BIO-MM-3. Any permanent loss of terrestrial habitat suitable for special status species would be small in area (maximum of 3,000 feet of grassland and 200 sf of coast live oak habitat), and extensive areas of high quality and similar habitat is available in the surrounding areas.

With incorporation of mitigation measures BIO-MM-2, BIO-MM-3, BIO-MM-4, BIO-MM-5, and BIO-MM-9, the proposed project would result in less than significant impacts to the Monterey dusky-footed woodrat.

Special Status Birds. **Less than Significant After Mitigation**. The proposed project site may provide nesting or foraging habitat to MBTA protected bird or protected raptor species identified in the affected environment section. Project construction may temporarily interrupt special status bird species foraging within the project area. However, given the short duration of construction and expansive availability of suitable foraging habitat within surrounding areas, this impact would be less than significant. Clearing and grubbing of

vegetation or tree removal and pruning have the potential to disturb nesting birds, if present. Implementation of mitigation measures BIO-MM-5 and BIO-MM-10 would ensure that significant construction impacts to special status birds during construction are avoided.

- **BIO-MM-10:** The following project design or avoidance measures would be implemented to avoid construction impacts to special status bird species:
  - If clearing, grubbing, and tree removal or pruning are to be conducted outside of the breeding season (i.e., September 1 through January 31), no preconstruction surveys for nesting migratory birds would be necessary.
  - If clearing, grubbing, and tree removal or pruning are to be conducted during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey would be conducted. The survey would be performed by a qualified biologist no more than 2 weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 92 m (300 feet) for raptors and 31 m (100 feet) for passerines would be mapped.
  - For any active nests found near the construction limits (i.e., 92 m [300 feet for raptors and 31 m [100 feet] for passerines), a project biologist, approved by CDFW, would make a determination as to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, the no-construction buffer zone would be expanded; avoidance is the only mitigation available. The ultimate size of the no-construction buffer zone may be adjusted by the project biologist based on the species involved, topography, lines of sight between the work area and the nest, physical barriers, and the ambient level of human activity. If it is determined that construction activities are likely to disrupt raptor breeding, construction activities within the no-construction buffer zone may not proceed until the project biologist determines that the nest is no longer occupied.
  - If maintenance of a no-construction buffer zone is not feasible, the project biologist would monitor the nest(s) to document breeding and rearing behavior of the adult birds. If it is determined that construction activities are likely to cause

nest abandonment, work would cease immediately and the CDFW and/or the USFWS Division of Migratory Bird Management would be contacted for guidance.

Loss of riparian trees suitable for use by special status bird species would be mitigated for through implementation of mitigation measure BIO-MM-2, and any loss of oak woodland would be mitigated for through implementation of mitigation measure BIO-MM-3. With incorporation of mitigation measures BIO-MM-2, BIO-MM-3, and BIO-MM-10, the proposed project would result in less than significant impacts to special status bird species.

Special Status Bat Species. Less than Significant after Mitigation. Trees within the project area may provide suitable roosting habitat for the western red bat, and structures such as the cooling tower or office building may provide suitable roosting habitat for the Townsend's big-eared bat. Removal or pruning of large trees and construction activities in the vicinity of occupied roosts could result in the destruction of roosts or disruption of breeding of special-status bats. In addition, disturbance during the maternity roosting season could result in potential roost abandonment and mortality of young. Prior to the removal or trimming of mature trees or construction around man-made structures, mitigation measure BIO-MM-11 would be implemented.

- **BIO-MM-11:** The following project design or avoidance measures would be implemented to avoid construction impacts to special status bat species:
  - Bat Habitat Assessment. If work is to take place during the bat breeding season (i.e., April 1 through August 31), a qualified biologist would conduct a survey of the project site and vicinity to determine if active maternity roosts are present. This survey would be conducted no more than 14 days prior to the initiation of work.
  - Maternal Roosts. If any trees or structures are determined to support or potentially support maternal bat roosts, work may not proceed if it would destroy roosts or disrupt breeding. Maternal bat roosts may only be removed or demolished after coordination with the CDFW. Passive exclusion of roosting bats would be required, and this may only be performed during the non-breeding season (i.e., between October 1 and March 30).

- Preconstruction Survey. A preconstruction survey would be conducted by a qualified biologist to identify suitable bat roosting sites. The survey would be conducted no more than 48 hours prior to the initiation of work and would include an area extending up to 61 m (200 feet) of the limits of work, access permitting.
- Protocol for Observations of Live Bats. If live bats are detected in the work area, work may not proceed until CDFW has been consulted. Contractors or others may not attempt to disturb (e.g., shake or prod) roosting features to coax bats to leave.
- Day or Night Roosts. Any trees determined to provide suitable day or night roosting sites for bats would be identified and marked on site plans. Such roosting sites include snags, rotten stumps, decadent trees with broken limbs, exfoliating bark, cavities, and openings leading to interior portions of any structures. If no suitable roost sites or evidence of bat roosting are identified, impact minimization measures are not warranted. If suitable roosting sites or evidence of bat roosting are identified, the following measures would be conducted in coordination with CDFW:
  - A qualified biologist would survey suitable roost sites immediately prior to the removal or significant pruning of any of the larger trees, or demolition or significant renovation of any structures.
  - If the project biologist identifies suitable day or night roost sites or evidence of bat occupation, the following steps would be followed to discourage use of the sites by bats and to ensure that any bats present are able to safely relocate.
  - For trees:
    - Tree limbs smaller than 7.6 centimeters (3 inches) in diameter would be removed and any loose bark would be peeled away.
    - Any competing limbs that provide shelter around the potential roost site would be removed to create as open of an area as possible.
    - The tree would then be left alone to allow any bats using the tree/snag to find another roost during their nocturnal activity period.
    - Trees would be re-surveyed 48 hours after trimming.
    - If no bats are present, work may proceed.

- If bats remain on site, additional measures would be prescribed by the biologist.

Loss of riparian trees would be mitigated for through implementation of mitigation measure BIO-MM-2, and loss of oak trees would be mitigated for through implementation of mitigation measure BIO-MM-3. Man-made structures such as the cooling tower or office building would remain available for bat roosting following construction. With incorporation of mitigation measures BIO-MM-2, BIO-MM-3, and BIO-MM-11, the proposed project would result in less than significant impacts to special status bat species.

Special Status Plants. **Less than Significant After Mitigation**. Due to the lack of suitable habitats within the proposed project site, state or federal threatened plant species do not have the potential to occur within the proposed project area. CNPS list species may, however, occur in the SHSRF site, which could be impacted by construction of the proposed project. To minimize the potential for impacts to CNPS list species, the mitigation measure BIO-MM-12 would be implemented.

- **BIO-MM-12:** A qualified biologist would survey the work area for presence of CNPS list species prior to any work in upland areas. If any CNPS list species are identified, potential impacts from construction activities would be avoided to the extent possible by working around the populations.

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

Less than Significant Impact after Mitigation. As described in checklist item (a), the project would require removal of native riparian vegetation. In order to ensure successful recolonization of riparian trees, and to mitigate for the effects of riparian tree removal from construction, the proposed project includes implementation of mitigation measure BIO-MM-2.

As described under checklist item (a), long-term changes within the Carmel River are anticipated to be minimal, and are unlikely to result in significant adverse impacts to steelhead critical habitat, which is considered a sensitive natural community. Although rock

riprap would be placed over an area of approximately 936 sf below toe of bank, placement of native channel material over rock riprap would ensure that roughness (or shear stress) in the reach is not likely to change, and the post-project streambed would be similar to existing conditions. Similarly, the proposed project is not anticipated to result in significant changes to deposition.

While net loss of 34 sf of streambed would occur from installation of the intake screen and associated concrete base, the pool in the immediate area surrounding the proposed intake location is not suitable for steelhead spawning and does not produce food, but may be suitable for fish trying to occupy deep water habitat. It is estimated that the concrete base would reduce pool area by about 2% and volume by less than 2% (at low flow). To mitigate for these impacts to the Carmel River streambed, which includes steelhead critical habitat, the proposed project includes implementation of mitigation measure BIO-MM-1.

Long-term changes within the Carmel River and adjacent riparian or terrestrial habitats are not anticipated to result in significant adverse impacts to CRLF critical habitat, another sensitive natural community. Loss of streambed habitat suitable for aquatic or amphibious species would be mitigated for through implementation of mitigation measures BIO-MM-1. Although construction would require removal of riparian vegetation that would temporarily degrade habitat value for the CRLF, it is anticipated that native riparian understory vegetation would rapidly recolonize voids in the bank protection riprap following construction. Similarly, the area of the existing pump station proposed for removal would be likely be recolonized with native riparian vegetation. The proposed project also includes implementation of mitigation measure BIO-MM-2, which includes replacement planting of riparian trees. The proposed embedded concrete box would replace native bank with a concrete vertical face over a relatively small area (less than 3.5 feet in height by 10 feet in length), which would have a negligible effect on CRLF critical habitat.

With incorporation of mitigation measures BIO-MM-1 and BIO-MM-2, the proposed project would result in less than significant impacts to steelhead and CRLF critical habitat. In addition, the proposed project will undergo review in accordance with the ESA. Any compensatory mitigation required for long-term loss of steelhead or CRLF critical habitat as a result of the ESA consultations would occur.

The proposed project may result in the loss of coast live oak trees from construction of the head tank; opportunities to avoid this impact will be evaluated as part of ongoing design efforts. Coast live oak habitat is considered sensitive under the provisions of Title 16, Chapter 16.60, Monterey County Code, and is subject to Section 21083.4 of the California Public Resources Code (2004), relating to oak woodlands conservation. CDFW has also been directed by the state legislature under State Senate Concurrent Resolution No. 17 (California Resolution Chapter 100) to conserve oak woodlands where CDFW has direct permit or licensing authority. Oak tree removal would be mitigated for through implementation of mitigation measure BIO-MM-3, which includes replacement planting. With incorporation of mitigation measure BIO-MM-3, the proposed project would result in less than significant impacts to coast live oak habitat.

c. *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?*

No Impact. A wetland delineation completed in August 2016 (Denise Duffy & Associates 2016; Appendix A) confirmed that the proposed project footprint does not contain any jurisdictional wetlands. Therefore, the proposed project would result in no impact to federally protected wetlands.

d. *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Less Than Significant Impact. The proposed project would not create any long-term barriers to movement of migratory species, although construction may temporarily impede localized movement of aquatic wildlife. Project construction would occur during the low flow period of the Carmel River, outside of the adult and juvenile steelhead migration season. Nonetheless, localized movement of aquatic species would be restricted from the work area during dewatering and construction. Construction of the proposed project would require minimal disturbance of a short duration over a small area, and the proposed project includes

implementation of mitigation measures BIO-MM-4, BIO-MM-5, and BIO-MM-6 to avoid or minimize the potential for construction impacts to steelhead movement.

The proposed project would not significantly affect habitat for Carmel River steelhead. The Carmel River (mainstem and tributaries) provides a total estimated 120,000 sf area of steelhead spawning habitat and approximately 49 miles of channel support habitat for juvenile rearing (except during critically dry and dry years). The reach of Carmel River adjacent to the SHSRF supports rearing and migration but is nearly devoid of any spawning habitat (CDWR 2008). The new intake screen and associated facilities have the potential to reduce deep water holding volume in the pool near the intake by about 2%. Because the long-term density of steelhead in the Sleepy Hollow reach is among the lowest in the river (average of 0.61 fish/foot) and there are other deep water areas that are easily accessible, this small reduction of pool volume is not significant. With proposed rock protection in the bed and on the streambank, the proposed intake would also not significantly change erosion or scour potential in the vicinity. The proposed project would not significantly affect the Carmel River's potential to function as rearing or migration habitat adjacent to the SHSRF.

Water temperature is among the most significant factors affecting steelhead rearing habitat, with cooler waters generally preferred by this species. Modeling completed for the proposed project has demonstrated that partial reuse would not increase temperatures in the Carmel River downstream from the SHSRF, as discussed in the Hydrology and Water Quality section. Other changes to the channel would be minimal; although the proposed project includes excavation of the channel and backfill with rock riprap, native river rock removed during excavation will be reused and spread over the riprap. Loss of channel bed substrate through installation of the cone screen and concrete base (total area of 64 sf) would be partially offset through removal and abandonment of the existing intake and intake pump station (total area of 30 sf). The proposed project includes implementation of mitigation measure BIO-MM-1 to mitigate for the net loss of 34 sf of streambed. Any loss of Carmel River shading by riparian vegetation would be temporary and mitigated through implementation of mitigation measure BIO-MM-2. Project effects on erosion, siltation, and channel evolution are anticipated to be less than significant, as discussed in the Hydrology and Water Quality section. Therefore, long-term impacts to the Carmel River that may

affect native wildlife nursery function as a result of the proposed project would be less than significant.

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

Less than Significant Impact after Mitigation. Potential impacts to sensitive habitats, special status species, and protected vegetation would be reduced to a level of less than significant through implementation of mitigation measures BIO-MM-1 through BIO-MM-12. This includes implementation of mitigation measures BIO-MM-2 and BIO-MM-3, which entail replacement planting for loss of riparian and oak trees. The purpose of the proposed project is to promote the conservation of steelhead populations, and the proposed project is entirely consistent with the conservation element of the 2010 Monterey County General Plan. The proposed project would not conflict with any other local policies or ordinances for protecting biological resources that are applicable to the SHSRF site. Therefore, the proposed project would result in a less than significant impact after mitigation related to potential conflicts with local policies or ordinances protecting biological resources.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

Less than Significant Impact after Mitigation. The proposed project would not conflict with the conservation element of the 2010 Monterey County General Plan. Mitigation measures BIO-MM-1 through BIO-MM-12 would be consistent with the biological protection-related goals of the County, USFWS, and CDFW. Therefore, the proposed project would have a less than significant impact after mitigation related to conservation plans.

3.3.5 Cultural Resources

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c.	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.3.5.1 Affected Environment

The proposed project area is in the Carmel River Valley; the river flows into Carmel Bay approximately 15 miles from the proposed project area. The Carmel River Valley is in the interior portion of the central coast region of California, marked by low mountain ranges trending southeast-to-northwest. Prior to historic activities, the interior valleys would have been characterized by oak and pine forests, and a variety of freshwater fish, birds, and upland mammals would have been present.

A cultural history defining six periods has been developed for the region (Jones et al. 2007). The earliest Paleo-Indian period encompasses all sites older than about 10,000 years, and is represented only by a few isolated projectile points without associated radiocarbon dates. The later Millingstone culture (about 10,000 to 5,500 years ago) includes distinctive handstones and millingslabs as well as flaked stone tools; structures are rare, and those known are shallow and relatively small. Subsistence is thought to be broad-spectrum hunting and gathering, with a particular focus on shellfishing. The subsequent Early period (about 5,500 to 2,600 years ago) is characterized by stemmed points, bone gorges, and continued use of millingslabs. A wide variety of site types is known from the period, including middens, lithic scatters and quarries, and dwellings. The next period, the Middle period (about 2,600 to 1,000 years ago) is similar, but seems to show a shift in stemmed point types, the appearance of grooved stones, and initial use of acorns as an important resource. The Late period, which lasted from about 1,000 years ago to historic contact, "is marked by a profusion of single-component sites in the interior and on the coast with a decided focus on

the former" (Jones et al. 2007). These sites include middens, bedrock mortars, and the small village sites. Cultures from this era correspond with ethnographically described cultures. Therefore, precontact site types that could be present in the Carmel River Valley include isolated stone tools and stone tool scatters, millingslabs or bedrock mortars, quarry sites, middens, camps, and village sites.

The SHSRF is in the traditional territory of Costanoan-Ohlone people speaking the Esselen language. Costanoan-Ohlone communities moved seasonally between permanent villages and temporary resource-gathering locations. Littoral and marine resources were a primary component of the diet, supplemented by plant resources such as acorns, terrestrial mammals, and birds. Technologies included fish nets and traps, tule mats, and the bow and arrow (Levy 1978, Jones et al. 2007).

Euroamerican contact brought significant changes to Costanoan-Ohlone communities. The earliest recorded sighting of California by Spanish explorers was in 1539, but for the next 200 years, contacts were brief. The 1770s saw increasing Spanish settlement, with the establishment of missions; by 1900, Native Californian populations declined by "at least 95 percent" (Chartkoff and Chartkoff 1984). Despite these major disruptions, Costanoan-Ohlone people persevered, and their descendants are members of a number of federally recognized tribes.

The earliest Spanish contact in the Carmel River Valley was in 1603 when Carmelite friars accompanying the Vizcaino expedition came upon the stream and named it El Rio de Carmelo in honor of their patroness, Our Lady of Mount Carmel. Friars in the Capuchin Franciscan Order of the Roman Catholic church established a mission on the coast at Monterey (later moved to Carmel) in 1770, but little mention is made of the interior (CRWC 2010). The Mexican government distributed lands to patrons beginning in 1820, and several ranchos were founded in the Carmel River Valley. In 1848, the United States took control of California from the Mexican government. By the 1870s, the Central Pacific Railroad was constructed through the Monterey peninsula (CPRR 2014). The Pacific Improvement Company, founded by the "Big Four" of Collis P. Huntington, Leland Stanford, Mark Hopkins, and Charles Crocker, purchased several ranchos to be developed into a network of recreation and tourism facilities (Seavey 2005). This included a number of hunting and

fishing camps, one of which was located at Sleepy Hollow near the proposed project site. The camp at Sleepy Hollow consisted of a cabin (constructed in 1931 and expanded in 1937), a stone barbecue pit, and a picnic table. The cabin at Sleepy Hollow was demolished in the late 1950s (Seavey 1994).

Two cultural resources surveys have been conducted in the proposed project area; neither located archaeological or historic resources except for the remains of the cabin (Seavey 1994; WESTEC 1983). Neither of the surveys involved subsurface testing. At the time of the construction of the SHSRF, only the fieldstone chimney of the cabin remained standing. The site, consisting of the chimney, barbeque pit, and associated debris scatter, was assigned the number CA-MNT-1246H and was determined not eligible for listing in state or national preservation registers.

3.3.5.2 Impact Evaluation

Would the project:

a. *Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?*

Less than Significant Impact. There are no significant historical resources in the proposed project area. Site CA-MNT-1246, the remains of the cabin at Sleepy Hollow, has been determined not eligible for listing in state or national preservation registers, and would not be affected by the proposed project.

b. *Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?*

Less than Significant Impact after Mitigation. Excavation for the proposed project would extend into native sediments where archaeological testing has not occurred; therefore, archaeological monitoring will occur to avoid impacts to unrecorded archaeological sites. These impacts would be mitigated by implementing the following mitigation measures:

- **CULT-MM-1:** An archaeological monitor will be on-site during construction that may extend into native sediments. Monitoring will be supervised by a qualified archaeologist. If archaeological materials are encountered, the monitor will be authorized to stop construction as necessary to protect the find. The monitor will contact the qualified archaeologist. The qualified archaeologist will work with the District to assess the significance of the find, contact the Native American Heritage Commission, and determine appropriate avoidance or mitigation measures. Construction may resume in the area when mitigation has been completed and the District has authorized the activity.
- **CULT-MM-2:** Pursuant to CEQA Guidelines 15064.5 (f), "provisions for historical or unique archaeological resources accidentally discovered during construction" would be instituted. Therefore, in the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources would be halted and the District would consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant, representatives of the District and the qualified archaeologist and/or paleontologist would meet to determine the appropriate avoidance measures or other appropriate mitigation. All significant cultural materials recovered would be subject to scientific analysis, professional museum inclusion, and a report prepared by the qualified archaeologist according to current professional standards. If the discovery includes human remains, CEQA Guidelines 15064.5 (e)(1) would be followed, which are as follows:

  (e) In the event of the accidental discovery or other than a dedicated cemetery, the following steps would be taken:

  (1) There would be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

  (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and

  (B) If the coroner determines the remains to be Native American:

  1. The coroner would contact the Native American Heritage Commission within 24 hours.

2. The Native American Heritage Commission would identify the person or persons it believes to be the most likely descended from the deceased Native American.

3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or

(2) Where the following conditions occur, the landowner or his authorized representative would rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

(A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission;

(B) The descendant identified fails to make a recommendation; or

(C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

With incorporation of CULT-MM-1 and CULT-MM-2, the proposed project would result in less than significant impacts to archaeological resources. The MMRP (Appendix D) prepared for the proposed project identifies when mitigation measures will be implemented, the parties that will be responsible for ensuring implementation of these measures, and how implementation of the measures will be verified.

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

Less than Significant Impact after Mitigation. There are no known burials in the proposed project location. As described for checklist item (a), there has been no subsurface investigation in the proposed project area, so unrecorded remains may be present. Therefore, there is potential for construction activities to impact human remains. Mitigation measure

CULT-MM-1 and CULT-MM-2 would be implemented to mitigate these potential impacts to a level of less than significant.

3.3.6 Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
2. Strong seismic ground shaking?	☐	☐	☒	☐
3. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
4. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

3.3.6.1 Affected Environment

3.3.6.1.1 Soils

As mapped by the Natural Resources Conservation Service (NRCS; Appendix E), the proposed project area is largely underlain by psamments and fluvents, which occur in the floodplain of the Carmel River. This area is frequently flooded, and the depth to the water table is about 24 to 72 inches. Soils on the west and southwest edge of the site are mapped as Junipero-Sur complex and Sheridan coarse sandy loam, respectively. The water table in these areas is at depth greater than 80 inches (NRCS 2013).

3.3.6.1.2 Fault Rupture

Surface fault rupture is defined as slip on a fault plane that has propagated to the earth's surface and caused a rupture or disturbance. Fault rupture almost always follows pre-existing faults, which are zones of weakness. No active faults are known to pass through the SHSRF site, although a small cross fault connecting the Tularcitos and Cachagua faults or a fault sliver off the Cachagua fault may exist. If this fault does exist, no movement has occurred on it in the past 125,000 years (The Mark Group 1995). The Tularcitos Fault may have experienced at least some amount of Quaternary movement (Clark et al. 1974; The Mark Group 1995). Geologic and geomorphic evidence indicates that the Cachagua Fault has not experienced movement since at least the past 85,400 to 213,500 years (The Mark Group 1995). Other active faults in the region include the Chupines (5 miles northeast), Rinconada-Reliz (12 miles northeast), and the San Andreas (29 miles northeast; USACE 2008).

3.3.6.1.3 Ground Shaking

Ground shaking is the most widespread effect of earthquakes. The U.S. Geological Survey's 2009 Probable Seismic Hazard Analysis Program indicates that there is a 90 to 100% probability that a greater than 5.0-magnitude earthquake will occur within 50 kilometers, affecting the proposed project site within the next 50 years, and that there is a 10 to 12% probability of a 7.0 or greater earthquake occurring within 50 years (USGS 2010). According to the Monterey County Relative Seismic Shaking Hazards map, the proposed project site could experience 25% gravity shaking (25% of the acceleration due to gravity or 8 feet per second per second), which is relatively low for the area (Monterey County 2005a).

3.3.6.1.4 Liquefaction

Liquefaction is the transformation of a granular material (sediments or soils) from a solid into a liquefied state, often resulting from strong seismic ground shaking in areas with susceptible soils. Factors known to affect the liquefaction potential of soils are the characteristics of the materials, such as grain size distribution, relative density, and degree of saturation; the initial stresses acting on the soils; and the characteristics of the earthquake, such as the intensity and duration of the ground shaking. Low density sandy soils with water tables less than 20 feet below ground may be susceptible to liquefaction. The predominant soils at the SHSRF site include sands, and depth to the water table is about 24 to 72 inches. Areas in Monterey County most susceptible to liquefaction include the Carmel River and floodplain, and the proposed project site is mapped within a high relative liquefaction susceptibility zone (Monterey County 2007).

3.3.6.1.5 Lateral Spreading

Lateral spreading is a form of liquefaction that results in lateral movement of ground in which cohesive soil layers may fracture, subside, rotate, or disintegrate as a result of seismic activity. During an earthquake, lateral spreading usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spreading has generally been observed to take place in the direction of a free face (i.e., retaining wall, slope, and channel) but has also been observed to a lesser extent on ground surfaces with very gentle slopes. The SHSRF site has been identified as containing soils and water table depths susceptible to liquefaction (NRCS 2013), and is within a high relative liquefaction susceptibility zone (Monterey County 2007). Therefore, it may also be susceptible to lateral spreading.

3.3.6.1.6 Slope Failure and Slope Stability

Earthquakes can cause significant slope stress, potentially resulting in earthquake-induced landslides. Landslides most commonly occur in areas with steep slopes or within slide-prone geologic units that contain excessive amounts of water. Other factors that affect slope stability include site geology, climate, and human activity. Steep slopes are present surrounding the SHSRF site, particularly to the north. According to the Monterey County Relative Landslide Susceptibility map, the proposed project site is within a moderate to high earthquake induced landslide susceptibility zone (Monterey County 2005b).

3.3.6.1.7 Expansive Soils

Expansive soils are high in clay content and increase and decrease in volume upon wetting and drying, respectively. The change in volume exerts stress on buildings and other loads placed on these soils. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction. Often, grading, site preparations, and backfill operations associated with subsurface structures can eliminate the potential for expansion. According to Natural Resources Conservation Service (NRCS) maps, there are no clay soils within the proposed project area (NRCS 2013), and expansive soils are therefore unlikely to be present.

3.3.6.1.8 Subsidence and Settlement

Subsidence involves a sudden sinking or gradual settling and compaction of soil and other surface material with little or no horizontal motion. Land surface subsidence can result from both natural and man-made phenomena, including tectonic deformation, consolidation, hydro compaction, collapse of underground cavities, oxidation of organic-rich soils, rapid sedimentation, and the withdrawal of groundwater. Expansive soils and materials are more susceptible to subsidence, including estuarine sediments, organic rubbish, or thick organic deposits. In Monterey County, there is little documentation of widespread subsidence, and the principal cause of land subsidence in the region is groundwater mining (Monterey County 2007). Groundwater mining does not occur at the proposed project site.

Settlement occurs when ground shaking reduces the amount of pressure existing between soil particles, resulting in a reduction of the volume of the soil. Areas are susceptible to differential settlement if they are underlain by compressible sediments, such as poorly engineered artificial fill. Differential settlement can damage structures, pipelines, and other subsurface entities. Earthquakes and seismic activity can accelerate and accentuate settlement. Sandy soils with shallow groundwater prone to liquefaction, as occur at the proposed project site (NRCS 2013), may be susceptible to settlement.

3.3.6.1.9 Erosion

Erosion is the detachment and movement of soil materials through natural processes or human activities. In the Carmel Valley, mountains erode through the influences of gravity,

water, and gradient. The chief erosive processes in the Carmel Valley are bedrock landslides, shallow soil slips, rock fall, stream incision and widening, and slope gullying (Smith et al. 2004). Nearly the entire Carmel Watershed, including the SHSRF site, is rated as highly susceptible to erosion (Smith et al. 2004).

3.3.6.2 Impact Evaluation

Would the project:

a. *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*
    1. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*
    2. *Strong seismic ground shaking?*
    3. *Seismic-related ground failure, including liquefaction?*
    4. *Landslides?*

Less than Significant Impact. The proposed project area is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, and no known surface expression of active faults is believed to cross the site; therefore, fault rupture through the proposed project site is not anticipated.

In the event of a major earthquake, the project site could experience 25% gravity shaking, which is relatively low (25% of the strength of gravity). Nonetheless, ground shaking has the potential to damage buildings and structures. Proposed improvements including the new intake screen, riprap armoring, pumps, elevated cooling tower, and associated controls and piping are not particularly susceptible to ground-shaking-induced damage, although damage remains a possibility in the event of a large earthquake. The proposed improvements would be constructed in adherence with applicable seismic standards and would not increase the potential for human injury or loss of life. Therefore, the proposed project would result in less than significant impacts related to seismic ground shaking.

The SHSRF site is within a mapped liquefaction hazard zone, and soil conditions susceptible to liquefaction are present at the site. Proposed improvements would be constructed to meet the Uniform Building Code and in adherence with applicable seismic standards. The proposed improvements would not exacerbate existing liquefaction hazards.

There are steep slopes in the vicinity of the SHSRF site, and the site is within an area of moderate to high earthquake induced landslide susceptibility. The proposed project would not result in changes that would increase the potential for slope failure or landslides.

As a result of its increased functionality with implementation of the proposed project, the SHSRF site would be operational during longer periods than under existing conditions, which would result in increased presence of SHSRF personnel at the site. Thus, the proposed project may marginally increase exposure of personnel at the site to geological hazards; however, these changes would be minimal. Therefore, the increase in potential for injury is negligible and the proposed project would result in less than significant impacts.

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

Less than Significant Impact. Although the proposed project site may be somewhat susceptible to erosion during high river flows, the proposed improvements have been designed to avoid long-term erosion effects. Hydraulic modeling of the scour potential, which considers both the geomorphic setting of the river channel as well as the dimensions of the proposed improvements within the channel, indicate that the proposed improvements would have no significant impact on the general erosive behavior or transport of sediment through the site. Riprap would be installed in the vicinity of the new intake screen to mitigate any local scouring that may affect the stability and performance of the improvements.

During construction, best management practices for controlling erosion would be implemented to reduce erosion of soils during construction. Loss of topsoil would be minimal and limited to excavated areas for trenching and pump installation, and topsoil within the proposed project area does not serve agricultural purposes or other valuable

functions. Therefore, the proposed project would result in less than significant impacts related to erosion and loss of topsoil.

c. *Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Less than Significant Impact. Landslide potential at the project site is discussed under checklist item (a). The proposed project would have no effect on the potential for off-site landslides and would result in less than significant impacts related to on-site or off-site landslides. Although the proposed project may cause an increase in personnel presence at the site, this increase would be nominal, and additional workers would likely be exposed to regional seismic hazards absent the proposed project. The proposed improvements would be constructed in adherence with applicable seismic standards. Therefore, the proposed project would result in less than significant impacts related to lateral spreading and liquefaction. The project does not include groundwater extraction or other activities that would cause subsidence or collapse, and such impacts are not anticipated.

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

No Impact. Soils that underlie the SHSRF site, including psamments, fluvents, Junipero-Sur complex, and Sheridan coarse sandy loam, do not exhibit expansive qualities. Proposed improvements would be constructed in adherence with all applicable building codes. Therefore, there would be no impact related to expansive soils.

e. *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?*

No Impact. The proposed project would have no effect on disposal of wastewater that would be managed by septic tanks, sewers, or alternative wastewater disposal systems. Therefore,

the proposed project would have no impact related to septic tanks and alternative wastewater disposal systems.

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

No Impact. There are no known unique geological or paleontological resources in the proposed project area. Alluvial deposits, such as those at the proposed project site, typically contain only invertebrate fossils (if any), and those are out of original depositional context. Vertebrate fossils are considerably more likely to be significant or unique. Due to its geomorphological history, the proposed project area is not likely to contain any fossils other than invertebrate fossils that are in a re-deposited context. Therefore, it is very unlikely that any fossil that is unique or scientifically significant is present at the proposed project site, and the project would have no impact related to unique paleontological resources or geologic features.

3.3.7 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.3.7.1 Affected Environment

Various gases in the Earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the Earth's surface temperature. Solar radiation enters the atmosphere from space and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is retained, warming the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect, or climate change, are carbon dioxide, methane, ozone, water vapor, nitrous oxide, and chlorofluorocarbons. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for enhancing the greenhouse effect.

GHG emissions are emitted in stationary and mobile source exhaust. The California Natural Resources Agency adopted amendments to the CEQA Guidelines related to GHG emissions. These guidelines are used in evaluating the cumulative significance of GHG emissions from a proposed project. According to the adopted CEQA Guidelines, the significance of GHG emissions from a proposed project should be assessed based on:

- Whether the project will generate greenhouse gas emissions, either directly or indirectly, that will exceed an applicable threshold of significance or may have a significant impact on the environment; and/or

- Whether the project would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The 2014 CEQA Guidelines do not establish a quantitative threshold of significance for GHG impacts; instead, lead agencies have the discretion to establish such thresholds for their respective jurisdictions. In February 2016, MBUAPCD adopted a significance threshold for stationary sources of 10,000 metric tons of carbon dioxide equivalent (CO_2e) per year. This standard would apply to operation of the facility. MBUAPCD did not adopt a significance threshold for short-term construction-related GHG emissions; however, the South Coast Air Quality Management District (SCAQMD) has recommended that construction emissions should be amortized over 30 years and added to operational emissions, and then compared to the significance threshold (SCAQMD 2008). This document adopts SCAQMD's recommendations to evaluate the impact of construction-related GHG emissions.

3.3.7.1 Impact Evaluation

Would the project:

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

Less than Significant Impact. The proposed project will generate increased GHG emissions from construction and operations that, when combined, would be several orders of magnitude below the significance threshold.

Construction activities to be undertaken as part of the proposed project would result in minimal earthmoving activity over approximately 1 acre of land. As discussed in Section 2.4.5, trenches would be excavated using a medium-sized excavator. Additional equipment used would include a road dump truck, rubber tire backhoe, small roller compactor, and 10-ton crane for elevating the cooling tower. Using the highest emission factors shown in Table 5 and assuming a conservative estimate of 6 hours of equipment use per day over 1 month of construction, construction would result in a total of approximately 135 metric

tons of CO_2. When amortized over 30 years as recommended by SCAQMD, construction of the proposed project would add approximately 4.5 metric tons of CO_2 emissions per year.

Table 5
GHG Off-Road Diesel Equipment Emissions

Emission Factors	Horsepower	CO_2 lbs/hr
Cranes	50 – 9,999	23 – 971
Excavators	50 – 500	25 – 387
Off-Highway Trucks	175 – 1000	125 – 625
Rollers	50 – 500	26 – 219
Other Construction Equipment	50 – 500	28 – 254

Source: CDWR 2012

The SHSRF is normally operated when the lower Carmel River is dewatered during the dry season (June 1 to November 30) and for approximately an additional 30 days after the river is reconnected to the lagoon. With implementation of the proposed project, the facility would be able to operate for a longer season, resulting in as much as a 20% increase in total operations in some years. At least one daily vehicle trip by MPWMD staff is required to maintain the facility, and vehicles for other operations and maintenance activities are occasionally required. The estimated vehicle miles driven annually associated with operating the facility under existing conditions is 10,224 (1.5 trips per day for 213 days with 32 miles roundtrip from the MPWMD office). Therefore, the proposed project would increase the annual number of miles driven in associated with the SHSRF by approximately 2,045. This equates to an increase of approximately 1.2 metric tons per year.

The proposed project would increase electrical usage at the facility by approximately 32% based on the 20% longer annual operating period and addition of the recirculation system. Current electrical use at the facility is approximately 193,600 kilowatt hours per year. With the proposed project, electrical use would increase by approximately 62,200 kilowatt hours per year. PG&E, the facility's utility provider, publishes its current and projected GHG emissions factors. An emissions factor of 0.149 metric tons of CO_2 per megawatt hours is assumed for this analysis, which represents PG&E's average emissions factors for the period

from 2016 to 2020 (PG&E 2015). Therefore, the proposed project would generate approximately 9.27 metric tons of CO_2 per year from increased electrical usage. In summary, the CO_2 emissions of the proposed project from both construction and operations would total 14.97 metric tons per year, which is less than the 10,000 metric tons threshold of significance established by the MBUAPCD. Therefore, impacts would be less than significant.

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

No Impact. The CEQA guidelines adopted by MBUAPCD provide the significance threshold for stationary sources but provide no further guidance on reducing greenhouse gas emissions. Monterey County has not adopted a Climate Action Plan or other regulations or standards of significance pertaining to GHG emissions.

3.3.8 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

3.3.8.1 Affected Environment

3.3.8.1.1 Listed Hazardous Material Sites

According to a search of the California Department of Toxic Substances Control (DTSC) EnviroStor and the State Water Resources Control Board GeoTracker database websites (DTSC 2007; SWRCB 2015), there are no listed hazardous material sites within a 1.5-mile radius of the SHSRF site.

3.3.8.1.2 Hazardous Materials on Site

Potentially hazardous materials that may be used as part of SHSRF operations include fuels, oils and other lubricants, and small amounts of other chemicals. Utility poles and transformers within the proposed project area may contain hazardous materials; polychlorinated biphenyls are commonly found in transformers, and wood preservatives may be present on wooden utility poles. The proposed project site does not otherwise include the storage or use of any hazardous materials. The facility was constructed in the mid-1990s, and structures are therefore unlikely to contain asbestos or lead paint.

3.3.8.1.3 Sensitive Receptors

There are no schools, airstrips, airports, or other sites potentially sensitive to hazards or hazardous materials within the proposed project vicinity. The nearest school is Tularcitos Elementary School, located approximately 2.8 miles northwest. The closest airport is the Carmel Valley Airfield, located approximately 2.5 miles northwest of the proposed project site.

3.3.8.1.4 Emergency Response Plans

Emergency response plans for the proposed project area are detailed in the Monterey County Emergency Operations Plan (Monterey County Office of Emergency Services 2014). The plan provides hazard assessments for the County; identifies emergency response roles and responsibilities for County departments, nongovernmental and private sector partners; and details emergency recovery operations. Monterey County uses various methods to issue emergency public notifications and alerts, including the Integrated Public Alert Warning System, the Telephonic Emergency Notification System, the Emergency Operations Center

2-1-1 Call Center, social media, and traditional media. Under the plan, considerations have been made for the proposed project area, including the consideration of hazardous materials.

Monterey County additionally maintains the Multi-Jurisdictional Hazard Mitigation Plan (Monterey County Hazard Mitigation Planning Team and AECOM 2014), which recommends specific actions designed to protect people and community assets from losses to those hazards that pose the greatest risk. The Multi-Jurisdictional Hazard Mitigation Plan includes policies and procedures to speed recovery and redevelopment following disaster events.

3.3.8.1.5 Wildfire Hazards

The proposed project site is within a very high fire hazard severity zone (Cal Fire 2007). The 2010 Monterey County General Plan (Monterey County 2010) policies include comprehensive measures to ensure adequate fire facilities, encourage public fire education, map wildland fire hazard areas, uphold building and development standards for reduction of susceptibility to fire, require new development to meet fire infrastructure standards, and establish and maintain thorough fire protection within the county.

3.3.8.2 Impact Evaluation

Would the project:

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

No Impact. The SHSRF's operational use of fuels, oils and other lubricants, and small amounts of other chemicals would not change as a result of the proposed project. Construction would proceed in adherence with all National Pollutant Discharge Elimination System (NPDES) permitting requirements designed to avoid hazardous material impacts during construction. Existing plans, including the Monterey County Emergency Operations Plan and the County's Multi-Jurisdictional Hazard Mitigation Plan, have been developed to address potential hazardous material accidents. Therefore, the proposed project would result in no impacts related to the routine transport, use, or disposal of hazardous materials.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

No Impact. The proposed project would not alter existing site uses and would have no long-term effects related to hazardous material releases. Given the recent date of the facility's construction, and the undisturbed conditions of excavation areas, it is unlikely that any hazardous materials would be encountered at the site during construction or operations. Construction would proceed in adherence with all NPDES permitting requirements designed to avoid hazardous material impacts during construction, including accidental upset of potentially hazardous materials (e.g., fuels, oils, lubricants, and small amounts of other chemicals). Therefore, the proposed project would result in no impacts related to the disturbance of potentially hazardous materials.

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

No Impact. The nearest school to the proposed project area is the Tularcitos Elementary School, located approximately 2.8 miles northwest. No school is proposed within a 0.25-mile radius of the proposed project site, and given the undeveloped nature of the area, it is unlikely that a school would be constructed within this radius in the future. Therefore, the proposed project would result in no impacts related to hazardous material emissions or handling in the vicinity of a school.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The EnviroStor and GeoTracker databases do not list any hazardous materials sites at the proposed project site or within a 1.5-mile radius. Therefore, there would be no impact related to hazardous materials sites.

e. *Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?*

No Impact. The proposed project site is not located within an airport land use plan area, and the nearest airport or airstrip is located approximately 2.5 miles northwest of the proposed project site. Therefore, the proposed project would result in no impact related to aviation.

f. *Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?*

No Impact. The proposed project site is not located within the vicinity of a private airstrip; the nearest airport is located approximately 2.5 miles northwest of the proposed project site. Therefore, the proposed project would result in no impact related to aviation.

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

No Impact. Emergency response plans and actions included within the Monterey County Emergency Operations Plan and Multi-Jurisdictional Hazard Mitigation Plan were developed in consideration of hazards present in isolated areas such as the SHSRF. The proposed project would not interfere with implementation of these plans, and there would be no impact related to impairment of emergency plans.

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

Less than Significant Impact. The proposed project site is within a very high fire hazard severity zone. Proposed improvements would not exacerbate existing wildfire hazards, and would not construct any residences. As a result of the SHSRF's increased functionality with implementation of the proposed project, the facility would be operational over longer periods than under existing conditions, which would result in increased presence of SHSRF

personnel at the site who would be exposed to potential wildfire hazards. The site, however, requires minimal personnel for operation, and any increase in exposure would be minimal. The 2010 General Plan policies set forth comprehensive measures to avoid and minimize adverse impacts related to wildland fires by ensuring adequate fire facilities, encouraging public fire education, mapping wildland fire hazard areas, upholding building and development standards for reduction of susceptibility to fire, requiring new development to meet fire infrastructure standards, and establishing and maintaining thorough fire protection within the county. Proposed improvements would be required to comply with all applicable provisions of the revised California Building Standards Code, including those that pertain to fire prevention. Therefore, the potential to increase the exposure of people or structures to wildland fires as a result of the proposed project would be less than significant.

3.3.9 Hydrology and Water Quality

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?	☐	☐	☒	☐
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?	☐	☐	☒	☐
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f.	Otherwise substantially degrade water quality?	☐	☐	☐	☒
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h.	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j.	Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.3.9.1 Affected Environment

3.3.9.1.1 Surface and Stormwater

The SHSRF site gently slopes towards the Carmel River, and surface and stormwater is conveyed via sheetflow to the Carmel River or adjacent floodplain. There are no storm drains or other municipal drainage infrastructure at the site.

3.3.9.1.2 Flood Hazards

Monterey County maintains Flood Insurance Risk Maps as required by the Federal Emergency Management Agency (FEMA). These maps indicate potential of flooding for various locations. The majority of proposed project site is located within a special flood hazard area subject to inundation by the 1% annual chance flood, and occurs within a floodway area that must be kept free of encroachment so that the 1% annual flood can be carried without substantial increases in flood heights. However, there are no habitable structures along the river within several miles of the facility. The proposed bridge to replace the Sleepy Hollow Ford for access to the site is designed with three feet of freeboard during the 100-year flood. Any changes in the 100-year flood elevation as a result of proposed improvements in the channel would have no impact on housing structures located in the 100-year flood zone and would have a less than significant impact on the future Sleepy Hollow Bridge. Portions of the project site further away from the river are within the "Zone X Other Flood Area," which indicates an area of 0.2% annual chance of flood or an area with 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood (FEMA 2009).

The Carmel Valley would likely experience severe inundation in the event of failure at Los Padres Dam (Monterey County 2007). Constructed in 1949, the Los Padres Dam is upstream and 4.9 miles southeast (as the crow flies) from the project site. It is a rock-and-earth-filled dam that had an original storage capacity of 3,030 acre-feet that has been reduced to 1,775 acre-feet. The dam, which is owned and operated by Cal-Am, does not provide flood control as the reservoir usually fills in late fall or early winter after which the watershed remains uncontrolled until the rainy season ends. Los Padres Dam has not been identified as subject to failure in either an earthquake or a large flood and can pass the Probable Maximum Flood

through its spillway without overtopping the dam. The dam will continue to be inspected annually by the California Division of Safety of Dams to ensure that it is in good operating condition.

3.3.9.1.3 Tsunami or Seiche

The SHSRF site is several miles inland and therefore not susceptible to tsunami or seiche hazards. The proposed project site is not within any identified tsunami inundation areas for Monterey County (California Emergency Management Agency et al. 2009).

3.3.9.1.4 Mudflows

Mudflows are extremely rare outside of coastal areas in Monterey County, particularly in inland areas such as the SHSRF site. Nonetheless, there is a remote possibility that mudflows could inundate inland areas where significant slopes are located (Monterey County 2007).

3.3.9.1.5 Groundwater

The Carmel River alluvial aquifer lies along the downstream portion of the Carmel River, covering approximately 5,160 acres. The aquifer was listed as a high priority basin by the California Department of Water Resources (CDWR) as a result of annual dewatering. Downstream of river mile 17.2, in the vicinity of the SHSRF, the aquifer underlying and closely paralleling the surface course of the Carmel River has been identified as a subterranean stream subject to the jurisdiction of the State Water Resource Control Board (per Order 95-10 and subsequent Order 98-04). In early 2016, CDWR agreed with this determination. The alluvial aquifer in the vicinity of the project area will therefore be removed from the CDWR's Bulletin 118 series, which identifies the boundaries of California's alluvial groundwater basins. Upstream of river mile 17.2, the alluvium is shallow in many places (5 to 10 feet) and is not suitable for well production.

The Carmel River is the primary source of recharge to the alluvial aquifer. Pumping of wells causes a significant annual decline in aquifer levels of the Carmel River basin. However, the aquifer is normally replenished each year with winter runoff. Several projects are currently underway in the County to address water supply issues associated with groundwater pumping and the annual dewatering of the aquifer, including Cal-Am's Monterey Peninsula

Water Supply Project and Cal-Am and the District's Seaside Basin Aquifer Storage and Recovery Project.

The SHSRF has very limited areas of impermeable surfaces. Water within the rearing pools and rearing channel is either returned to the Carmel River or discharged to the floodplain. Runoff from the remaining impermeable surface areas is conveyed to the Carmel River or the floodplain via sheetflow.

3.3.9.2 Impact Evaluation

Would the project:

a. Violate any water quality standards or waste discharge requirements?

Less than Significant Impact. Under the proposed project, the SHSRF would discharge its effluent to the Carmel River as permitted through its existing NPDES General Permit for Discharges with Low Threat to Water Quality (NPDES permit; Order No. R3-2011-0233, NPDES No. CAG993001) authorized under the CWA. The existing NPDES permit establishes the requirements that must be met once the discharge mixes with the Carmel River. These receiving water limitations are shown in Table 6.

Table 6
Receiving Water Limitations

Constituent	Unit	Value or Range	Max Allowable Increase
pH	pH unit	7.0-8.3	0.5
Temperature	degrees F	-	5
Color	color units	-	Lesser of 15 units or 10%
Turbidity	NTU	-	5
Dissolved Oxygen	mg/L	>7.0	-
Dissolved Oxygen	% Saturation	>85%	-
Methylene Blue Active Substances	mg/L	0.2	-
Phenols	µg/L	1.0	-
PCBs	µg/L	0.3	-
Phthalate Esters	µg/L	0.002	-

Constituent	Unit	Value or Range	Max Allowable Increase
Nitrate (NO_3)	mg/L	30	-
Fecal Coliform (Average of 5 or more samples)	MPN/100 mL	200	-
Fecal Coliform (Exceeded in <10% of samples)	MPN/100 mL	400	-
Ammonia	µg/L	600	-
Unionized ammonia (NH_3)	mg/L	0.025	-

Notes:
µg/L = micrograms per liter
mL = milliliter
MPN = most probable number
NTU = Nephelometric Turbidity Unit
PCB = polychlorinated biphenyl

In addition to the above tabulated items, the effluent discharge would not contain the following in concentrations that cause a nuisance or adversely affect beneficial use in the receiving water: tastes and odors; floating materials; suspended materials; settleable materials resulting in deposition; oil and grease; biostimulatory substances that promote aquatic growth; suspended sediment load; toxic substances; or pesticides (NPDES permit; Order No. R3-2011-0233, NPDES No. CAG993001).

A simple mixing calculation was developed to assess whether, with implementation of the proposed project, effluent from the facility would result in any exceedances of the conditions listed in Table 6 downstream of the discharge point in the Carmel River. Only the constituents of concern in the effluent that have a propensity to change downstream water quality were evaluated, including dissolved oxygen, temperature, ammonia, total suspended solids, turbidity, and pH. Downstream water quality was calculated as flow weighted average of the effluent and upstream concentrations by assuming complete mixing 50 feet downstream of the discharge point. Both discharge and stream flow are affected by the extent of recirculation at the facility. Therefore, mixing calculations were performed for all of the potential reuse scenarios identified in Table 7. Although the amount of water reuse would be limited to 50%, higher reuse scenarios were also modeled.

Table 7
Flow Rates for SHSRF Flow Scenarios

Flow Scenario	Cubic feet per Second	Gallons per Minute	Fraction of River Flow
Minimum River Flow (w/o reuse)	4.0	1795	-
Minimum River Flow (reuse)	2.0	898	-
SHSRF Total Flow	2.4	1080	-
Intake/Effluent Flow at 0% reuse	2.4	1080	60.2%
Intake/Effluent Flow at 50% reuse	1.2	540	60.2%
Intake/Effluent Flow at 75% reuse	0.6	270	30.1%
Intake/Effluent Flow at 90% reuse	0.2	108	12.0%

Table 8 shows the estimated downstream water quality conditions and the change relative to upstream conditions for each of the scenarios identified in Table 7 with implementation of the proposed project.

Table 8
Estimated Downstream Water Quality Conditions with the Proposed Project

Constituent	Unit	Carmel River Water Quality Upstream of Effluent Discharge Point			SHSRF Effluent Water Quality Values (SHSRF Supply Water Quality is the Same as Upstream River Water Quality)					Carmel River Water Quality Downstream of Effluent Discharge (Assumes 100% Mixing 50 Feet Downstream from the Discharge Point)							
										Flow Through		50% Reuse		75% Reuse		90% Reuse	
		Typical Range	Assumed Value for Analysis	Data Source	Flow Through	50% Reuse	75% Reuse	90% Reuse	Data Source	Value	Change	Value	Change	Value	Change	Value	Change
pH	pH unit	7.1-7.8	7.7	CAW 1990-1996 Data	7.56	7.59	7.62	7.65	Vinci Mass Loading (Calcs assume 7.7 influent)	7.62	-0.08	7.63	-0.07	7.68	-0.02	7.69	-0.01
Temperature	degree F	40-70	60	USGS Monitor at SHW	54	54	54	54	-6 to -10 °F when cooling tower operating per RRMP	56.4	-3.6	56.4	-3.6	58.2	-1.8	59.3	-0.7
Turbidity	NTU	0-5	0.6	USGS Monitor at SHW (non-storm events)	1.6	1.7	2.0	2.2	Estimate based on USGS correlation with TSS	1.2	0.6	1.3	0.7	1.0	0.4	0.8	0.2
TSS	mg/L	0-4	0.50	USGS Testing, Correlated to Turbidity Readings (TSS [mg/L] = 0.8 x Turbidity [NTU])	1.29	1.38	1.56	1.76	Vinci Mass Loading (Calcs assume 0.5 influent)	0.98	0.48	1.03	0.53	0.82	0.32	0.65	0.15
DO	mg/L	8-13	8.57	MPWMD, Bi-monthly readings at SHW	7.78	7.78	7.78	7.78	Vinci Mass Loading (Calcs assume 8.57 influent)	8.09	-0.48	8.09	-0.48	8.33	-0.24	8.47	-0.10
Total Ammonia Nitrogen (TAN)	mg/L	0.00	0.00	Not Detected in 3/31/15 Sample	0.09	0.18	0.36	0.91	Vinci Mass Loading (Calcs assume 0.0 influent)	0.0541	0.0541	0.1083	0.1083	0.1083	0.1083	0.1095	0.1095
Unionized ammonia (NH_3)	mg/L	0.00	0.00	Not Detected in 3/31/15 Sample	0	0.0013	0.0027	0.0073	Vinci Mass Loading (Calcs assume 0.0 influent)	0.0000	0.0000	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009

Notes:
mg/L = milligrams per liter
MPWMD = Monterey Peninsula Water Management District
NTU =
RRMP = Rescue and Rearing Management Plan
SHSRF = Sleepy Hollow Steelhead Rearing Facility
SHW =
TSS = total suspended solid
USGS = U.S. Geological Survey

As shown in Tables 5 and 7, the proposed project would remain in compliance with its existing NPDES permit for the primary water quality constituents of concern identified above. Furthermore, facility operations are not anticipated to introduce any substances that would cause the effluent to be in violation of state and federal water quality standards. The SHSRF would be required to comply with the monitoring and reporting requirements detailed in the NPDES permit, thereby ensuring that the facility achieves these standards. Therefore, the proposed project would result in less than significant water quality impacts from operations.

b. *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?*

No Impact. The proposed project would result in very small increases in impermeable surfaces associated with proposed improvements. Stormwater would continue to be conveyed to the Carmel River and adjacent floodplain, where percolation into the Carmel Valley Alluvial Aquifer would continue to occur. Water used for rearing facility operations would be returned to the watershed. The proposed project would not interfere with ongoing and future activities designed to address diversions. The water table below the proposed project area would therefore remain unaffected, and the proposed project would have no impact on aquifer levels.

c. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?*

Construction. **Less than Significant Impact**. Best management practices in compliance with NPDES Permit requirements would be implemented during construction to prevent erosion. Therefore, construction of the proposed project would result in less than significant impacts from alteration of existing drainage patterns that could cause substantial erosion or siltation.

Operation. **Less than Significant Impact**. The proposed improvements have been designed to avoid adverse effects on erosion and siltation. Upland improvements, such as installation of pumps and piping, would have no long-term effects on drainage patterns. The proposed location of the intake screen, concrete base, riprap, bank protection, and rock vane (if needed) is on the upstream end of a stable, natural pool that is expected to remain in place under the future hydrology of the system. The permanent structures would not significantly affect channel evolution, as the river takes a sharp bend against a bedrock wall immediately downstream, limiting any tendency for lateral migration of the channel. The gravel bar and river channel at the SHSRF have not changed significantly, even after flows in 1995 and 1998 both exceeded the estimated 100-year event magnitude for the reach.

Hydraulic modeling results of the scour potential, which considers both the geomorphic setting of the river channel as well as the dimensions of the proposed improvements within the channel, indicate that the proposed improvements would have no significant impact on the general erosive behavior or transport of sediment through the site. The riprap installed in the vicinity of the new intake screen and as bank protection would mitigate any local scouring that may affect the stability and performance of the installation. Modeling results indicate any local scour would be minor and have no significant effect on downstream sediment loading. The new intake would be positioned in an intermediate portion of the water column, which would minimize the potential for the intake to be temporarily buried by bedload deposition.

The proposed project includes installation of a low-elevation rock vane (if needed) constructed of 12- to 24-inch boulder material upstream from the intake to deflect bedload away from the structure. Additional modeling would be performed to estimate sediment transport in the vicinity of the intake structure over a range of flows. This modeling would indicate if the low-elevation rock vane described and analyzed in this document is necessary. The vane would serve to encourage sediment to flow past the structure, but would not significantly affect transport through the site.

As a result of these design considerations, the proposed project would have less than significant long-term effects related to erosion or siltation.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?

Less than Significant Impact. As described previously, the proposed project would result in very minor increases in impermeable surface areas which would have no effect on existing drainage patterns, and which would not significantly increase surface runoff. The proposed project would not result in any land use changes that would increase the likelihood of flooding. Therefore, the proposed project would result in less than significant impacts from alteration of existing drainage patterns that could cause flooding.

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact. The proposed project would not create or contribute additional sources of runoff to the system. It is expected that the overall water quality impact of the facility on the Carmel River would remain the same as the fish rearing program would not change. There are no stormwater drainage systems on site; stormwater is conveyed either to the Carmel River or to the adjacent floodplain. The proposed project would result in very minimal increases in impermeable surface areas, although drainage patterns would be unchanged as described under checklist items (b), (c), and (d). Therefore, the proposed project would result in less than significant impacts related to polluted runoff and stormwater drainage system capacities.

f. Otherwise substantially degrade water quality?

No Impact. The proposed project's potential water quality impacts are accounted for under the other items in this section. No other impacts are anticipated.

g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. Although the SHSRF is located within a FEMA-delineated 100-year flood hazard zone, the proposed project does not include the construction of any housing. Therefore, there would be no impact associated with placing housing in flood hazard areas.

h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Less than Significant Impact. The proposed project includes installation of below grade pump station, a small at grade pump station, below grade valve vaults, at grade miscellaneous small tanks and equipment, and other minor improvements within the FEMA-delineated 100-year flood hazard zone. Within the river channel, the intake structure would have a small area of exposed concrete base that is estimated to block 26 sf of flow area, a short height retaining wall in alignment with the river, and possibly a low-level rock vane in alignment with the river. The flow area in the 100-year flood is estimated to be more than 2,000 sf and the hazard zone is much wider than the river channel. Preliminary modeling results indicate that impact to flood flows would be negligible from these improvements due to their small footprint. There is no indication that placing these types of structures in this project's flood hazard area would impede or redirect flood flows or otherwise affect any other structures within the 100-year floodplain of the Carmel River. Therefore, there would be a less than significant impact associated with placing new structures in the flood hazard area.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less than Significant Impact. The SHSRF site is located within the FEMA-delineated 100-year flood hazard zone; however, small changes to the river at this location have no effect on habitable structures along the river due to the remoteness of the facility. The only structure of importance (other than the rearing facility) is the proposed Sleepy Hollow Bridge

scheduled to be built for access across the river in 2016. This bridge was designed with three feet of freeboard to pass debris during the 100-year flood. The insignificant change in flood elevation from installing a new intake would result in no impact to the bridge.
As a result of the SHSRF's increased functionality with project implementation, the site would be operational during longer periods than under existing conditions, increasing the presence of SHSRF personnel at the site; however, the facility would not be in operation when conditions in the watershed could lead to flooding.

There is a very low likelihood of dam failure at the Los Padres Dam, as dams are inspected annually by the California Division of Safety of Dams. In the unlikely event that Los Padres Dam did suffer catastrophic failure, SHSRF personnel and the facility could be exposed to flood hazard; however, no data exist on the extent of a flood wave from a dam break. The proposed project would not increase the likelihood of dam failure or increase the potential for increased flooding at the SHSRF. Based on this analysis, the proposed project would result in less than significant impacts related to flooding.

j. Contribute to inundation by seiche, tsunami, or mudflow?

No Impact. The proposed project would have no effect on the potential for tsunamis, seiches, or mudflows on or off site. The SHSRF site is several miles inland and therefore not susceptible to tsunami or seiche hazards. Mudflows are extremely rare in inland areas of Monterey County, and the proposed project would not contribute to any mudflow hazards. Therefore, the proposed project would result in no impact related to tsunami, seiches, or mudflows.

3.3.10 Land Use and Planning

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.3.10.1 Affected Environment

Monterey County's online GIS parcel viewer identifies the proposed project and surrounding area as within a Permanent Grazing zoned area (Monterey County 2015) and the Monterey County General Plan shows the proposed project area as zoned as Farmland. The nearest residential settlement is a low-density subdivision approximately 0.6 mile to the north of the proposed project area.

Applicable land use and conservation plans in the region include:

- The Monterey County General Plan (Monterey County 2010)
- The District's Carmel River Management Plan (MPWMD 1984)
- The Carmel River Mitigation Program, developed pursuant to the 1990 Environmental Impact Report for the District's Water Allocation Program (MPWMD 2015)
- The Carmel River Action Plan (CRWC 2014), a non-binding plan developed by the non-profit Carmel River Watershed Conservancy in partnership with local, state, and federal agencies

The Carmel River Management Plan identifies habitat conservation and restoration as primary requirements. The Carmel River Mitigation Program focuses on protection of the

steelhead resource (stocking and monitoring), and protection of the riparian corridor (habitat conservation and restoration programs). The Carmel River Action Plan includes a wide variety of habitat conservation and restoration, public education, and water allocation actions. Of primary interest to the proposed project is item 32: "Continue fish rescue programs in main stem and tributaries when appropriate."

3.3.10.2 Impact Evaluation

Would the project:

a. *Physically divide an established community?*

No Impact. The SHSRF site is located in an isolated area of unincorporated Monterey County with minimal development. There are no other developments in the immediate vicinity of the site. The proposed project would not divide or otherwise physically affect the surrounding community. Therefore, there would be no impact to communities.

b. *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

No Impact. The objective of the proposed project is to contribute to the restoration and conservation of steelhead populations, which is consistent with applicable plans and policies. The proposed project is consistent with the Open Space and Conservation Element of the County's 2010 General Plan, including Goal OS-4 to "protect and conserve the quality of coastal, marine, and river environments, as applied in areas not in the coastal zone" and Goal OS-5 to "conserve listed species, critical habitat, habitat and species protected in area plans; avoid, minimize, and mitigate significant impacts to biological resources," among others. Accordingly, the proposed project would be consistent with applicable land use plans and policies, and there would be no impact.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. As previously described, mitigation measures BIO-MM-1 through BIO-MM-12, to be implemented as part of the proposed project, would be consistent with the plans noted in this section. Therefore, the proposed project would have no impact.

3.3.11 Mineral Resources

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.3.11.1 Affected Environment

Important extractive resources in Monterey County include sand, gravel, and petroleum (Monterey County 2007). The California Geological Survey has classified the regional significance of mineral resources into Mineral Resource Zones (MRZs). The proposed project area is classified as MRZ-1, meaning that it is an area of no mineral significance. The nearest mineral resources are aggregate produced in the Monterey Production-Consumption Region, located on the Monterey Peninsula, about 10 miles northwest of the SHSRF site.

3.3.11.2 Impact Evaluation

Would the project:

a. *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact. The alluvial portion of the Carmel River contains gravel and sand that was commercially mined between the 1920s and 1970s; however, in the mid-1970s, Monterey County prohibited gravel mining along the Carmel River. There are no other known mineral resources of value to the region and residents of the state in the proposed project area. Even if such resources were located in the vicinity, the proposed project would not result in a loss of availability. Therefore, there would be no impact.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. There are no locally important mineral resources in the proposed project area. Even if such resources were located in the vicinity, the proposed project would not result in a loss of availability. Therefore, there would be no impact.

3.3.12 Noise

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.3.12.1 Affected Environment

3.3.12.1.1 Regulatory Setting

Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to the human ear. The medium of main concern for environmental noise is air. Noise is most simply defined as unwanted sound. Sound is measured in decibels (dB), because it accounts for a number of variations such as frequency and amplitude, using a relative scale adjusted to the human range for hearing (referred to as the A-weighted decibel [dBA]). The dBA is a method of sound measurement that assigns weighted values to selected frequency bands in an attempt to reflect how the human ear responds to sound. The range of human hearing ranges from 0 dB (the threshold of hearing) to about 140 dB (the threshold for pain).

It is recognized that a given level of noise may be more or less tolerable depending on the duration of the exposure experienced by an individual, as well as the time of day during which the noise occurs. The community noise equivalent level (CNEL) is a measure of the cumulative 24-hour noise exposure that considers not only the variation of the A-weighted noise level but also the duration and the time of day of the disturbance. It is noted that various state and local agencies have adopted CNEL as the measure of community noise, including the State Department of Aeronautics and the California Commission on Housing and Community Development.

The Occupational Safety and Health Administration has established acceptable occupational noise exposure levels (29 CFR Part 1910.95). These regulations state that employees would not be exposed to occupational noise levels greater than 90 dB without adequate hearing protection. If occupational noise levels exceed 85 dB, the employer must establish a hearing conservation program as described under 29 CFR Part 1910.95(c-o). For occupational noise exposure levels greater than 90 dB, the daily period of noise exposure must be decreased from 8 hours, as described under 29 CFR Part 1910.95(b).

The State of California General Plan Guidelines, published by the state Governor's Office of Planning and Research, provides guidance for the acceptability of projects within areas that are exposed to specific noise levels. For areas zoned for industrial, manufacturing, utilities, and agricultural land uses, the normally acceptable level of community noise exposure is less than 75 CNEL, with 70 to 80 CNEL being considered conditionally acceptable (OPR 2003). The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

As presented in the 2010 Monterey County General Plan, the County has developed community noise control regulations and standards which are consistent with, or exceed, the guidelines of the State Office of Noise Control and the standards adopted by the Federal Highway Administration, California Department of Transportation (Caltrans), and other government or regulatory agencies (City Municipal Code 2015). The General Plan goal is to

"maintain a healthy and quiet environment free from annoying and harmful sounds" (Monterey County 2010). Noise levels are "acceptable" according to the Table 9.

Table 9

Monterey County General Plan Community Noise Exposure (Ldn or CNEL, dB)

Land Use Category	55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes						
Residential – Multi-Family						
Transient Lodging –Motels, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Business Commercial and Professional						
Industrial, Manufacturing, Utilities, Agriculture						

Legend

	Normally Acceptable. Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

Land Use Category	55	60	65	70	75	80
Normally Unacceptable. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.						
Clearly Unacceptable. New construction or development should generally not be undertaken.						

Source: Monterey County 2010.

Regarding construction noise, the County has established the following policies:

- **Policy S-7.9.** No construction activities pursuant to a County permit that exceed "acceptable" levels listed in (General Plan) would be allowed within 500 feet of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Noise protection measures, in the event of any identified impact, may include but not be limited to:
  - Constructing temporary barriers, or
  - Using quieter equipment than normal.
- **Policy S-7.10.** Construction projects would include the following standard noise protection measures:
  - Construction would occur only during times allowed by ordinance/code unless such limits are waived for public convenience;
  - All equipment would have properly operating mufflers; and
  - Lay-down yards and semi-stationary equipment such as pumps or generators would be located as far from noise-sensitive land uses as practical.

3.3.12.1.2 Environmental Setting

Noise in the vicinity of the SHSRF is primarily generated by facility operations. When operating, the facility includes continuous use of electrical motors to supply water and air to the rearing tanks and the channel that generate a constant low level hum. The sound intensity is not high enough to impact natural resources within the project area, and cannot be heard by residences or sensitive receptors in the project vicinity. Motors are equipped with sound insulation to reduce transmission of noise. Limited vehicular traffic for personnel accessing the site also generates minimal noise at the facility.

Some land uses are considered more sensitive to ambient noise levels than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, and hospitals. The nearest residential area is located approximately 0.5 mile to the north, the closest school is located approximately 2.8 miles northwest, and the closest hospital is located approximately 7.5 miles northwest of the SHSRF site.

3.3.12.2 Impact Evaluation

Would the project:

a. *Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?*

Construction. Less than Significant Impact. Construction activities typically require the use of numerous pieces of noise-generating equipment. These activities would temporarily increase ambient noise levels on an intermittent basis. Noise levels would fluctuate depending on the construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers. Table 10 presents the typical noise level of construction equipment anticipated for use during construction.

Table 10
Typical Noise Levels of Construction Equipment

Equipment	Typical or Spec. Sound Level at 50 feet (dBA)
Backhoe	80
Compactor	82
Concrete mixer	85
Crane (mobile)	83
Truck	88
Excavator	85
Dump Truck	84

Notes:
dba = A-weighted decibel
Source: FTA 2006

Construction noise attenuates with distance from the source. Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, and senior care facilities would each be considered noise- and vibration-sensitive and may warrant unique measures for protection from intruding noise. The closest sensitive receptor (residential) is located more than 0.5 mile to the north of the proposed project area, separated by heavily vegetated areas of hilly topography.

Construction equipment was input into the Federal Highway Administration Roadway Construction Noise Model, a computer program that enables the prediction of construction noise levels for a variety of operations based on a compilation of empirical data and the application of acoustical propagation formulas. To be conservative, no shielding was assumed, even though heavy vegetation and hilly terrain exist between the proposed project area and the nearest residence. The model shows maximum sound levels (Lmax) of 50.5 dBA at 0.5 mile from the construction site, which is below Normally Acceptable ambient noise levels for residential areas. In addition, project construction would occur in compliance with construction noise policies from the 2010 General Plan. Therefore, the proposed project would result in less than significant impacts related to construction noise.

Operation. No Impact. The proposed project would replace existing SHSRF infrastructure and equipment, which would have no appreciable effect on noise generated on site during operations. Pumps, fans, piping, and other infrastructure proposed for installation as part of the proposed project would be comparable to equipment used under current conditions. Operational noise would remain limited to constant low-level hums from such equipment. Any changes to sound generated at the facility would not be apparent to any receptors away from the facility, as the facility is located within an isolated area. Therefore, the proposed project would result in no impact related to operational noise.

b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Construction. Less than Significant Impact. The proposed project is unlikely to generate significant vibrations construction. Project construction would not require any equipment

or activities that would generate vibrations that may affect persons or structures (e.g., pile driving, blasting, etc.). Any heavy construction equipment use would be required to occur in compliance with the 2010 General Plan Policy S-7.8, which requires submittal of a pre-construction vibration study prior to the approval of a building permit for projects requiring heavy construction equipment with the potential to create vibrations that could cause structural damage to adjacent structures within 100 feet. Such projects are required to incorporate specified measures and monitoring to reduce vibration impacts. Therefore, the proposed project would result in less than significant impacts related to construction vibration.

Operation. No Impact. The proposed project would replace existing SHSRF infrastructure and equipment, which would have no appreciable effect on vibrations generated on site during operations. Proposed and existing equipment does not generate significant vibrations that would damage persons or structures. Therefore, the proposed project would result in no impact related to operational vibrations.

c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No Impact. As discussed under checklist item (a), operational noise levels with the proposed equipment would not change significantly from existing conditions, and would remain limited to constant low-level hums from such equipment. Therefore, the proposed project would result in no impact related to permanent ambient noise levels.

d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

No Impact. As discussed under checklist item (a), operational noise levels with the proposed equipment would not change significantly from existing conditions. Although temporary construction noise would be generated by the proposed project, it would not result in any change to either permanent or temporary ambient noise levels. Temporary construction noise generated by the proposed project would not exceed acceptable noise levels identified

in the 2010 Monterey County General Plan. Therefore, the proposed project would result in no impact related to temporary increases in ambient noise levels.

e. *Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?*

No Impact. The proposed project is not located within 2 miles of a public airport; the nearest public airport to the proposed project site is the Monterey Regional Airport, located approximately 12.8 miles northwest of the proposed project site. Therefore, the proposed project would not expose people residing or working in the proposed project area to excessive noise levels associated with public airport activities, and there would be no impact.

f. *Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?*

No Impact. The nearest public airport to the proposed project site is 12.8 miles northwest of the proposed project site. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with public airport activities, and there would be no impact.

3.3.13 Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.3.13.1 Affected Environment

According to the U.S. Census, the SHSRF is in Monterey County Census Tract 110, Block Group 4, Block 4028. At the time of the 2010 Decennial Census (the most recent date for which block-level data are available), it was estimated that four people in two households lived in the block. There are no residences within view of the SHSRF.

3.3.13.2 Impact Evaluation

Would the project:

a. *Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?*

No Impact. The proposed project does propose any new homes or businesses, and would not affect transportation infrastructure. Therefore, there would be no impact.

b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would not displace any housing units. Upgrades to the existing facility would not affect potential future housing in the vicinity. Therefore, there would be no impact.

c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would have no effect on existing residential areas, and would not necessitate the construction of replacement housing. Therefore, there would be no impact.

3.3.14 Public Services

Would the project:	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.3.14.1 Affected Environment

The facility is served by the Monterey County Fire District's Village Station and the Monterey County Sheriff's Community Field Office, both located in Carmel Valley. The nearest residents, along San Clemente Drive, use schools, parks and other facilities in Carmel Valley.

3.3.14.2 Impact Evaluation

Would the project:

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

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

No Impact. No services to the public are provided at the facility, and the facility would not result in any changes to the provision of government services in the area. No changes are expected to service ratios, response times, accessibility, or other performance measures. Therefore, there would be no impact.

3.3.15 Recreation

Would the project:	Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.3.15.1 Affected Environment

The nearest recreational facility to the SHSRF is Carmel Village Community Park, a neighborhood park approximately 3 miles northeast of the facility. Los Padres National Forest is approximately 6 miles south of the proposed project area. No recreational facilities would be included, constructed, or expanded as a result of the proposed project.

3.3.15.2 Impact Evaluation

Would the project:

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

No Impact. The proposed project would not cause population changes that would bring more users to parks in the vicinity. Therefore, there would be no impact.

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

No Impact. The proposed project would not include, construct, or expand any recreational facilities. Therefore, there would be no impact.

3.3.16 Transportation/Traffic

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b.	Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d.	Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e.	Result in inadequate emergency access?	☐	☐	☐	☒
f.	Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

3.3.16.1 Affected Environment

The SHSRF is located in an isolated area of Monterey County, more than 0.50 mile away from the nearest residences and public roadways. Vehicle and personnel access to the facility is available only via a private District-controlled dirt road off of San Clemente Road. Areas immediately surrounding the SHSRF are undeveloped, with the exception of the access roadway.

According to the MBUAPCD CEQA Guidelines (MBUAPCD 2008), the following would represent a potentially significant impact to roadway intersections or segments:

- Intersections or road segments that operate at level of service (LOS) D or better that would operate at LOS E or F with the project's traffic;
- Intersections or road segments that operate at LOS E or F where the volume-to capacity (V/C) ratio would increase by 0.05 or more with the project's traffic;
- Intersections or road segments that operate at LOS E or F where delay would increase by 10 seconds or more with the project's traffic;
- Un-signalized intersections which operate at LOS E or F where the reserve capacity would decrease by 50 or more with the project's traffic (this criterion is based on the turning movement with the worst reserve capacity); or
- The project would generate substantial heavy-duty truck traffic, substantial traffic along urban street canyons, or substantial traffic near a major stationary source of carbon monoxide.

3.3.16.2 Impact Evaluation

Would the project:

a. *Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?*

Construction. No Impact. The proposed project would be constructed on site and, except for the initial movement of minimal pieces of construction equipment to the site at the onset of construction and eventual movement from the site at the end of construction, construction would not affect roads or other transportation corridors. Therefore, there would be no impact to existing traffic during construction.

Operation. No Impact. At least one daily trip by District staff is required to maintain the facility and vehicles for other operations and maintenance activities are occasionally required. The proposed project would therefore result in an increase in vehicle trips during years with extended operations; however, this increase is expected to be minor (on the order of several vehicles per day, at the maximum). Therefore, there would no impact on traffic as a result of operations.

b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?

No Impact. The proposed project would result in an increase in vehicle trips during years with extended operations; however, this increase is expected to be minor. Therefore, there would be less than significant impacts as a result of operations (on the order of several vehicles per day, at the maximum). Therefore, there would be no impact.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The nearest public airport to the proposed project site is the Monterey Regional Airport, approximately 12.8 miles northwest. The proposed project would not result in a change in air traffic patterns, including increased air traffic levels or a change in location that results in substantial safety risks. The proposed project would not include any aerial structures, and no changes to air traffic patterns would occur. Therefore, there would be no impact.

d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project does not include any modifications to the existing transportation network. Therefore, there would be no impact.

e. Result in inadequate emergency access?

No Impact. The minor increase in vehicle traffic to the facility as a result of the proposed project would not affect emergency access. Therefore, there would be no impact.

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. The proposed project is within a remote isolated area with no public access. There are no policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities for the roadway. Therefore, there would be no impact.

3.3.17 Utilities and Service Systems

Would the project:		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☒	☐
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.3.17.1 Affected Environment

3.3.17.1.1 Stormwater Drainage

Stormwater is discussed at length in Section 3.3.9. As described, the SHSRF site gently slopes towards the Carmel River, and surface and stormwater is conveyed via sheetflow to the Carmel River or adjacent floodplain. There are no storm drains or other municipal drainage infrastructure at the project site.

3.3.17.1.2 Water Supply

Potable water for the SHSRF is obtained from the Carmel River. River water is pumped, stored in two plastic storage tanks, and treated with continuous ozone before being gravity fed to the office building, including the lab sink; bathroom sink, shower, and toilet; and outside building hose bib. Water for steelhead rearing at the SHSRF is supplied from a screened freshwater intake located in the Carmel River approximately 250 feet from the facility, as described in Section 2.1.

3.3.17.1.3 Wastewater Infrastructure

A septic tank system treats all wastewater from the SHSRF. Effluent water for steelhead rearing is discharged to the gravel river bed, and effluent solids are flushed during high river stage. Treated water from the quarantine tanks and rearing troughs is discharged into two poly tanks and treated with ozone for one to two weeks before being discharged onto the dry cobble bar far from the river. Discharge to the Carmel River occurs under existing authorization from RWQCB.

3.3.17.2 Impact Evaluation

Would the project:

a. *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No Impact. Implementing water reuse would result in solids being collected at additional locations besides the cobble bed of the rearing channel, but all collected solids would be discharged to the gravel river bed and flushed during high river stage events similar to the method solids are currently handled. It is expected that the overall impact on the facility on the river would remain equivalent to baseline conditions as no changes to the fish rearing program are proposed. The SHSRF operates under existing authorization from RWQCB. Prior to project implementation, existing approvals from RWQCB and other regulatory agencies would be modified as needed, or new approvals would be obtained. Therefore, there would be no impact.

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. Under the proposed project, wastewater would continue to be managed with the existing septic system, and effluent would continue to be discharged to the Carmel River. Therefore, there would be no impact.

c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. There would be no change to existing stormwater drainage infrastructure as a result of the proposed project. Stormwater would continue to be conveyed via sheetflow to the Carmel River or adjacent floodplain. Therefore, there would be no impact.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?

Less than Significant Impact. The proposed project could result in some additional water consumption from the Carmel River due to the SHSRF operating for longer periods and the evaporation losses associated with using the cooling tower at the SHSRF; however, these losses would be minimized to the extent practicable through implementation of the partial water reuse system, which would result in cooler water entering the cooling tower during hot periods[5]. Prior to implementation of the proposed project, existing approvals from the RWQCB and other regulatory agencies would be modified as needed, or new approvals would be obtained. Therefore, there would be less than significant impacts.

[5] During warm periods, river water temperature is often higher than desired and the cooling tower is in operation. Water discharging from the SHSRF is cooler than river water. Mixing a portion of the discharge from the rearing channel in RAS mode with river water would result in cooler water being pumped into the cooling tower, which would result in reduced evaporative losses through the tower.

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

No Impact. Under the proposed project, wastewater would continue to be managed with the existing septic system, and effluent would continue to be discharged to the Carmel River. Therefore, there would be no impact.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less than Significant Impact. Under the proposed project, the amount of solid waste generated by employees at the SHSRF (e.g., garbage, etc.) would be negligible and similar to existing conditions. Effluent solids would generally continue to be discharged to the gravel river bed, although some solids may be captured in microscreen filters and periodically removed as required. It is anticipated that landfills in the Carmel Valley area would have adequate capacity to meet these modest facility needs. Therefore, there would be less than significant impacts.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. As described, the proposed project would result in negligible changes to effluent solids treatment. Prior to project construction, existing approvals from RWQCB and other regulatory agencies would be modified as needed, or new approvals would be obtained. Therefore, there would be no impact.

3.3.18 Mandatory Findings of Significance

		Potentially Significant Impact	Less Than Significant Impact After Mitigation	Less Than Significant Impact	No Impact
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.3.18.1 Impact Evaluation

a. *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?*

Less than Significant Impact after Mitigation. The potential impacts of the proposed project on fish, wildlife, and other biological resources are described in detail in Section 3.3.4. The potential impacts of the proposed project on cultural, historic, and archaeological resources

are described in detail in Section 3.3.5. With implementation of mitigation measures BIO-MM-1 through BIO-MM-12 and CULT-MM-1, the proposed project would result in less than significant impacts on these resources.

b. *Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)*

Less than Significant Impact. Construction of the proposed project would result in minimal less than significant impacts, some of which require mitigation. However, within the broader context used to assess cumulative impacts, the proposed project would result in benefits to the SHSRF's ability to function as a nursery site for steelhead. The proposed project would also better prepare the facility for operating post-removal of the San Clemente Dam as compared to existing conditions. Therefore, the proposed project would result in less than significant impacts as related to cumulative impacts.

c. *Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than Significant Impact after Mitigation. Construction of the proposed project would result in minimal less than significant impacts, some of which require mitigation. None of these mitigated impacts would result in significant impacts on human beings living in the region as compared to without project conditions. Therefore, the proposed project would result in less than significant impacts associated with environmental effects that could adversely affect human beings.

3.3.19 Summary of Mitigation Measures

Mitigation Measure	Description
BIO-MM-1	Placement of anchored large wood would be proposed as mitigation for loss of streambed, if required by permitting agencies. Anchored large wood would be placed at a suitable location in the Carmel River to enhance habitat value for aquatic species as mitigation for any loss of streambed habitat. Large wood will be partially buried and anchored in the streambank nearby and downstream of the intake facility. Suitable wood material, such as redwood, Douglas fir, pine, or other suitable material would be used. An approximately 15- to 20-foot piece of large wood, preferably with a rootball attached, with a diameter of 24 inches or more, would be cabled and anchored into the streambank to counteract sliding and buoyancy forces. The structure would form the nucleus for complex habitat to develop in the channel bottom in the vicinity of the structure. Placement of large wood would occur per the methods detailed in the National Large Wood Manual (USBR and USACE 2016).
BIO-MM-2	Prior to construction, a qualified botanist or riparian specialist would identify and record the number, type, and size of trees to be removed or trimmed. Replacement planting for riparian trees would occur at a ratio determined through consultation with permitting agencies.
BIO-MM-3	Any oak tree removal will occur in compliance with the Monterey County Oak Preservation Ordinance. The ordinance requires a permit for removal of oaks greater than 6 inches in diameter in most sections of the county, and 1:1 replacement. Removal of more than 3 protected trees per lot per year requires a Forest Management Plan, Use Permit, and is subject to CEQA. Monterey County will be the regulatory authority responsible for oversight of the replacement of the oak trees. Any oak trees planned for removal under the proposed project would be assessed for sudden oak death. If trees are found to have the disease, the District will implement additional measures to prevent spreading the disease and will replace the lost oaks with species that are resistant to sudden oak death.
BIO-MM-4	To avoid impacts to water quality and aquatic habitats, erosion control BMPs would be developed and implemented to minimize any wind or water-related erosion and would comply with permitting agency requirements. Protective measures would include the following, at a minimum: • No discharge of pollutants from vehicle and equipment cleaning would be allowed into any storm drains or watercourses. • Vehicle and equipment fueling and maintenance operations would be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities. • Spill containment kits would be maintained on site at all times during construction operations and/or staging or fueling of equipment.

Mitigation Measure	Description
	• Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting would be installed along or at the base of slopes during construction to capture sediment. • Graded areas would be protected from erosion using a combination of silt fences, fiber rolls, or other similar protection along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. • A speed limit of 15 miles per hour in the project footprint in unpaved areas would be enforced to reduce dust and excessive soil disturbance. • All food and food-related trash items would be enclosed in sealed trash containers and properly disposed of off site. • Pets would not be allowed within the work area or environmentally sensitive areas. • No firearms would be allowed on the project site except for those carried by authorized security personnel or local, State, or federal law enforcement officials. • A Spill Response Plan would be prepared. Hazardous materials (e.g., fuels, oils, or solvents) would be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.
BIO-MM-5	Prior to the start of construction, a qualified biologist would conduct an educational training program for all construction personnel. The training would include, at a minimum, a description of the species identified as potentially present in Appendix B; an explanation of the status of these species and protection under federal or State laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the environmentally sensitive areas and wildlife exclusion fencing and the importance of maintaining these structures. A fact sheet conveying this information would be prepared and distributed to all construction personnel. Upon completion of the program, personnel would sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the ESA and CESA.
BIO-MM-6	The following project design or avoidance measures would be implemented to avoid construction impacts to steelhead: • MPWMD staff trained in steelhead relocation would remove and relocate any steelhead within construction areas that are to be dewatered. • Pumps or bypass pipes required during dewatering would be screened as appropriate to avoid entrainment of steelhead. • Turbid water pumped from in-channel sites would be discharged onto adjacent gravel bars and not directly into the river.
BIO-MM-7	The following project design or avoidance measures would be implemented to avoid construction impacts to amphibious special status species:

Mitigation Measure	Description
	• Seasonal Avoidance. Work would be limited to the work window for steelhead, from June 1 through October 31, or as required by consultations with permitting agencies. Work outside of the channel or at other times of the year would be carried out in consultation with permitting agencies. • Wet Weather Restrictions. No work would occur during or within the 24 hours following a rain event exceeding 0.2 inch as measured by Cal-Am at the former San Clemente Dam site. • Environmentally Sensitive Areas. Prior to the start of construction all environmentally sensitive areas, defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed, would be clearly delineated. Construction work areas include the active construction site and all areas providing support for the proposed action (e.g., areas used for vehicle parking, equipment and material storage and staging, and access roads). The delineation of environmentally sensitive areas would remain in place throughout the duration of the active construction phase and would be regularly inspected and fully maintained at all times. • Wildlife Exclusion Fencing. Prior to the start of construction and after wildlife surveys have been completed, MPWMD, in consultation with permitting agencies, will determine if wildlife exclusion fencing is to be installed within the project footprint, including access road and staging areas. If the fencing is necessary, it would comprise a material that frogs, turtles, or snakes cannot climb or traverse and be a minimum of 36 inches tall, with the bottom edge buried a minimum of 4 inches deep. The fencing would be backfilled with soil, sand bags, or other means to prevent CRLF, western pond turtles, or two-striped garter snakes from passing underneath the fence and entering the project site. Vegetation would be cleared within 18 inches of either side of the fence and remain clear while the fence is operational to prevent species from using vegetation to gain access to the project site by climbing over the fence. The wildlife exclusion fencing would remain in place throughout the construction phase of the project, and would be regularly inspected and fully maintained. Upon project completion, the fencing would be completely removed, and the area cleaned of debris and trash and returned to natural conditions. • Proper Use of Erosion Control Devices. To prevent CRLF, western pond turtle, or two-striped garter snake from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting would not be used within the project area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers. • Avoidance of Entrapment. To prevent inadvertent entrapment during construction, all excavated steep-walled holes or trenches more than 1 foot deep would be covered

Mitigation Measure	Description
	with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The biological monitor would inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. • Preconstruction Surveys. Preconstruction surveys would be conducted by a qualified biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing. The qualified biologist or biological monitor would conduct daily clearance surveys when construction activities are occurring. • Species Observation and Stop Work Authority. If individuals of CRLF, western pond turtles, or two-striped garter snakes are encountered, work activities within 50 feet of the individual must cease immediately and the on-site construction supervisor notified. Based on the professional judgment of the on-site biologist, if project activities can be conducted without injuring or killing the individual, it may be left at the location of discovery and monitored by the biologist. All project personnel would be notified of the finding and at no time would work occur within 50 feet of the animal without a qualified biologist present. Capture and relocation would only be allowed if directed by the USFWS or CDFW.
BIO-MM-8	The following project design or avoidance measures would be implemented to avoid construction impacts to coast horned lizard: • Minimize habitat disturbance. Excavation within upland habitat would be the minimum required to complete the proposed improvements. To minimize surface disruption, pipe and utility features would be installed in common trenches and situated in existing roads where possible. • Preconstruction surveys and relocation. Preconstruction surveys would be conducted by a qualified biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing. The qualified biologist or biological monitor would conduct daily clearance surveys when construction activities are occurring. Any coast horned lizards encountered would be relocated away from the work area by a qualified biologist.
BIO-MM-9	A pre-construction survey would be conducted in and adjacent to the limits of grading to identify any woodrat nests that could be impacted by project activities. All nests would be mapped and flagged in the field. If nests are encountered, the following measures would be implemented: • Nest Protection. To the extent feasible, woodrat nests would be avoided during construction. If the nest can be avoided, it would be isolated from the work zone by installation of environmentally sensitive area fencing. • Nest Removal – Non-Breeding Season. If a woodrat nest is detected in the work zone and it cannot be avoided, site clearing would be performed during the non-breeding

Mitigation Measure	Description
	season (i.e., September 1 through November 30). During the non-breeding season, the nest would be disassembled by hand and the nest materials (e.g., sticks) moved outside the project footprint. Any adult animals present would be permitted to disperse into adjacent habitat. This work may only be performed by a qualified biologist in coordination with the CDFW. • Nest Removal – Breeding Season. If site clearing must proceed during the breeding season (i.e., December 1 through August 31), it will be necessary to determine whether or not the nest is occupied. This may be done by direct observation over the course of at least two evenings no more than 48 hours prior to nest disassembly. Direct observation may consist of installation of camera traps at the nest or by a biologist on the ground. If no animals are observed, the nest may be disassembled by hand. If, during the process of disassembling the nest, live animals are encountered, nest materials would be replaced on top of the nest and the effort abandoned. The nest may not be disassembled if young woodrats are present. Construction must then be postponed until the end of the breeding season when juveniles are able to survive on their own.
BIO-MM-10	The following project design or avoidance measures would be implemented to avoid construction impacts to special status bird species: • If clearing, grubbing, and tree removal or pruning are to be conducted outside of the breeding season (i.e., September 1 through January 31), no preconstruction surveys for nesting migratory birds would be necessary. • If clearing, grubbing, and tree removal or pruning are to be conducted during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey would be conducted. The survey would be performed by a qualified biologist no more than 2 weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 92 m (300 feet) for raptors and 31 m (100 feet) for passerines would be mapped. • For any active nests found near the construction limits (i.e., 92 m [300 feet for raptors and 31 m [100 feet] for passerines), a project biologist, approved by CDFW, would make a determination as to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, the no-construction buffer zone would be expanded; avoidance is the only mitigation available. The ultimate size of the no-construction buffer zone may be adjusted by the project biologist based on the species involved, topography, lines of sight between the work area and the nest, physical barriers, and the ambient level of human activity. If it is determined that construction activities are likely to disrupt

Mitigation Measure	Description
	raptor breeding, construction activities within the no-construction buffer zone may not proceed until the project biologist determines that the nest is no longer occupied. • If maintenance of a no-construction buffer zone is not feasible, the project biologist would monitor the nest(s) to document breeding and rearing behavior of the adult birds. If it is determined that construction activities are likely to cause nest abandonment, work would cease immediately and the CDFW and/or the USFWS Division of Migratory Bird Management would be contacted for guidance.
BIO-MM-11	The following project design or avoidance measures would be implemented to avoid construction impacts to special status bat species: • Bat Habitat Assessment. If work is to take place during the bat breeding season (i.e., April 1 through August 31), a qualified biologist would conduct a survey of the project site and vicinity to determine if active maternity roosts are present. This survey would be conducted no more than 14 days prior to the initiation of work. • Maternal Roosts. If any trees or structures are determined to support or potentially support maternal bat roosts, work may not proceed if it would destroy roosts or disrupt breeding. Maternal bat roosts may only be removed or demolished after coordination with the CDFW. Passive exclusion of roosting bats would be required, and this may only be performed during the non-breeding season (i.e., between October 1 and March 30). • Preconstruction Survey. A preconstruction survey would be conducted by a qualified biologist to identify suitable bat roosting sites. The survey would be conducted no more than 48 hours prior to the initiation of work and would include an area extending up to 61 m (200 feet) of the limits of work, access permitting. • Protocol for Observations of Live Bats. If live bats are detected in the work area, work may not proceed until CDFW has been consulted. Contractors or others may not attempt to disturb (e.g., shake or prod) roosting features to coax bats to leave. • Day or Night Roosts. Any trees determined to provide suitable day or night roosting sites for bats would be identified and marked on site plans. Such roosting sites include snags, rotten stumps, decadent trees with broken limbs, exfoliating bark, cavities, and openings leading to interior portions of any structures. If no suitable roost sites or evidence of bat roosting are identified, impact minimization measures are not warranted. If suitable roosting sites or evidence of bat roosting are identified, the following measures would be conducted in coordination with CDFW: – A qualified biologist would survey suitable roost sites immediately prior to the removal or significant pruning of any of the larger trees, or demolition or significant renovation of any structures.

Mitigation Measure	Description

	– If the project biologist identifies suitable day or night roost sites or evidence of bat occupation, the following steps would be followed to discourage use of the sites by bats and to ensure that any bats present are able to safely relocate.
	– For trees:
	  – Tree limbs smaller than 7.6 centimeters (3 inches) in diameter would be removed and any loose bark would be peeled away.
	  – Any competing limbs that provide shelter around the potential roost site would be removed to create as open of an area as possible.
	  – The tree would then be left alone to allow any bats using the tree/snag to find another roost during their nocturnal activity period.
	  – Trees would be re-surveyed 48 hours after trimming.
	  – If no bats are present, work may proceed.
	  – If bats remain on site, additional measures would be prescribed by the biologist.

BIO-MM-12	A qualified biologist will survey the work area for presence of CNPS list species prior to any work in upland areas. If any CNPS list species are identified, potential impacts from construction activities would be avoided to the extent possible by working around the populations.
CULT-MM-1	An archaeological monitor will be on-site during construction that may extend into native sediments. Monitoring will be supervised by a qualified archaeologist. If archaeological materials are encountered, the monitor will be authorized to stop construction as necessary to protect the find. The monitor will contact the qualified archaeologist. The qualified archaeologist will work with the District to assess the significance of the find, contact the Native American Heritage Commission, and determine appropriate avoidance or mitigation measures. Construction may resume in the area when mitigation has been completed and the District has authorized the activity.
CULT-MM-2	Pursuant to CEQA Guidelines 15064.5 (f), "provisions for historical or unique archaeological resources accidentally discovered during construction" would be instituted. Therefore, in the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources would be halted and the District would consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant, representatives of the District and the qualified archaeologist and/or paleontologist would meet to determine the appropriate avoidance measures or other appropriate mitigation. All significant cultural materials recovered shall be subject to scientific analysis, professional museum inclusion, and a report prepared by the qualified archaeologist according to current professional standards. If the discovery includes human remains, CEQA Guidelines 15064.5 (e)(1) shall be followed, which is as follows: (e) In the event of the accidental discovery or other than a dedicated cemetery, the following steps would be taken:

Mitigation Measure	Description
	(1) There would be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and (B) If the coroner determines the remains to be Native American: 1. The coroner would contact the Native American Heritage Commission within 24 hours. 2. The Native American Heritage Commission would identify the person or persons it believes to be the most likely descended from the deceased Native American. 3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or (2) Where the following conditions occur, the landowner or his authorized representative would rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance. (A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission; (B) The descendant identified fails to make a recommendation; or (C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

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APPENDIX A
SLEEPY HOLLOW WETLAND DELINEATION

Sleepy Hollow

Wetland Delineation

Prepared for:

Monterey Peninsula Water Management District

Prepared by:

Denise Duffy & Associates, Inc
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947 Cass Street, Suite 5
Monterey, CA 93940

August 2016

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INTRODUCTION

Project Description

The Monterey Peninsula Water Management District (District) has contracted Denise Duffy & Associates, Inc (DD&A) to prepare a delineation of wetlands and other waters of the U.S. (delineation) within the Sleepy Hollow Steelhead Rearing Facility Raw Water Intake and Water Supply System Upgrade Project area (project) (Figures 1 and 2). Some of the discussion below is derived from existing project documentation (Nedeff 1994 and Anchor QEA 2016).

The project is located within unincorporated Monterey County; approximately, at river-mile 17.5 on the west bank of the Carmel River (36º26'39" N, 121º42'59" W). The upper Carmel River is characterized by steep canyons and is relatively undeveloped. The existing rearing facility lies on the outside floodplain of a large meander on a stable gravel bar deposit, created by a canyon wall bedrock outcrop. The river at this location exhibits natural riverine geomorphology consisting of an unvegetated low flow channel, a terrace with a sparsely vegetated understory, a natural levee and the adjacent floodplain. Riparian tree species are rooted at the top of bank of both the primary and secondary terraces, creating a dense canopy spanning from the low flow channel onto the floodplain. The upper floodplain is dominated by non-native grassland and meets steep canyon walls which are dominated by mature coast live oak forest. This terrain creates an extensive backwater at high flows.

Regulatory Background

The U.S. Army Corps of Engineers (ACOE) is the primary federal agency responsible for regulating wetlands and waters of the United States (waters). The ACOE and the Environmental Protection Agency (EPA) define wetlands as:

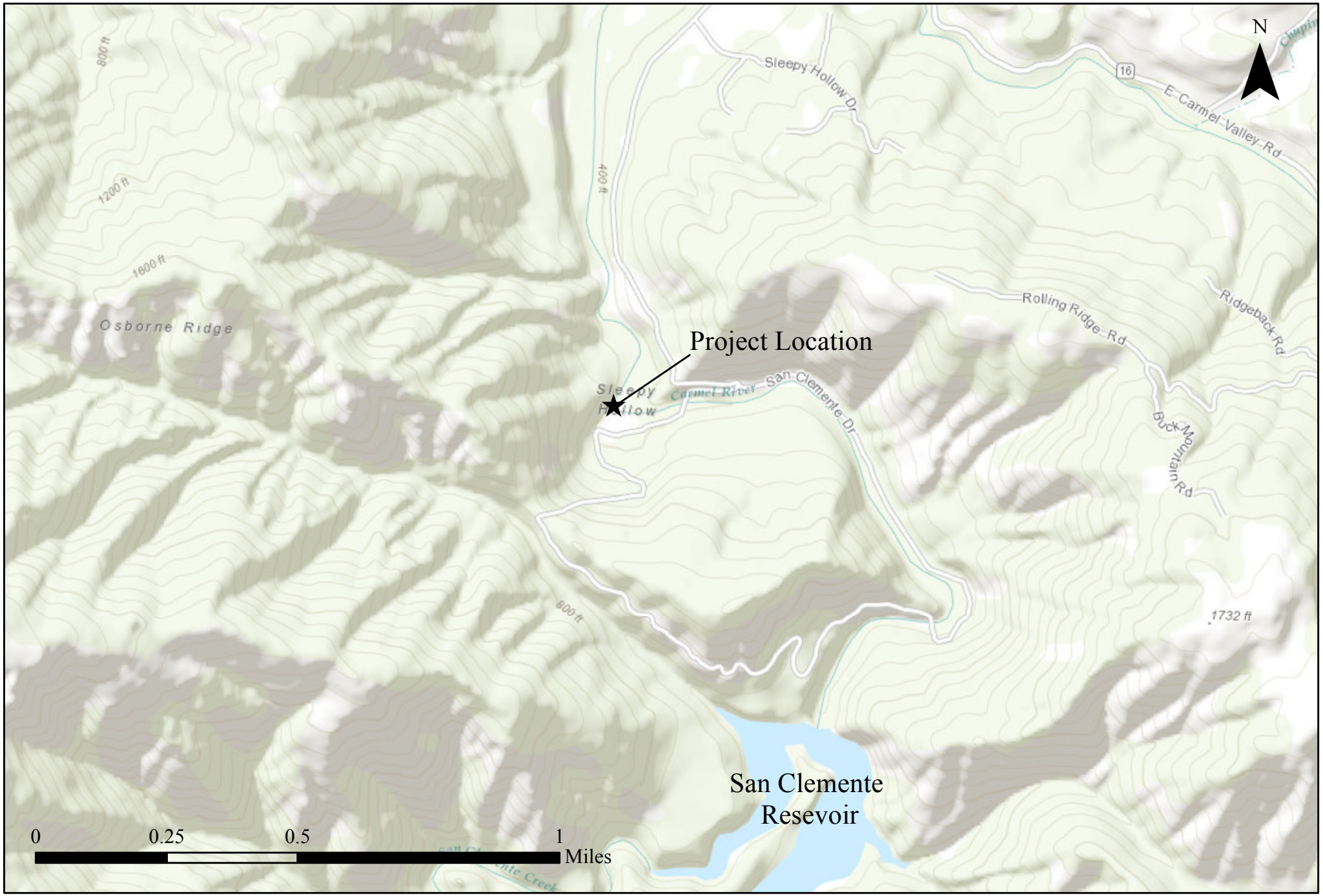
> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (ACOE 1982; EPA 1980).

The Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual (Wetland Manual) (Wetland Training Institute 2002) describes the three environmental parameters used in delineating jurisdictional wetlands. The three parameters are:

1. *Vegetation*. The prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described in the definition of a wetland above. Hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow effectively, compete, reproduce, and/or persist in anaerobic soil conditions;
2. *Soil*. Soils are present and have been classified as hydric or they possess characteristics that are associated with reducing soil conditions; and
3. *Hydrology*. The area is inundated either permanently or periodically at mean water depths of ≤ 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation.

The Wetland Manual states that "evidence of a minimum of one positive wetland indicator from each parameter…must be found in order to make a positive wetland determination." However, climatic and hydrologic conditions in the Arid West often make it difficult to identify wetland indicators. Therefore,

on December 18, 2006, the San Francisco District of the ACOE distributed a public notice requiring that, as of January 1, 2007, any new delineation work within their jurisdiction follow the guidance contained in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Supplement) (ACOE 2006). Version 2.0 of the Supplement was released in November 2008 and replaces the 2006 "interim" version (ACOE 2008). The Supplement provides both indicators for each parameter that are specific to the Arid West region and guidance on difficult wetland situations where indicators may be lacking.



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Date: 8/11/2016

Scale: 1 inch = 0.2 miles

Project: 2016-44

Monterey | Truckee | San Jose

Denise Duffy and Associates, Inc.

Environmental Consultants Resource Planners

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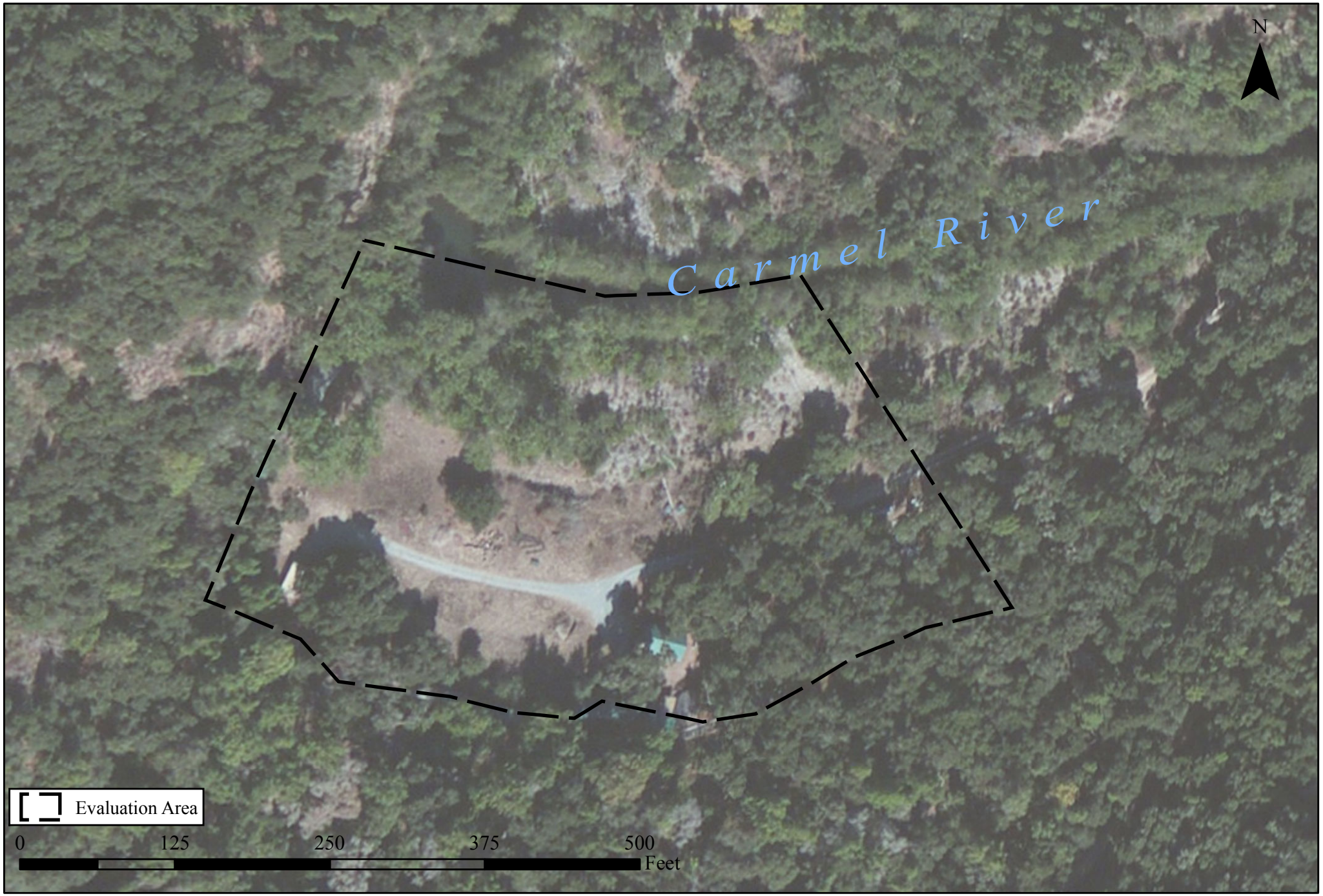
Figure

1



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Evaluation Area

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Figure
2

Methods

This delineation was conducted in accordance with the requirements set forth in both the Wetland Manual and the Supplement, as appropriate. Prior to conducting field surveys, available reference materials were reviewed, including the National Wetlands Inventory Wetland Mapper (Service 2016), the Soil Survey for Monterey County (USDA-NRCS 1972), the list of Hydric Soils of the United States (USDA 2016A), the Web Soil Survey (USDA-NRCS 2016B), existing documentation for the site (Nedeff 1994; Anchor QEA 2016) and aerial photographs of the site.

The field portion of the delineation was conducted on August 3, 2016 by DD&A Senior Environmental Scientists Josh Harwayne and Matt Johnson. The methods for delineating wetlands and other waters of the U.S. are described in detail below.

Field Methods

The data collected during the field surveys were recorded on Wetland Determination Data Forms for the Arid West Region, provided in the Supplement. Sampling points were taken within the evaluation area. Data collected at each sampling point was analyzed to determine if wetlands and other waters were present. As described above, evidence of a minimum of one positive primary wetland indicator from each parameter was necessary in order to make a positive wetland determination. Indicators described in the ACOE manual used to make wetland determinations at each sampling point are described below.

Vegetation

Vegetation was broken into four strata for evaluation: tree, sapling/shrub, herb, and woody vines. Dominant plant species and approximate percent cover were recorded for each stratum. Plant species were identified using *An Illustrated Field Key to the Flowering Plants of Monterey County and ferns, fern allies, and conifers* (Matthews 2015), and were assigned a wetland status according to the *Arid West 2014 Regional Wetland Plant List* (ACOE 2014). This wetland classification system is based on the expected frequency of occurrence in wetlands as described in Table 2-1.

Table 2-1: Wetland Vegetation Classification System

Symbol	Indicator Category	Definition	Frequency of Occurrences
OBL	Obligate Wetland Plants	Always found in wetlands	>99%
FACW	Facultative Wetland Plants	Most often occur in wetlands	67-99%
FAC	Facultative Plants	Equal likelihood of occurring in wetlands and non-wetlands	33-67%
FACU	Facultative Upland Plants	Most often occur in non-wetlands	1-33%
UPL	Obligate Upland Plants	Always found in non-wetlands	<1%
NL	Not Listed (Assumed Upland)		

The "dominance test", as described in the Supplement, was applied for each survey point. If greater than 50 percent of the dominant plant species across all strata were rated OBL, FACW, or FAC, then the plant community "passed" the dominance test and the vegetation was determined to be hydrophytic. Neither the prevalence test or morphological adaptations indicator were used as the conditions described in the manual for each were absent (i.e., plant community failing the dominance test with presence of both hydric soil and wetland hydrology)

Soils

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as:

> "A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA-NRCS 1995).

The soil at each survey point was evaluated by digging a 18-inch hole, when possible, and identifying soil horizons, color, and texture, as well as any hydric soil indicators (as described in the Supplement). Soil color was evaluated by comparing a small wetted piece of soil to Munsell Soil Color Charts (Munsell 2013). The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Munsell values for each soil sample were compared to the requirements for Soil Indicators specific to the Arid West Supplement to determine if any hydric soils were present at the survey point.

Hydrology

The Wetland Manual defines "wetland hydrology" as:

> "Encompassing all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for sufficient duration to develop hydric soils and support vegetation typically adapted for life in periodically anaerobic soil conditions."

Each survey point was evaluated for wetland hydrology using the indicators described in the Supplement. Evidence of one Primary Indicator sufficiently identified wetland hydrology; however, two or more Secondary Indicators were necessary if no Primary Indicators were observed. As stated in the Supplement, the Arid West is characterized by extended dry seasons in most years and by extreme temporal and special variability in rainfall, which causes many wetlands in the region to be dry for much of the year. At these times, hydrology indicators may be lacking altogether. Therefore, a "lack of an indicator is not evidence for the absence of wetland hydrology." Guidance is provided in the supplement for difficult wetland situations such as this.

Results

Vegetation

Two plant communities occur within the evaluation area: riparian forest/scrub and non-native grassland. Two additional communities occur adjacent to the evaluation area; coastal sage scrub and coast live oak forest.

Riparian forest habitat is present along the bank of the Carmel River and is dominated by white alder (*Alnus rhombifolia)*, with occasional black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*). Understory species include poison oak (*Toxicodendron diversilobum*) and blackberry (*Rubus ursinus*). Immediately adjacent to the river several individual sedges (*Carex* sp.) can be found on the water's edge. Sycamore (*Platanus racemosa*) occurs higher in the floodplain topography as the riparian transitions to grassland. Areas of open cobble and river boulders in a historic flood flow channel are sparsely vegetated with riparian scrub species like California brickellbush (*Brickellia californica),* seep willow (*Baccharis salicifolia*), and several weedy species, including French and Scotch broom (*Genista monspessulana* and *Cytisus scoparius*) and fennel (*Foeniculum vulgare*).

Within the wide floodplain terrace upland from the river, riparian forest transitions to annual grassland that is composed primarily of introduced, weedy species and a variety of forbs. Annual grasses identified include slender oat (*Avena barbata*), hair grass (*Aira caryophyllea*), ripgut grass (*Bromus rigidus*), and red brome (*Bromus rubens*), among others. Poison oak, California wild rose (*Rosa californica*) and several species of everlasting (*Gnaphalium* sp.) also occur. In several locations, dense stands of western bracken (*Pteridium aquilinum*) reach beyond the oak canopy into the grassland area.

Annual grassland habitat transitions to coast live oak forest adjacent to south side of the evaluation area. Coast live oak forest is characterized by a dense tree canopy dominated by coast live oak (*Quercus agrifolia*). Occasional California bay (*Umbellularia californica*) and buckeye (*Aesculus californica*) occur. Where the forest extends onto the flat terrace, the open understory is composed primarily of grasses, sedges, and western bracken, with widely scattered shrubs, including toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californica*), poison oak, and both creeping and common snowberry (*Symphoricarpos mollis and S. albus*). Several species of fern were observed in well shaded areas, with maidenhair (*Adiantum jordanii*), wood fern (*Dryopteris arguta*), and goldback fern (*Pentagramma triangularis*) being common.

Coastal sage scrub occurs in only a very small portion of the site northwest of the rearing channel outlet in the Carmel River. The steep, rocky slope bordering the terrace near the terminus of the fish rearing channel supports an open habitat of grasses and occasional shrubs and sub-shrubs. California sagebrush (*Artemisia californica),* coyote brush (*Baccharis pilularis* var*. consanguinea*), sticky monkey flower (*Mimulus aurantiacus*), California fuchsia (*Epilobium canum*), and black sage (*Salvia mellifera*) occur with annual grasses.

Soils

The NRCS Soil Survey identifies one soil mapping unit within the evaluation area. Soils found on site were consistent with this mapping unite. An abbreviated description is presented below.

PS-Psamments and Fluvents, Frequently Flooded

This mapping unit consists of undulating areas of stratified sandy, gravelly, and cobble sediments on flood plains. These areas are subject to annual flooding, scouring, and deposition every three to five years. Typical areas are along the San Antonio, Nacimiento, Salinas, and Arroyo Seco Rivers and adjacent to perennial and intermittent streams. The elevation ranges from 20 to 2,000 feet. The vegetation is mostly scattered sagebrush, some willows and sycamores, and a sparse cover of annual grasses and forbs.

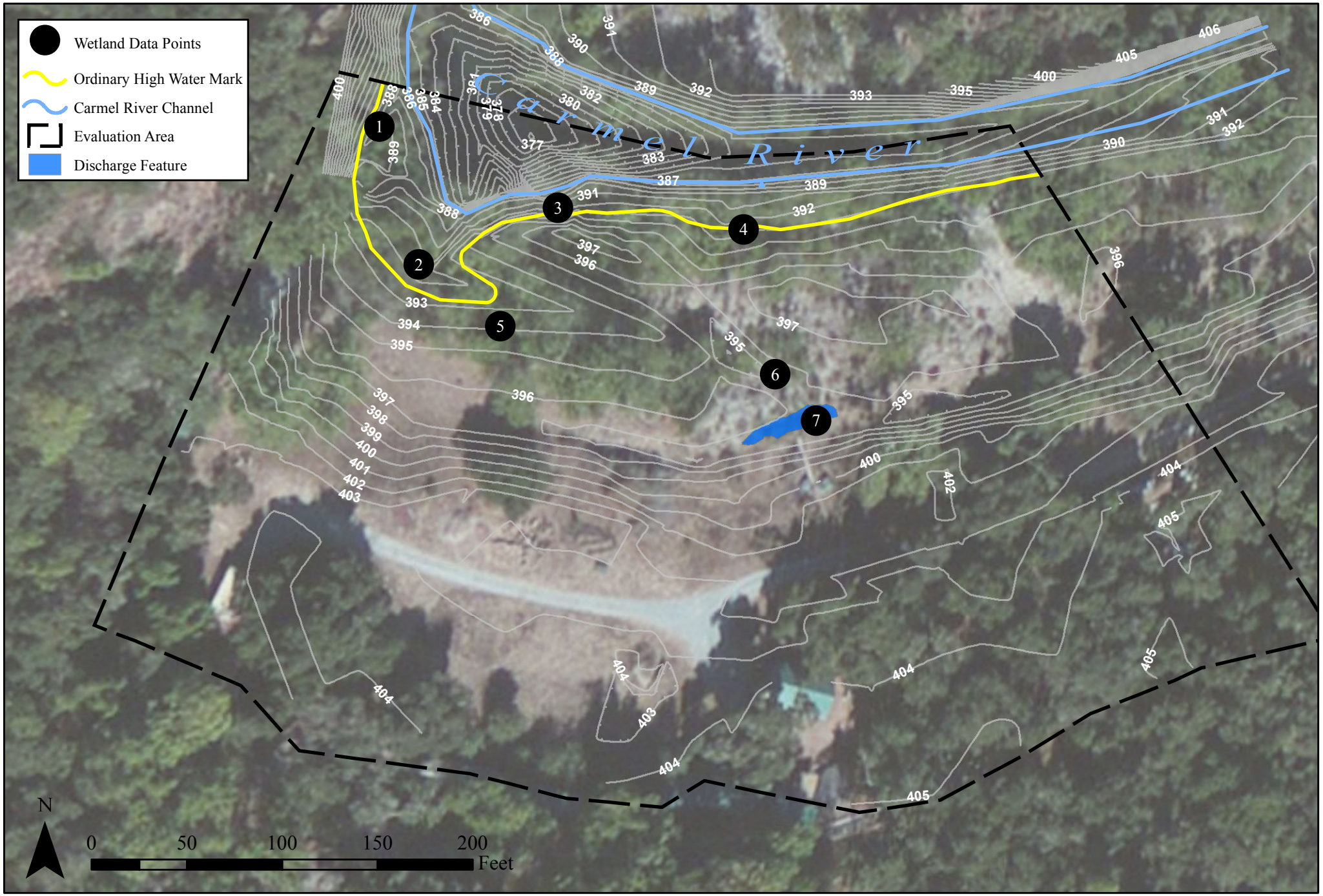
Small areas of Aquic Xerofluvents and Metz, Tu-junga, and Mocho soils were included in mapping. Drainage is excessive, and permeability is very rapid. Runoff is slow or very slow, and the erosion hazard is moderate. Roots can penetrate to a depth of 60 inches, and the available water capacity is 2 to 3 inches. This land has very little value for farming. It is used for recreation and for very limited range.

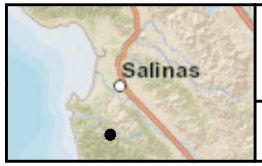
In almost all cases soil pits were impossible to dig due to the presence of large cobble.

Hydrology

The dominant hydrologic input into the project site is the Carmel River. There are no tributary drainages into the river through the evaluation area. While groundwater is likely close to the ground surface adjacent to the river, there is no evidence of any seeps or surface water in the upper floodplain beyond river flood events. The Carmel River's headwaters are in the Ventana Wilderness. Carmel River streamflow at the site is perennial, and augmented during the dry months by releases from Los Padres Reservoir. The channel and floodplain widths are variable along this 400-foot-long river segment. Streambank slopes are steep, varying from nearly 1:1 to a more gradual 2:1. The first overbank (or floodplain) area varies from about 8 feet at the head of the gravel to nearly 20 feet above the channel bottom in the pool area. The highest elevation of the floodplain is located on a terrace that was likely last occupied by the river during the 1911 flood, which was estimated to be about 20,000 cubic feet/second (cfs) at the facility.

There is a small wetted area in the upper floodplain that is the result of a discharge from a 4 inch flexible pipe coming from an existing tank up slope. This pipe discharges continuously for 1 to 3 months each year during the summer and then is shut off. This area lacks wetland soils or a predominance of hydrophytic vegetation.





Title:

Wetland Delineation Map

File:
C:\GIS\GIS_Projects\2016-45 Sleepy Hollow\Map Products\Wetland Delineation Map UTM.mxd

Date: 8/11/2016

Scale: 1 inch = 70 feet

Project: 2016-44

Monterey | Truckee | San Jose

Denise Duffy and Associates, Inc.

Environmental Consultants Resource Planners

947 Cass Street, Suite 5
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Figure

3

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Conclusion

The evaluation area consists of a section of the Carmel River and its associated floodplain. This section of the river displayed a well-developed low-flow channel, terrace and levee. In addition, sand, gravel, coble, and river boulders have been sorted by size in association with these features throughout the landscape. As a result, there were clear and obvious physical features with which to identify and delineate the ordinary high water mark (OHWM) (Figure 4). Physical features used to identify the OHWM within the evaluation area included, but were not limited to; break in slope, change in sediment characteristics, drift deposits/rack lines, scour, and change in vegetation.

A clear break in slope was present from the low flow channel to the terrace and from the terrace to the levee and into the floodplain. The sediment characteristics changed in concert with the geomorphology in that the sorting of materials was consistent with the breaks in slope. Scour was present and obvious along the entire length of the evaluation area were exposed rock transitioned abruptly to rock under a significant duff layer or sand deposition. The understory vegetation presented a clear transition line from mostly vegetated by poison oak to very sparsely vegetated by blackberry. Combining all of these indicators along the length of the evaluation area along the river resulted in a delineation of the OHWM that fluctuated between 392 to 394 feet above sea level, according to elevation data provided by Tetra Tech (2016), at the top of bank of the secondary terrace.

All of the vegetation data collected within the riparian habitat meets wetland criteria. However, this was a direct result of the dense riparian tree canopy. Above the OHWM within the riparian tree canopy the understory was moderately dense, but consisted of upland species dominated by poison oak. Below the OHWM was mostly unvegetated due to scour and intense shade. Blackberry was sparsely (<5% cover) distributed on the secondary terrace and some individual sedges occurred directly at the water's edge, along the top of bank of the low flow channel. The understory plant distribution was too sparse to map. While phreatophytic species typically have an indicator status of FAC or wetter, they do not necessarily reflect wetland conditions within a riparian context. Within the evaluation area the presence of the dense riparian canopy is very likely a result of dry season, sub-surface hydrology that is too deep to support wetlands.

All of the hydrology data collected met wetland criteria below the OHWM based on multiple secondary indicators including water marks, sediment deposits, and drift deposits. While these are indicators of the presence of water during high flow events, they do not necessarily indicate that soils are saturated for duration sufficient to support wetlands. Within the evaluation area the presence of these secondary hydrology indicators is very likely a result of high flow events and not representative of saturated soil conditions necessary to support wetlands. None of the hydrology data collected above the OHWM met wetland criteria.

Soils data were almost impossible to collect due to the presence of cobble throughout the site. When soil or sand was available to analyze none of the data met the wetland criteria. Because the data was largely unavailable, hydric soils can be assumed in determining the potential jurisdictional boundaries.

The OHWM was clear and obvious within the evaluation area. Areas below the OHWM are within the jurisdiction of the ACOE. Wetland meeting all three parameters does not exist within the evaluation area based on a lack of wetland vegetation and hydrology as described above.

There is a small wetted area in the upper floodplain that is the result of a discharge from a 4 inch flexible pipe coming from an existing tank up-slope. This pipe discharges continuously for 1 to 3 months each

year during the summer and then is shut off. This area lacks wetland soils and a predominance of hydrophytic vegetation, therefore it is not likely jurisdictional. However, if the discharge continues, conditions could change resulting in a man-made wetland that would be jurisdictional.

Photo 1. Example of Scour Line at Ordinary High Water

Photo 2. Example of Typical Drift Deposit

Photo 3. Example of Vegetation Transition at Ordinary High Water

Photo 4. Example of Typical Riverine Geomorphology

Site Photos

August 2016

Sleepy Hollow Wetland Delineation

Figure

4

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Attachment 1: Wetland Determination Data Forms for the Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sleepy Hollow City/County: Carmel Valley/MTY Sampling Date: 9/3/16
Applicant/Owner: MPWMD State: CA Sampling Point: WP1
Investigator(s): MJ, SH Section, Township, Range: S23 T17S R2E
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): LRRC Lat: 36.444479 Long: -121.716293 Datum: WGS 84
Soil Map Unit Name: Psamments and Fluvents, frequently flooded NWI classification: PFOC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil X, 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 X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks: Rocks + cobble in soil make excavating to 18" depth impossible.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rhombifolia	100	Y	~~FACW~~
2.			
3.			
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Rubus ursinus	3	N	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: WP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					Silty Sand	
2-5	10YR 3/3	100					Sand	Organic Coarse

[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 X

Remarks:
Soil is dominated by large cobble and rock. Sand and silt between. Depth only to 5 inches due to rock + cobble

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 (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:
Below OHW mark.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sleepy Hollow City/County: Carmel Valley/Monterey Sampling Date: 8/3/16
Applicant/Owner: MPWMD State: CA Sampling Point: WP2
Investigator(s): MJ JH Section, Township, Range: S23 T17S R2E
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): Convex Slope (%): 1
Subregion (LRR): LRRC Lat: 36.444280 Long: -121.716227 Datum: WGS 84
Soil Map Unit Name: Psamments and Fluvents, frequently flooded NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	70	Y	FAC
2. Salix lasiolepis	15	N	FACW
3. Platanus racemosa	5	N	FAC
4.			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	

Herb Stratum (Plot size: _____)			
1. Rubus ursinus	10	Y	FAC
2. Artemisia douglasiana	2	N	FAC
3. Equisetum laevigatum	2	N	FACW
4. Toxicodendron diversilobum	1	N	
5.			
6.			
7.			
8.			
	15	= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

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

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: WP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100						duff (organic)
2-10	10YR 3/3	100					Silty Sand	

[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 X

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)
- X 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 (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Low spot in primary berm which allows hydrologic connectivity below OHW.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sleepy Hollow City/County: Carmel Valley/Monterey Sampling Date: 8/3/16

Applicant/Owner: MP WRD State: CA Sampling Point: WP3

Investigator(s): MJ JH Section, Township, Range: S23 T17S R2E

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): LRRC Lat: 36.443600 Long: -121.715976 Datum: WGS 84

Soil Map Unit Name: Psamments and Fluvents, Frequently flooded NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rhombifolia	90	Y	FACW
2. Populus balsamifera	5	N	FAC
3. Umbellularia californica	5	N	FAC
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5x5')			
1. Salix lasiolepis	10	Y	FACW
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: WP3

Profile Description: (Describe to 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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR2/2	100					Silty sand slightly clay loam	
7-18	10YR 3/3	100					silty course sand	

[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 X

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 (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sleepy Hollow City/County: Carmel Valley/Monterey Sampling Date: 8/3/16

Applicant/Owner: [illegible] State: CA Sampling Point: WP4

Investigator(s): MJ JH Section, Township, Range: S23 T17S R2E

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): LRRC Lat: 36.444325 Long: -121.715646 Datum: WGS 84

Soil Map Unit Name: Psamments and Fluvents, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil X, 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: large cobble + river rock DO not allow for the development of pit depth to 18".

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	40	Y	NL
2. Populus balsamifera	40	Y	FAC
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5'x5')			
1. Cytisus scoparius	3	Y	NL
2.			
3.			
4.			
5.			
	3	= Total Cover	
Herb Stratum (Plot size: 5'x5')			
1. Rubus ursinus	3	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: WP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	Black	100					organic	Duff (Black)
3	No Color						sand	Very coarse pebble

[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 X

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 (2 or 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 on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sleepy Hollow City/County: Carmel Valley / Monterey Sampling Date: 8/3/16

Applicant/Owner: Mound State: CA Sampling Point: WP5

Investigator(s): NJ JH Section, Township, Range: S23 T17S R2E

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): LRR C Lat: 36.444190 Long: -121.716084 Datum: WGS 84

Soil Map Unit Name: Psamments and Fluvents, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil X, or Hydrology X 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 X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Hard to distinguish between water-stained or rotting leaves.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	30	Y	FAC
2. Platanus racemosa	30	Y	FAC
3.			
4.			
	60 = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		

Herb Stratum (Plot size: 5'x5')			
1. Rubus ursinus	1	N	FAC
2. C. scoparius	1	N	NC
3. mound brome	5	Y	NL
4. Baccharis pilularis	5	Y	NL
5. Toxicodendron diversilobum	5	Y	FACU
6. Unknown grass	5	Y	NL
7. fennel	1	N	
8.			
	23 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: While riparian trees may qualify as hydrophytic vegetation, the understory is dominated by upland plants.

SOIL

Sampling Point: WP5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Coarse sand-pebble-cobble	

[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 X

Remarks:

Big rocks @ 10", could not dig beyond that depth

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)
- X 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 (2 or 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 on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Point located in the bottom of a secondary channel which is likely engaged only in large flood events

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sleepy Hollow City/County: Carmel Valley/Monterey Sampling Date: 8/3/16

Applicant/Owner: MLOMD State: CA Sampling Point: WP6

Investigator(s): JH MJ Section, Township, Range: S23 T17S R2E

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): LRRC Lat: 36.444116 Long: -121.715594 Datum: WGS 84

Soil Map Unit Name: Psamments and Fluvents, Frequently Flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil X, 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 X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:
Large river rock, not able to dig pit.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. P. racemosa	15	Y	FAC
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'x5')			
1. B. scioparius	10	Y	NL
2. P. racemosa	10	Y	FAC
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1.			
2.			
3. Brickellia californica	20	Y	FACU
4. Foeniculum vulgare	7	Y	NL
5. Bromus rigidus	5	N	NL
6. Avena barbata	3	N	NL
7.			
8.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: WP6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[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 X

Remarks:

Large river rock – No Soil

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 (2 or 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 on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

At bottom of the off-channel flood channel – Hydromorphic feature, but only engaged during larch flood.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sleepy Hollow City/County: Carmel Valley/Monterey Sampling Date: 9/3/16

Applicant/Owner: MPWMD State: CA Sampling Point: WP-7

Investigator(s): JH MT Section, Township, Range: S23 T17S R2E

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex Slope (%): _____

Subregion (LRR): LRRC Lat: 36.444047 Long: -121.715523 Datum: WGS 84

Soil Map Unit Name: Psammments and Fluvents, frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

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: _____)			
1. Brassica nigra	1	N	NL
2. Hirschfeldia incana	1	N	NL
3. Rigani bonne	20	Y	NL
4. Medicago sp.	5	N	FACU
5. Conium maculatum	1	N	FACW
6. Rumex crispus	1	N	FAC
7. Marrubium sp.	1	N	NL
8. Brassica rapa/nigra	2	N	FACU
Plantain lanceolata	1		
	33 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: WP 7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					sandy silty 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 X

Remarks:

River rock @ 5"

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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 (2 or 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 on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 3

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks: Hydrologic input man-made from pipe.
No evidence of water table.

APPENDIX B
SPECIAL STATUS SPECIES WITH THE POTENTIAL TO OCCUR IN THE STUDY AREA

Appendix B

Special Status Species with the Potential to Occur in the Study Area

Species	Federal	State	Habitat Association	Potential to Occur
Invertebrates				
Smith's blue butterfly (*Euphilotes enoptes smithi*)	E	-	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties.	No potential to occur. Habitat not present.
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	T	-	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay.	No potential to occur. Habitat not present.
Amphibians				
California tiger salamander (*Ambystoma californiense*)	T	T; SSC	Cismontane woodland; meadow and seep; riparian woodland; valley and foothill grassland.	No potential to occur. Habitat not present. Grassland habitat at site occurs isolated within scrub and woodland, regional occurrences limited to open grassland areas with isolated pool areas suitable for reproduction. No recorded observations at or near site.
Black legless lizard (*Anniella pulchra nigra*)	-	SSC	Sand dunes and sandy soils in the Monterey Bay and Morro Bay regions.	No potential to occur. Habitat not present.
Foothill yellow-legged frog (*Rana boylii*)	-	SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	No potential to occur. Habitat not present. Site lacks narrow cascading and rocky stream, small pool, and steep terrain features preferred by this species. No recorded observations at or near site.

Species	Federal	State	Habitat Association	Potential to Occur
California red-legged frog (*Rana draytonii*)	T	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	Known to occur in project area.
Coast Range newt (*Taricha torosa*)	-	SSC	Coastal drainages from Mendocino to San Diego counties.	No potential to occur. Habitat not present.
Birds				
Tricolored blackbird (*Agelaius tricolor*)	-	SSC	Freshwater marsh; marsh and swamp; swamp; wetland.	No potential to occur. Habitat not present, lack of emergent wetland vegetation. No recorded observations at or near site.
Burrowing owl (*Athene cunicularia*)	-	SSC	Prairie; scrub; grassland.	No potential to occur. Habitat not present. No ground squirrel burrows present. Species occurs in lowlands and valleys with expansive areas of suitable habitat; grassland at project site occurs in isolated area surrounded by woodland and heavy scrub. No recorded observations at or near site.
Swainson's hawk (*Buteo swainsoni*)	-	T	Great basin grassland; riparian forest; riparian woodland; valley and foothill grassland.	No potential to occur. Habitat not present. Predominantly Central Valley species, site is west of westernmost occurrence. Only two recorded occurrences in search area from 1993 and 1889. Lack of open habitat suitable for foraging. No recorded observations at or near site.

Species	Federal	State	Habitat Association	Potential to Occur
Western snowy plover (*Charadrius alexandrinus nivosus*)	T	SSC	Sandy beaches, salt pond levees and shores of large alkali lakes.	No potential to occur. Habitat not present.
Black swift (*Cypseloides niger*)	-	SSC	Coastal belt of Santa Cruz and Monterey counties; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains.	No potential to occur. Habitat not present.
Mammals				
American badger (*Taxidea taxus*)	-	SSC	Variety of terrestrial habitats.	No potential to occur. Habitat not present. Study area occurrences recorded east of East Carmel Valley Road, where there is a transition to grassland and rolling foothills, as opposed to woodlands and scrub at project site. No recorded observations at project site.
Townsend's big-eared bat (*Corynorhinus townsendii*)	-	CT; SSC	Throughout California in a wide variety of habitats; roosts in the open, hanging from walls and ceilings.	Low to moderate potential to occur; suitable habitat present; no recorded observations at or near site.
Western red bat (*Lasiurus blossevillii*)	-	SSC	Cismontane woodland; lower montane coniferous forest; riparian forest; riparian woodland; roosts primarily in trees.	Low to moderate potential to occur; suitable habitat present; no recorded observations at or near site.
Monterey dusky-footed woodrat (*Neotoma macrotis luciana*)	-	SSC	Broadleaved upland; forest Chaparral.	Low to moderate potential to occur; suitable habitat present; no recorded observations at or near site.
Fish				
Steelhead – south central coast DPS (*Oncorhynchus mykiss irideus*)	T	-	Aquatic; Sacramento/San Joaquin flowing waters; south coast flowing waters.	Known to occur in Carmel River.

Species	Federal	State	Habitat Association	Potential to Occur
Reptiles				
Western pond turtle (*Emys marmorata*)	-	SSC	Ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation.	High potential to occur; suitable habitat present; no recorded observations at or near site.
Coast horned lizard (*Phrynosoma blainvillii*)	-	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Low to moderate potential to occur; suitable habitat present; no recorded observations at or near site.
Two-striped garter snake (*Thamnophis hammondii*)	-	SSC	Highly aquatic, found in or near permanent fresh water; often along streams with rocky beds and riparian growth.	Moderate potential to occur; suitable habitat present; no recorded observations at or near site.
Plants				
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	T	-	Coastal dunes, chaparral, cismontane woodland, coastal scrub.	No potential to occur. Habitat not present.
Seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*)	-	E; 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, coastal dunes.	No potential to occur. Habitat not present.
Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*)	E	T; 1B.2	Coastal dunes, coastal scrub, chaparral (maritime), cismontane woodland.	No potential to occur. Habitat not present.
Contra Costa goldfields (*Lasthenia conjugens*)	E	1B.1	Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland.	No potential to occur. Habitat not present.
Yadon's rein orchid (*Piperia yadonii*)	E	1B.1	Closed-cone coniferous forest, chaparral, coastal bluff scrub.	No potential to occur. Habitat not present.

Notes:
C = candidate
E = endangered
FP = California Department of Fish and Wildlife fully protected
T = threatened
SSC = state species of special concern
Rare Plant Rank 1B.1 – rare, threatened, or endangered in California and elsewhere; seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
Source: California Natural Diversity Database (2015) search of proposed project area and surrounding quadrangles (Carmel Valley, Seaside, Spreckles, Chualar, Rana Creek, Chews Ridge, Ventana Cones, Big Sur, and Mount Carmel).

APPENDIX C
CNPS LIST PLANT SPECIES WITH THE POTENTIAL TO OCCUR IN THE STUDY AREA

Appendix C

CNPS List Plant Species with the Potential to Occur in the Study Area

Common Name	Scientific Name	California Rare Plant Rank
Hickman's onion	*Allium hickmanii*	1B.2
Little Sur manzanita	*Arctostaphylos edmundsii*	1B.2
Hooker's manzanita	*Arctostaphylos hookeri ssp. hookeri*	1B.2
Toro manzanita	*Arctostaphylos montereyensis*	1B.2
Pajaro manzanita	*Arctostaphylos pajaroensis*	1B.1
Sandmat manzanita	*Arctostaphylos pumila*	1B.2
Round-leaved filaree	*California macrophylla*	1B.2
Santa Cruz Mountains pussypaws	*Calyptridium parryi var. hesseae*	1B.1
Congdon's tarplant	*Centromadia parryi ssp. congdonii*	1B.1
Monterey spineflower	*Chorizanthe pungens var. pungens*	1B.2 (federal threatened)
Jolon clarkia	*Clarkia jolonensis*	1B.2
Seaside bird's-beak	*Cordylanthus rigidus ssp. littoralis*	1B.1 (state endangered)
Hospital Canyon larkspur	*Delphinium californicum ssp. interius*	1B.2
Hutchinson's larkspur	*Delphinium hutchinsoniae*	1B.2
Eastwood's goldenbush	*Ericameria fasciculata*	1B.1
Sand-loving wallflower	*Erysimum ammophilum*	1B.2
Talus fritillary	*Fritillaria falcata*	1B.2
Fragrant fritillary	*Fritillaria liliacea*	1B.2
Monterey gilia	*Gilia tenuiflora ssp. arenaria*	1B.2 (federal endangered; state threatened)
Kellogg's horkelia	*Horkelia cuneata var. sericea*	1B.1
Contra Costa goldfields	*Lasthenia conjugens*	1B.1 (federal endangered)
Carmel Valley bush-mallow	*Malacothamnus palmeri var. involucratus*	1B.2
Arroyo Seco bush-mallow	*Malacothamnus palmeri var. lucianus*	1B.2
Carmel Valley malacothrix	*Malacothrix saxatilis var. arachnoidea*	1B.2
Marsh microseris	*Microseris paludosa*	1B.2
Northern curly-leaved monardella	*Monardella sinuata ssp. nigrescens*	1B.2

Common Name	Scientific Name	California Rare Plant Rank
Dudley's lousewort	*Pedicularis dudleyi*	1B.2
Monterey pine	*Pinus radiata*	1B.1
Yadon's rein orchid	*Piperia yadonii*	1B.1 (federal endangered)
Hooked popcornflower	*Plagiobothrys uncinatus*	1B.2
Adobe sanicle	*Sanicula maritima*	1B.1
Santa Cruz microseris	*Stebbinsoseris decipiens*	1B.2
Santa Cruz clover	*Trifolium buckwestiorum*	1B.2
Pacific Grove clover	*Trifolium polyodon*	1B.1

Source: CDFW 2015
Rare Plant Rank 1B.1 – rare, threatened, or endangered in California and elsewhere; seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
Rare Plant Rank 1B.2 – rare, threatened, or endangered in California and elsewhere; fairly threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
Rare Plant Rank 2B.1 – rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
Rare Plant Rank 2B.2 – rare, threatened, or endangered in California, but more common elsewhere; moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
Rare Plant Rank 2B.3 – rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

APPENDIX D
MITIGATION MONITORING AND REPORTING PLAN

Appendix D
Mitigation Monitoring and Reporting Plan

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
BIO-MM-1: Placement of anchored large wood would be proposed as mitigation for loss of streambed, if required by permitting agencies. Anchored large wood would be placed at a suitable location in the Carmel River to enhance habitat value for aquatic species as mitigation for any loss of streambed habitat. Large wood will be partially buried and anchored in the streambank nearby and downstream of the intake facility. Suitable wood material, such as redwood, Douglas fir, pine, or other suitable material would be used. An approximately 15- to 20-foot piece of large wood, preferably with a rootball attached, with a diameter of 24 inches or more, would be cabled and anchored into the streambank to counteract sliding and buoyancy forces. The structure would form the nucleus for complex habitat to develop in the channel bottom in the vicinity of the structure. Placement of large wood would occur per the methods detailed in the National Large Wood Manual (USBR and USACE 2016).	During construction or project-related activities	Construction Contractor and/or District Environmental	District Engineer	
BIO-MM-2: Prior to construction, a qualified botanist or riparian specialist would identify and record the number, type, and size of trees to be removed or trimmed. Replacement planting for riparian trees would occur at a ratio determined through consultation with permitting agencies.	Prior to and during construction or project-related activities	District Environmental and/or Contract Biologist	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
BIO-MM-3: Any oak tree removal will occur in compliance with the Monterey County Oak Preservation Ordinance. The ordinance requires a permit for removal of oaks greater than 6 inches in diameter in most sections of the county and 1:1 replacement. Removal of more than 3 protected trees per lot per year requires a Forest Management Plan, Use Permit, and is subject to CEQA. Monterey County will be the regulatory authority responsible for oversight of the replacement of the oak trees. Any oak trees planned for removal under the proposed project would be assessed for sudden oak death. If trees are found to have the disease, the District will implement additional measures to prevent spreading the disease and will replace the lost oaks with species that are resistant to sudden oak death.	Prior to and during construction or project-related activities	Construction Contractor and/or District Environmental	District Engineer	
BIO-MM-4: To avoid impacts to water quality and aquatic habitats, erosion control BMPs would be developed and implemented to minimize any wind or water-related erosion and would comply with permitting agency requirements. Protective measures would include the following, at a minimum: • No discharge of pollutants from vehicle and equipment cleaning would be allowed into any storm drains or watercourses. • Vehicle and equipment fueling and maintenance operations would be at least 50 feet away from	Prior to and during construction or project-related activities	Construction Contractor and/or District Environmental	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
watercourses, except at established commercial gas stations or established vehicle maintenance facilities. • Spill containment kits would be maintained on site at all times during construction operations and/or staging or fueling of equipment. • Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting would be installed along or at the base of slopes during construction to capture sediment. • Graded areas would be protected from erosion using a combination of silt fences, fiber rolls, or other similar protection along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. • A speed limit of 15 miles per hour in the project footprint in unpaved areas would be enforced to reduce dust and excessive soil disturbance. • All food and food-related trash items would be enclosed in sealed trash containers and properly disposed of off site. • Pets would not be allowed within the work area or environmentally sensitive areas. • No firearms would be allowed on the project site except for those carried by authorized security personnel or local, State, or federal law enforcement officials. • A Spill Response Plan would be prepared. Hazardous materials (e.g., fuels, oils, or solvents) would be stored in				

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
sealable containers in a designated location that is at least 50 feet from hydrologic features.				
BIO-MM-5: Prior to the start of construction, a qualified biologist would conduct an educational training program for all construction personnel. The training would include, at a minimum, a description of the species identified as potentially present in Appendix B; an explanation of the status of these species and protection under federal or State laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the environmentally sensitive areas and wildlife exclusion fencing and the importance of maintaining these structures. A fact sheet conveying this information would be prepared and distributed to all construction personnel. Upon completion of the program, personnel would sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the ESA and CESA.	Prior to construction or project-related activities	District Environmental and/or Contract Biologist	District Engineer	
BIO-MM-6: The following project design or avoidance measures would be implemented to avoid construction impacts to steelhead: • MPWMD staff trained in steelhead relocation would remove and relocate any steelhead within construction areas that are to be dewatered. • Pumps or bypass pipes required during dewatering would be screened as appropriate to avoid entrainment	Prior to and during construction or project-related activities	Construction Contractor and/or District Environmental	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
of steelhead. • Turbid water pumped from in-channel sites would be discharged onto adjacent gravel bars and not directly into the river.				
BIO-MM-7: The following project design or avoidance measures would be implemented to avoid construction impacts to amphibious special status species: • Seasonal Avoidance. Work would be limited to the work window for steelhead, from June 1 through October 31, or as required by consultations with permitting agencies. Work outside of the channel or at other times of the year would be carried out in consultation with permitting agencies. • Wet Weather Restrictions. No work would occur during or within the 24 hours following a rain event exceeding 0.2 inch as measured by Cal-Am at the former San Clemente Dam site. • Environmentally Sensitive Areas. Prior to the start of construction all environmentally sensitive areas, defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed, would be clearly delineated. Construction work areas include the active construction site and all areas providing support for the proposed action (e.g., areas used for vehicle parking, equipment and material storage and staging, and access roads). The delineation of environmentally sensitive areas would	Prior to and during construction or project-related activities	Contract Biologist, Construction Contractor, and/or District Environmental	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
remain in place throughout the duration of the active construction phase and would be regularly inspected and fully maintained at all times. • Wildlife Exclusion Fencing. Prior to the start of construction and after wildlife surveys have been completed, MPWMD, in consultation with permitting agencies, will determine if wildlife exclusion fencing is to be installed within the project footprint, including access road and staging areas. If the fencing is necessary, it would comprise a material that frogs, turtles, or snakes cannot climb or traverse and be a minimum of 36 inches tall, with the bottom edge buried a minimum of 4 inches deep. The fencing would be backfilled with soil, sand bags, or other means to prevent CRLF, western pond turtles, or two-striped garter snakes from passing underneath the fence and entering the project site. Vegetation would be cleared within 18 inches of either side of the fence and remain clear while the fence is operational to prevent species from using vegetation to gain access to the project site by climbing over the fence. The wildlife exclusion fencing would remain in place throughout the construction phase of the project, and would be regularly inspected and fully maintained. Upon project completion, the fencing would be completely removed, and the area cleaned of debris and trash and returned to natural conditions. • Proper Use of Erosion Control Devices. To prevent CRLF, western pond turtle, or two-striped garter snake				

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting would not be used within the project area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers. • Avoidance of Entrapment. To prevent inadvertent entrapment during construction, all excavated steep-walled holes or trenches more than 1 foot deep would be covered with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The biological monitor would inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. • Preconstruction Surveys. Preconstruction surveys would be conducted by a qualified biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing. The qualified biologist or biological monitor would conduct daily clearance surveys when construction activities are occurring. • Species Observation and Stop Work Authority. If individuals of CRLF, western pond turtles, or two-striped garter snakes are encountered, work activities within 50 feet of the individual must cease immediately and the on-site construction supervisor notified. Based on the				

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
professional judgment of the on-site biologist, if project activities can be conducted without injuring or killing the individual, it may be left at the location of discovery and monitored by the biologist. All project personnel would be notified of the finding and at no time would work occur within 50 feet of the animal without a qualified biologist present. Capture and relocation would only be allowed if directed by the USFWS or CDFW.				
BIO-MM-8: The following project design or avoidance measures would be implemented to avoid construction impacts to coast horned lizard: • Minimize habitat disturbance. Excavation within upland habitat would be the minimum required to complete the proposed improvements. To minimize surface disruption, pipe and utility features would be installed in common trenches and situated in existing roads where possible. • Preconstruction surveys and relocation. Preconstruction surveys would be conducted by a qualified biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing. The qualified biologist or biological monitor would conduct daily clearance surveys when construction activities are occurring. Any coast horned lizards encountered would be relocated away from the work area by a qualified biologist.	Prior to and during construction or project-related activities	Contract Biologist, Construction Contractor, and/or District Environmental	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
BIO-MM-9: A pre-construction survey would be conducted in and adjacent to the limits of grading to identify any woodrat nests that could be impacted by project activities. All nests would be mapped and flagged in the field. If nests are encountered, the following measures would be implemented: • Nest Protection. To the extent feasible, woodrat nests would be avoided during construction. If the nest can be avoided, it would be isolated from the work zone by installation of environmentally sensitive area fencing. • Nest Removal – Non-Breeding Season. If a woodrat nest is detected in the work zone and it cannot be avoided, site clearing would be performed during the non-breeding season (i.e., September 1 through November 30). During the non-breeding season, the nest would be disassembled by hand and the nest materials (e.g., sticks) moved outside the project footprint. Any adult animals present would be permitted to disperse into adjacent habitat. This work may only be performed by a qualified biologist in coordination with the CDFW. • Nest Removal – Breeding Season. If site clearing must proceed during the breeding season (i.e., December 1 through August 31), it will be necessary to determine whether or not the nest is occupied. This may be done by direct observation over the course of at least two evenings no more than 48 hours prior to nest disassembly. Direct observation may consist of installation of camera traps at the nest or by a biologist	Prior to and during construction or project-related activities	District Environmental and/or Contract Biologist	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
on the ground. If no animals are observed, the nest may be disassembled by hand. If, during the process of disassembling the nest, live animals are encountered, nest materials would be replaced on top of the nest and the effort abandoned. The nest may not be disassembled if young woodrats are present. Construction must then be postponed until the end of the breeding season when juveniles are able to survive on their own.				
BIO-MM-10: The following project design or avoidance measures would be implemented to avoid construction impacts to special status bird species: • If clearing, grubbing, and tree removal or pruning are to be conducted outside of the breeding season (i.e., September 1 through January 31), no preconstruction surveys for nesting migratory birds would be necessary. • If clearing, grubbing, and tree removal or pruning are to be conducted during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey would be conducted. The survey would be performed by a qualified biologist no more than 2 weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 92 m (300 feet) for raptors and 31 m (100 feet) for passerines would be mapped. • For any active nests found near the construction	Prior to and during construction or project-related activities	District Environmental and/or Contract Biologist	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
limits (i.e., 92 m [300 feet for raptors and 31 m [100 feet] for passerines), the project biologist would make a determination as to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, the no-construction buffer zone would be expanded; avoidance is the only mitigation available. The ultimate size of the no construction buffer zone may be adjusted by the project biologist based on the species involved, topography, lines of sight between the work area and the nest, physical barriers, and the ambient level of human activity. If it is determined that construction activities are likely to disrupt raptor breeding, construction activities within the no-construction buffer zone may not proceed until the project biologist determines that the nest is no longer occupied. • If maintenance of a no-construction buffer zone is not feasible, the project biologist would monitor the nest(s) to document breeding and rearing behavior of the adult birds. If it is determined that construction activities are likely to cause nest abandonment, work would cease immediately and the CDFW and/or the USFWS Division of Migratory Bird Management would be contacted for guidance.				
BIO-MM-11: The following project design or avoidance measures would be implemented to avoid construction	Prior to and during	District Environmental and/or Contract	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
impacts to special status bat species: • Bat Habitat Assessment. If work is to take place during the bat breeding season (i.e., April 1 through August 31), a qualified biologist would conduct a survey of the project site and vicinity to determine if active maternity roosts are present. This survey would be conducted no more than 14 days prior to the initiation of work. • Maternal Roosts. If any trees or structures are determined to support or potentially support maternal bat roosts, work may not proceed if it would destroy roosts or disrupt breeding. Maternal bat roosts may only be removed or demolished after coordination with the CDFW. Passive exclusion of roosting bats would be required, and this may only be performed during the non-breeding season (i.e., between October 1 and March 30). • Preconstruction Survey. A preconstruction survey would be conducted by a qualified biologist to identify suitable bat roosting sites. The survey would be conducted no more than 48 hours prior to the initiation of work and would include an area extending up to 61 m (200 feet) of the limits of work, access permitting. • Protocol for Observations of Live Bats. If live bats are detected in the work area, work may not proceed until CDFW has been consulted. Contractors or others may not attempt to disturb (e.g., shake or prod) roosting	construction or project-related activities	Biologist		

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
features to coax bats to leave. • Day or Night Roosts. Any trees determined to provide suitable day or night roosting sites for bats would be identified and marked on site plans. Such roosting sites include snags, rotten stumps, decadent trees with broken limbs, exfoliating bark, cavities, and openings leading to interior portions of any structures. If no suitable roost sites or evidence of bat roosting are identified, impact minimization measures are not warranted. If suitable roosting sites or evidence of bat roosting are identified, the following measures would be conducted in coordination with CDFW: – A qualified biologist would survey suitable roost sites immediately prior to the removal or significant pruning of any of the larger trees, or demolition or significant renovation of any structures. – If the project biologist identifies suitable day or night roost sites or evidence of bat occupation, the following steps would be followed to discourage use of the sites by bats and to ensure that any bats present are able to safely relocate. – For trees: – Tree limbs smaller than 7.6 centimeters (3 inches) in diameter would be removed and any loose bark would be peeled away. – Any competing limbs that provide shelter				

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
around the potential roost site would be removed to create as open of an area as possible. – The tree would then be left alone to allow any bats using the tree/snag to find another roost during their nocturnal activity period. – Trees would be re-surveyed 48 hours after trimming. – If no bats are present, work may proceed. – If bats remain on site, additional measures would be prescribed by the biologist.				
BIO-MM-12: A qualified biologist would survey the work area for presence of CNPS list species prior to any work in upland areas. If any CNPS list species are identified, potential impacts from construction activities would be avoided to the extent possible by working around the populations.	Prior to and during construction or project-related activities	District Environmental and/or Contract Biologist	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
CULT-MM-1: An archaeological monitor will be on-site during construction that may extend into native sediments. Monitoring will be supervised by a qualified archaeologist. If archaeological materials are encountered, the monitor will be authorized to stop construction as necessary to protect the find. The monitor will contact the qualified archaeologist. The qualified archaeologist will work with the District to assess the significance of the find, contact the Native American Heritage Commission, and determine appropriate avoidance or mitigation measures. Construction may resume in the area when mitigation has been completed and the District has authorized the activity.	During construction or project-related activities	District Environmental and/or Contract Archaeologist	District Engineer	
CULT-MM-2: Pursuant to CEQA Guidelines 15064.5 (f), "provisions for historical or unique archaeological resources accidentally discovered during construction" should be instituted. Therefore, in the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the District would consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant, representatives of the District and the qualified archaeologist and/or paleontologist would meet to determine the appropriate avoidance measures or other appropriate mitigation. All significant cultural materials recovered shall be subject to scientific analysis, professional museum inclusion, and a report prepared by the qualified archaeologist according to current professional standards. If	During construction or project-related activities	District Environmental and/or Contract Archaeologist	District Engineer	

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
the discovery includes human remains, CEQA Guidelines 15064.5 (e)(1) shall be followed, which is as follows: (e) In the event of the accidental discovery or other than a dedicated cemetery, the following steps should be taken: (1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and (B) If the coroner determines the remains to be Native American: 1. The coroner shall contact the Native American Heritage Commission within 24 hours. 2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. 3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and				

Mitigation Measure	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
any associated grave goods as provided in Public Resources Code Section 5097.98, or (2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance. (A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission; (B) The descendant identified fails to make a recommendation; or (C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.				

Notes:
BMP = best management practice
CDFW = California Department of Fish and Wildlife
CEQA = California Environmental Quality Act
CESA = California Endangered Species Act
CNPS = California Native Plant Society
CRLF = California red-legged frog
ESA = Endangered Species Act

MPWMD = Monterey Peninsula Water Management District
NMFS = National Marine Fisheries Service
RWQCB = Regional Water Quality Control Board
USACE = U.S. Army Corps of Engineers
USBR = U.S. Bureau of Reclamation
USFWS = U.S. Fish and Wildlife Service

APPENDIX E
NRCS SOIL MAP OF THE PROPOSED PROJECT AREA

Soil Map—Monterey County, California

Map Scale: 1:1,340 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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: http://websoilsurvey.nrcs.usda.gov
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: Monterey County, California
Survey Area Data: Version 11, Sep 12, 2014

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

Date(s) aerial images were photographed: Oct 26, 2010—Sep 17, 2011

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

Monterey County, California (CA053)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Jc	Junipero-Sur complex	0.6	13.2%
Ps	Psamments and Fluvents, frequently flooded	3.8	79.8%
SoE	Sheridan coarse sandy loam, 15 to 30 percent slopes	0.3	7.0%
Totals for Area of Interest		**4.8**	**100.0%**

APPENDIX F
RESPONSE TO COMMENT LETTERS

November 7, 2016

Ms. Jacqueline Pearson Meyer
Fishery Biologist - California Fish Hydroacoustics Coordinator
NOAA Fisheries West Coast Region
U.S. Department of Commerce
777 Sonoma Avenue, Room 325
Santa Rosa, CA 95404

SUBJECT: Responses to Comments
Sleepy Hollow Steelhead Rearing Facility Mitigated Negative Declaration

Dear Ms. Pearson Meyer:

This is a response to comments by NOAA Fisheries West Coast Region of the National Marine Fisheries Service (NMFS) on "Initial Study/Mitigated Negative Declaration Sleepy Hollow Steelhead Rearing Facility Raw Water Intake and Water Supply System Upgrade" (the Project), prepared by the Monterey Peninsula Water Management District (District or MPWMD). NMFS submitted comments as notes within the Draft IS/MND document on November 2, 2016. The District has repeated or characterized each comment below with responses. The District intends to hold a Public Hearing on November 14, 2016 at the District office at 7 p.m. to consider approval of the Project. A Final IS/MND will be prepared to reflect comments received.

p. 11 – Sleepy Hollow Steelhead Rearing Facility (SHSRF) operations
Comment:
"Is [the statement that the facility has been unable to operate during the past several years] true? The facility has been operating. I think it did not run maybe for one or two years, but has been operational this past year for example. Please clarify this statement."

Response
The language will be changed to describe that SHSRF did not operate in 2014 and 2015, but did in 2016.

p. 19 – proposed rock vane for intake protection
Comment
"The rock vane may be an effective means to move larger grain sized material away from the screen, but it may increase deposition of smaller particles near the screen. This will depend on site specific flow field and grain size. NMFS engineers are interested in this concept and would like to participate in the analysis."

Response
The District notes that the existing drum screen in the bottom of the channel has not been

damaged by high flows, even though some debris has passed through the reach since it was installed in the late 1990s. However, the removal of San Clement Dam has altered fluvial processes and may continue to do so. MPWMD will evaluate potential changes due to changes in sediment and debris loading. The proposed cone screen and intake has been selected for its resistance to erosion at high flows. Currently, the District would prefer to delay installation of a rock vane and assess how fluvial processes in the reach change and then make a determination about installing a rock vane.

If additional flow modeling is warranted, MPWMD will consult with NMFS in the analysis and design of a rock vane, should it be required.

p. 30 – Construction Activities
Comment
"Are you going to prepare a separate B[iological] A[ssessment]? You will need take coverage for the capture and transport of steelhead during dewatering."

Response
MPWMD will submit an application to the Corps with all necessary documentation.

p. 30 – Construction Activities
Comment
"What about the annual fish rescues that are likely to occur during this time. Will dewatering of the river affect operations?"

Response
In both cases, there should be no downstream effects on flow that would be significant for the annual fish rescue effort. The nearest rescue site is more than four miles downstream near the deDampierre ballfields – and that site is rescued only when flow drops below 5 cfs. The next nearest rescue sites are from 10 to 17 miles downstream of the Project site (from approximately mid-Carmel Valley downstream to Highway 1). Both rescue areas downstream are also influenced by in-stream losses (e.g., from diversions and evapotranspiration) and in-stream gains (i.e., from surface and sub-surface flows), although in very low flow years, changes to flow at the Sleepy Hollow site can have a significant effect on flow downstream.

At the Project site, Carmel River flow will be passed around each work site in the channel so that the downstream channel should not experience dewatering. It is possible that in-channel work may require two phases in two different years. If the SHSRF is to remain operational during construction in the channel, the existing intake would remain while a new intake is constructed. A second construction season in the channel may be required to remove the existing intake after a new intake is operational. If it is determined that the SHSRF can be shut down for an entire season, then both construction phases could be completed in a single season.

p. 30 – Construction Activities
Comment
"The depth of excavation will be 6 feet below grade or down to bedrock, so intermediate pumps will need to be installed *within* the work area to control sub-surface water influx/seepage. These pumps will *not* need fish screens. This water will be turbid and will need to be pumped onto a disposal site that will not drain back to the river. This effect should be included in the analysis."

Response
It is anticipated that a flow bypass would be gravity fed, which does not require pumps. But, river conditions may change and require a pumped bypass. Water pumped out of the enclosed work areas in the channel will be drained onto nearby gravel bars with high infiltration rates on either side of the river. The text will be changed to clarify these procedures.

p. 62 – BIO-MM-1
Comment
Commenter requests that NMFS be added as a permitting agency because the Carmel River is critical habitat for S-CCC.

Response
MPWMD will either add NMFS within the text or change the text to say "... if required by permitting agencies." Text will also refer to the list of permitting agencies in the Environmental Checklist, Section 3. The District recognizes that mitigation measures in the NMFS biological opinion would most likely be incorporated into a Corps permit.

p. 65 – fish rescue
Comment
"Are fish not going to be relocated from the reach?"

Response
The in-channel work sites would first be isolated with exclusionary fencing and any steelhead relocated from within the fenced area. Steelhead relocation sites would be determined in consultation with NMFS and CDFW. If a gravity flow bypass channel is feasible, fences would be removed to allow migration after the bypass is installed and the work site areas are isolated from the river. If a piped bypass is required, the reach with the work sites would be closed off to migration until construction is complete.

MPWMD recognizes that there is a small risk of take from rescue and/or construction activities. The mortality rate for MPWMD fish rescues is < 0.2%, but still greater than zero. In addition, mitigation measures such as exclusionary fencing and/or structures can be subject to changes due to unpredictable high wind, debris, flows and other unpredictable conditions, even if the site is monitored frequently. A dewatering and steelhead rescue plan will be submitted for approval

with permit applications.

p. 67 – BIO-MM-6
Comment
"Any need to mention pumps needed for disposal of water as well?"

Response
This will be described in the response to the previous comment on p.30 about dewatering.

p. 67 – potential adverse impacts to steelhead during construction period
Comment
Commenter requests insertion of language in italics into the following statement in the IS/MND:

"As described in the preceding section, impacts within the Carmel River are anticipated to be temporary and minimal, and are thus also unlikely to result in *permanent* adverse impacts to steelhead *or their habitat*. *There will be temporary adverse impacts to both*."

Response
The District will add the requested language.

p. 68 – conclusion about take of steelhead in BIO_MM-6

Comment
" 'Take' is expected for steelhead and minor temporary impacts to their habitat are likely to occur. So the effects are not really less than significant for the purposes of the ESA consultation, but would be considered likely to adversely affect steelhead. Although the benefits of the project would be considered to offset some of these adverse effects."

Response
The District agrees that the project will benefit S-CCC steelhead; however, under CEQA the District can only address impacts and not benefits. The District agrees that there are differences of standards between CEQA and the ESA and recognizes that NMFS may characterize impacts and avoidance measures somewhat differently under the ESA than what is described in the IS/MND.

p. 69 – in-channel work period
Comment
"[The District] should also include the work window for steelhead, June 1 through October 31st."

Response
MPWMD will change the text as follows (italic and strikeout):

"– Seasonal Avoidance. Work *in the channel* would be limited to the ~~dry season from April 15 to October 15~~ *period between June 1 and October 31st. Work outside of the channel or at other times of the year would be carried out in consultation with permitting agencies."*

p. 112 – Table 8 - Estimated Downstream Water Quality Conditions with the Proposed Project

Comment
"Does the document discuss anywhere that the filtration system will remove a considerable amount of the suspended and settleable solids on a long term basis from the river via the basin and sand separation system? Seems like it should be considered."

Response
Currently, the rearing channel traps some suspended sediment, which is flushed out each year after steelhead are removed and relocated into the river. Solids carried by the river into the intake system and rearing channel will eventually return to the river. Material dropped out in the settling area, trapped in microfilters, or settled out in the rearing channel will be spread on the gravel bar, where winter high flows will entrain it. This is the same as the current operation. This is described briefly in Section 4.8 in the Basis of Design Report at

http://www.mpwmd.net/environmental-stewardship/carmel-river-steelhead-resources/steelhead-rescue/sleepy-hollow-facility/

p. 146 – BIO-MM-4
Comment
"One of these, BIO-MM-4,5, or 6 (likely 5 or 6) should spell out that turbid seepage water pumped from within the construction site needs to be directed to a location that will not drain back to the river."

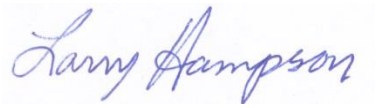
Response
MPWMD will change the text in BIO-MM-6 to indicate that any turbid water pumped out of in-channel work sites will be discharged to gravel bar areas that allow infiltration.

p. 147 – BIO-MM-7 Construction Season
Comment
"Again, in-water work for steelhead would be restricted to June through October."

Response
Comment noted. The language from the response to a similar comment on p. 69 will be included in this Mitigation Measure.

Thank you for your comments. If you have questions or comments about this letter, please contact me at (831) 658-5620.

Sincerely,



Larry Hampson
District Engineer

Cc: Trish Chapman, State Coastal Conservancy
Julio Gonzales, California American Water

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November 4, 2016

Ms. Kim Sanders
California Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906

SUBJECT: Responses to Comments
Sleepy Hollow Steelhead Rearing Facility Mitigated Negative Declaration

Dear Ms. Sanders:

This is a response to Regional Water Quality Control Board (RWQCB) comments on "Initial Study/Mitigated Negative Declaration Sleepy Hollow Steelhead Rearing Facility Raw Water Intake and Water Supply System Upgrade" (the Project) prepared by the Monterey Peninsula Water Management District (District or MPWMD). Below are RWQCB comments received on October 14, 2016 and the District's responses. The District intends to hold a Public Hearing on November 14, 2016 at the District office at 7 p.m. to consider approval of the Project. A Final IS/MND will be prepared to reflect comments received.

Comment 1

"Thanks for soliciting our comment regarding the Sleepy Hollow Steelhead Rearing Facility Raw Water Intake and Water Supply System Upgrade, and thanks for asking about using MPWMD's current 401 Certification. Unfortunately, unless you can get the project built by August 2017, this project cannot be included in the current certification. Your Water Quality Certification Number 32711WQ08 for Carmel River Maintenance and Restoration, Monterey County expires on August 31, 2017."

Response 1

The District intends to submit a request to renew the current 401 Certification in early 2017; however, if RWQCB staff require a separate Certification for this project, the District will work with RWQCB staff to develop an application.

Comment 2

"Central Coast Water Board staff recognizes that the Sleepy Hollow Steelhead Rearing Facility will be beneficial to supporting the steelhead population. However, Central Coast Water Board has some

concerns with the design and inclusion of so much rip rap among a few other concerns regarding information within the MND:

1. Central Coast Water Board staff needs to understand how you avoided impacts to waters of the State during project design. Please provide a demonstration of avoidance through project design.
2. For any design elements that you demonstrate are not avoidable, please demonstrate how you minimized impacts in those particular design elements. "

Response 2

Early in the process of drafting a Request for Proposal and selecting a Consultant for the Project, the District formed a Technical Advisory Committee consisting of staff from the National Marine Fisheries Service (NMFS), the State Coastal Conservancy (SCC), the California Department of Fish and Wildlife (CDFW), California American Water, and MPWMD. After selection of a Consultant, CDFW determined that NMFS staff could represent the interests of the two agencies during the design process (NMFS and CDFW often share resources in these types of projects).

The District worked with the TAC to select a location and design for an intake that should minimize impacts and provide conditions to minimize future maintenance and repair requirements (e.g., from high flows that could damage the intake) while allowing the Sleepy Hollow Steelhead Rearing Facility (SHSRF) to operate under a wider range of flows and river conditions. In late 2013, a site visit was held to evaluate the best location and discuss intake and other design alternatives. NMFS made several recommendations as described in Memos dated January 27, 2014 and May 6, 2014 (Enclosure 1). As recommended in those memos, the District selected the smallest screen that would meet the project design requirements.

Subsequently, the SCC, NMFS, MPWMD, and Cal-Am reviewed a draft Basis of Design (BOD) report and there were several comments that the Consultant responded to in a memo dated November 18, 2015 (Enclosure 2). The BOD is available on the District web site at:

http://www.mpwmd.net/environmental-stewardship/carmel-river-steelhead-resources/steelhead-rescue/sleepy-hollow-facility/

In a February 2016 review of the IS/MND, SCC raised concerns about the initial proposal for structural protection in the active channel that included building a concrete wall to protect the intake structure (similar to the wall shown in Image 1 of the NMFS May 6, 2014 memo). A teleconference between NMFS, SCC, MPWMD and TetraTech was held on March 8, 2016 to discuss the river intake design and in particular, the following: erosion protection, alternatives to retaining wall, effects on screen O&M (risk tradeoffs), and effects on channel and bank stability. In response to comments received at that meeting, TetraTech revised the design to reduce the footprint of the Project within the river channel to the area and design described in the IS/MND.

Design changes to the intake and screen during this process can be summarized as follows:

1) intake and screen location chosen to minimize need for vegetation clearing for access and to reduce the potential for failure due to erosion and need for future maintenance operations in the active channel; 2) permanent access road to intake screen for maintenance deleted in favor of using a large crane if screen needs to be removed and replaced; 3) deleted protective retaining wall in favor of loose riprap that can be revegetated coupled with a small concrete box to allow a piped connection to the screen; 4) footprint of concrete pad reduced by going from original dimensions of 10 ft. x 10 ft. to a 9-ft diameter; 5) cone screen alternative protects steelhead from impingement/entrainment while being resistant to debris/rock flows; 6) substitution of backing rock for traditional filter cloth under riprap to allow root penetration into streambank.

Comment 3

"Once we receive the above information we will also require

1. A demonstration of the need for the precast concrete box that will be embedded into the river bank forming a wall,
2. A demonstration of how the proposed concrete boxes/bases installed in the river bed will not cause erosion, and why the river-facing side of the box would be exposed,
3. A demonstration of how the proposed rip rap laid into the river bed will not cause erosion downstream or upstream of the facility,
4. A shear stress analysis demonstrating the need for any proposed bank rip rap and the proposed precast concrete box on the bank including:
    a. The flows for which the project is designed, the return period of those flows, and the shear stress and velocity of those flows;
    b. The least invasive bank stabilization material that will withstand the shear stress based on Table 2, Permissible Shear and Velocity for Selected Lining Materials, in the Corps' technical note[1]), and
    c. Quantitative demonstration of why non-hardscape means of stabilization are infeasible.

Please note that we prefer to balance protection from erosion with availability of habitat. Therefore, we prefer to protect the banks to a lesser year flood to avoid the use of harder-scape materials and more of those materials."

Response 3

The District understands that these comments will be addressed during the permitting phase of the project; however, here are some initial responses that will be more fully developed during final design and with a permit application.

Shear stress and velocity analysis show that there is a high risk of erosion just due to water flow at the intake site (see Enclosure 3). The District has a concern that this type of analysis is unable to explain how large boulders and riprap far in excess of what the flow can theoretically move are present in this reach and have moved over time (see Enclosure 4).

There is also a new, unquantified risk to the intake and nearby streambank from the reintroduction of large wood below the site of the former San Clemente Dam. With the removal of San Clemente Dam in 2015, large wood weighing several tons is more likely to be passing through this reach and posing an erosion risk either from directly impinging on the streambank and intake and/or causing the formation of a logjam nearby.[1] Such logjams are common in natural rivers and may be persistent over time; however, there is no body of evidence to indicate where logjams may form and how large wood may influence channel geometry in this reach. Based on experience in the lower 16 miles of the river, the presence of large wood can increase the risk of failure to infrastructure placed in the active channel.[2]

There is also a design risk introduced from the relatively short record of peak flows. The current predicted 100-year magnitude event at this site is 10,200 cfs. There have been a wide range of estimates for peak flows in this reach and a significant amount of uncertainty surrounding peak flow estimates.[3] The 1911 flood event swept away the gage at the Old Carmel River Dam about 0.5 miles upstream at a flow of 18,000 cfs and was estimated to peak at 20,000 cfs. The 1995 and 1998 peak events at San Clemente Dam were at or near the current estimated 100-year flood peak prediction. The great flood of 1862 was estimated to exceed 30,000 cfs in the lower river.

The District understands the reasoning for maintaining suitable streamside habitat in this reach and believes that the habitat that will grow up around the proposed new intake will be compatible with maintaining its high value. Significant damage to the intake area during an erosion event would likely cause the SHSRF to be inoperable for an extended period and repairs would cause additional disturbance.

---

[1] Prior to removal of San Clemente Dam, the superstructure on the dam, which was comprised of 10-foot wide ports, trapped significant portions of the large wood coming into the reservoir from upstream. To pass this material downstream, Cal-Am would cut large wood into 8 to 10 foot sections and manually pass the wood through the ports.

[2] Almost every bridge across the lower 16 miles of the river has had abutments and/or piers scoured and damaged during high flows. Most of the damage has involved debris. Eight of the 20 bridges across the lower 16 miles of the river were washed out at high flows. Six were rebuilt. Several bridges have needed repairs to abutments or supports.

[3] One the predictions for the 100-year event at the USGS Robles Del Rio gage at RM 14.5 varies from 15,600 cfs to 43,000 cfs. See Carmel River Flood Insurance Study Hydrology Report, Prepared for FEMA, Prepared by Northwest Hydraulic Consultants, January 2006.

NMFS and CDFW have both expressed that the SHSRF will need to be operated for a minimum of 10 years. It is likely to be run for far longer, given that the S-CCC population will not recover in that time period. Therefore, the risk of an event greater than the design event (i.e., getting toward the upper limits in the confidence interval) will increase the longer the facility is operated. It would be prudent, in my opinion, to use hardscape materials at this site to reduce the risk due to streambank failure or damage to the intake.

Comment 4

5. "An understanding of what will be used as backfill for the current intake feature. "

Response 4

Because the existing pump housing was not anchored into the streambank or channel bottom and consisted of concrete rings stacked vertically to form a caisson, there is a possibility the rings can simply be lifted straight up without disturbing the streambank; however, if material around the existing intake must be excavated to remove the caisson, riprap and native material would be used for backfill, with native material over riprap and native vegetation incorporated into the material. The former approach will be used first.

Comment 5

"Thank you for not proposing petroleum based fabrics for laying underneath your rip rap."

Response 5

MPWMD has not used fabrics to prevent piping under riprap since 1993. Currently, the District prohibits fabrics from being used in projects requiring MPWMD River Work Permits. Instead, project applicants are encouraged to substitute materials that can provide the same function, but that allows more natural development of rooted vegetation.

Comment 6

Other General MND Comments:

1. Section 3.3.4.1.2 Reads, "Carmel River waters below the ordinary high water mark would qualify as jurisdictional waters of the U.S. and State, falling under the jurisdiction of the USACE and RWQCB. Improvements within the channel, channel banks, and adjacent riparian areas would also be subject to review and approval by CDFW." While the first sentence is correct, the

second sentence should also include RWQCB as having regulatory authority over channel, channel banks, and adjacent riparian areas. Please revise.

2. Please revise BIO-MM-2 to read, "Replacement planting for riparian trees would occur at a ratio determined through consultation with CDFW and the RWQCB, to..." since the RWQCB has regulatory authority over impacts to riparian areas.

We may have additional questions once we receive your application for this project.

Response 6

MPWMD will revise the Final IS/MND to either list RWQCB specifically or change the description to be more general to say "federal and state permitting authorities" and include a table of the permitting agencies.

If you have questions or comments about this letter, please contact me at (831) 658-5620.

Sincerely,

Larry Hampson
District Engineer

Cc: Trish Chapman, State Coastal Conservancy
David White, Jacqueline Pearson-Meyer, National Marine Fisheries Service
Julio Gonzales, California American Water

Enclosures:
1. NMFS Memo dated May 6, 2014
2. Memo dated November 18, 2015
3. Memo dated Nov. 2, 2016

U:\Larry\Carmel River\SleepyHollow\Facility Upgrade\CEQA Documents\Comments on ISMND\RWQCBresponse.docx

[1] Fischenich, J.C. (2001) *Stability Thresholds for Stream Restoration Materials, EMRRP Technical Notes Collection (ERDC TN-EMRRP-SR-29)*, U.S. Army Engineer Research and Development Center, U.S. Army Corps of Engineers, Vicksburg, MS

Enclosure 1

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

January 27, 2014

MEMORANDUM FOR: Joyce Ambrosius

CC: Rick Wantuck, Steve Thomas

FROM: David White

SUBJECT: Sleepy Hollow SRF Water Intake Recommendations

INTRODUCTION

This memo has been prepared to provide comments in response to the Sleepy Hollow Steelhead Rearing Facility Sediment Control and Intake Retrofit reports (List Engineering Company 2010, 2003) and observations made during a site visit on November 15, 2013. These comments are meant to supplement the discussion of facility improvements and possible upgrades.

SUMMARY

The highest priorities at this facility are 1. Improved access to the pumps and controls during extreme high and low water events, 2. An improved fish screen that does not clog with leaves or go dry during low water conditions, and 3. Reduced sediment input and associated damage to pumps and other equipment. The List Engineering reports appropriately identify these priorities. Design suggestions are provided in the Existing Intake *Recommendations* section.

Another important priority, not highlighted in the reports, is improving the reliability of the water supply source. In some years (including this past year), river flows are less than the level needed to supply the facility, requiring the premature release of fish back to the river. In addition, future sediment levels may increase in response to the dam removal. Finally, facility capabilities may need to be changed or upgraded in response to the needs of the steelhead population. These factors call for an improved water source.

The water supply source could be improved by moving the intake to the deep pool near the facility outfall, or by adding a recirculating water system. A recirculating system is ultimately a more secure and predictable water source. If needed, a recirculating system can be isolated from the river entirely for extended periods. A recirculating system may allow the new intake and screen to be reduced in size. Other benefits and drawbacks are

provided in the Existing Water Supply *Recommendations* section. A recirculating system for this facility could likely be constructed for approximately $500,000.

DETAILED COMMENTS

EXISTING INTAKE

The existing intake is a drum screen on the river bottom supplying water to a pump housing on the river bank. The screen is vulnerable to clogging or damage from leafy debris and sediment moving downstream. The pump housing is a confined space containing pumps, motors, and electrical connections. This makes intake operation and maintenance difficult. At high river levels, the pump housing is underwater and operation and maintenance is not possible.

Recommendations

Intake

The intake should be moved out of the stream channel to a location where it is deeper and better protected from debris and sediment moving downstream. One way to do this is to build a concrete alcove into the stream bank that houses the fish screen (Image 1 below). This would require bank excavation for the alcove, as well as digging a trench for the supply pipe to the pumps. This would likely require additional environmental permitting.

Image 1- Example of alcove built into stream bank to house a cone-shaped fish screen.

Another possibility is relocating the intake from the current location to the 12 foot deep pool at the facility outfall. Water supply may be somewhat colder at this location, and water level would be more secure during drought periods. An intake at this location would also be more protected from leaves and other debris, reducing maintenance. However, pumping costs at this location would be significantly higher.

Fish Screen

Various types of fish screens are possible at this location. A cone screen (Image 2 below) is able to operate in as little as a foot of water depth. A cone screen also performs well under high debris and sediment loads. Given the shallow depth of this stream in summer, as well as past trouble here with heavy leafy debris and an expected increase in sediment supply, a cone screen would be a good choice for this project. A 3 cfs flow to the facility can easily be supplied by a relatively small (5 and 1/2 foot diameter) cone screen.

Image 2- Example of cone screen underwater in an alcove with external cleaning brushes in operation.

Pump Housing

The existing pump housing (wet well) should be improved. Maintenance, repair, and switching from one pump to another is difficult because the pump housing is in a cramped and partially submerged space. At higher flows, the entire pump housing is submerged and is therefore inaccessible. There are several ways that safety and functionality of the pump housing could be improved, including:

1. Enlarge the housing.
2. Replace existing pumps with retractable pumps that are raised from above on rails.
3. Raise the motors and/or valve controls above the high water mark (Image 3 below). This would likely require installing a raised platform, and access during high water events would likely require a significant catwalk or a boat.

Image 3- Example of pump motor and electrical supply raised out of wet well to improve access.

EXISTING WATER SUPPLY

The facility currently operates between May and December in order to rear steelhead when river conditions are unfavorable. Approximately 900 gpm (2 cfs) of river water is pumped to the cooling tower, and from there flows into a cold well. From the cold well, water is pumped into the raceways, where it supports from 16,000 to 48,000 juveniles. After the last rearing pond, the water flows through a lava rock filter and back to the river. This is a single-pass system,

meaning there is no water recirculation.

There are several water supply issues with the existing single-pass system. In some drought years, water depth at the existing intake is too low to operate. As a result (last year included), fish have had to be released from the facility prematurely, before river conditions were optimal. Also, the existing cooling tower is not cooling water to optimal levels (<60F) during periods of hot, humid weather and warm river temperatures.

As described previously, facility operations are limited to the periods when the river levels are below the level of the pumps, which are submerged at high flows and cannot be accessed. Access in the pump housing is difficult even when water levels are below the pumps. Additionally, at low water conditions in the Fall, the screen becomes clogged with leaves and requires frequent maintenance. Finally, there is no water disinfection system.

Recommendations

Water Recirculation

Installing a full or partial water recirculation system would improve the reliability of operations, improve fish health, and expand the capabilities of the facility to potentially include year-round operation. While at this time year-round operation is not required, it may make sense to plan for this potential need during facility improvements.

In such a system, water would be collected at the downstream end of the rearing facility and pumped back upstream to the beginning of the system (Diagram 1). There it would be chilled, filtered (solids filter, biofilter, and protein skimmer), disinfected, and passed back into the rearing ponds. A concept diagram is provided below. A small quantity of water would still need to be drawn from the river to make up for evaporative loss, water leakage in the rearing channels, and to dilute waste build-up in the recirculating system. Also, single pass operation may still be needed during periods of salt or chemical treatments in the rearing ponds.

Benefits of a recirculating system:

1. Sediment protection- Protect the intake pumps and recirculating pumps from damage from sediment, since intake water could be stopped when sediment levels in the river are high.
2. Reduced size of the fish screen and intake pumps, since less intake water would be needed.
3. Year round facility operation, if desired.
4. Improving control of temperature and water quality by selecting when water is drawn from the river.
5. Reduced energy cost to pump intake water. (This would be offset by increased energy costs to pump for recirculation).

6. Possibly increasing effectiveness of cooling tower- In hot and humid weather, water in the downstream rearing channels is cooler than river temperatures, and recirculating it will likely yield lower overall temperatures.

Drawbacks of a recirculating system:

1. Additional capital costs of pumps and piping to recirculate water.
2. Additional capital costs of filtration (solids filter, biofilter, and protein skimmer to remove fish waste).
3. Additional energy cost to pump water from facility end to beginning. (This would be partially offset by reduced pumping costs of intake water).
4. Additional cost of water disinfection.

Potential Costs:

Adding recirculation to this facility would require a water collection tank below the last rearing pond, additional pumping, piping, filtration, protein skimmers, and disinfection. Based on the costs of two other recirculating facilities, a very rough estimate of the cost of additional equipment needed for recirculation at this facility is $500,000.

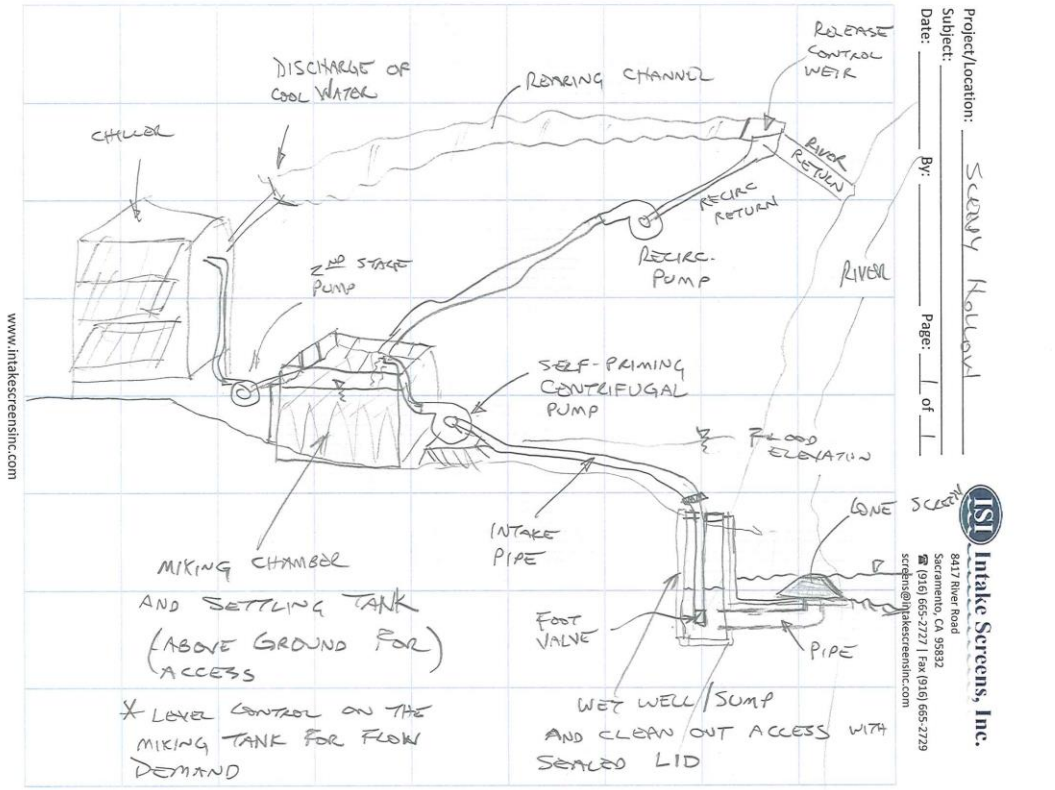


Diagram 1- Concept Drawing of Recirculating System (from Darryl Hayes, ISI)

Enclosure 1

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

May 5, 2014

MEMORANDUM FOR: Joyce Ambrosius

CC: Rick Wantuck, Steve Thomas

FROM: David White

SUBJECT: Sleepy Hollow SRF Water Intake Recommendations

INTRODUCTION

This memo has been prepared to provide comments in response to the Sleepy Hollow Steelhead Rearing Facility Sediment Control and Intake Retrofit reports (List Engineering Company 2010, 2003) and observations made during a site visit on November 15, 2013. These comments are meant to supplement the discussion of facility improvements and possible upgrades.

SUMMARY

High priority needs at this facility include 1. Improved access to the pumps and controls during extreme high and low water events, 2. An improved fish screen that does not clog with leaves or go dry during low water conditions, and 3. Reduced sediment input and associated damage to pumps and other equipment. The List Engineering reports appropriately identify these priorities. Design suggestions are provided in the Existing Intake *Recommendations* section.

Another important priority, not highlighted in the reports, is improving the reliability of the water supply source. In some years (including this past year), river flows are less than the level needed to supply the facility, requiring the premature release of fish back to the river. In addition, future sediment levels may increase in response to the dam removal. Finally, facility capabilities may need to be changed or upgraded in response to the needs of the steelhead population. These factors call for an improved water source.

The water supply source could be improved by moving the intake to the deep pool near the facility outfall, or by adding a recirculating water system. A recirculating system is ultimately a more secure and predictable water source. If needed, a recirculating system

can be isolated from the river entirely for extended periods. A recirculating system may allow the new intake and screen to be reduced in size.
Another priority is sufficient water storage and a system to deal with occasional disease treatments (either storage tanks or on-land dispersal) to deal with treated water when it is not appropriate to discharge treated water directly into the stream or back into a recirculating system.

Other benefits and drawbacks are provided in the Existing Water Supply *Recommendations* section. A recirculating system for this facility could likely be constructed for approximately $500,000.

DETAILED COMMENTS

EXISTING INTAKE

The existing intake is a cylindrical Tee screen on the river bottom supplying water to a pump housing on the river bank. The screen is vulnerable to clogging or damage from leafy debris and sediment moving downstream. The pump housing is a confined space containing pumps, motors, and electrical connections. This makes intake operation and maintenance difficult. At high river levels, the pump housing is underwater and operation and maintenance is not possible.

Recommendations

Intake
The intake should be moved out of the stream channel to a location where it is deeper and better protected from debris and sediment moving downstream. One way to do this is to build a concrete alcove into the stream bank that houses the fish screen (Image 1 below). This would require bank excavation for the alcove, as well as digging a trench for the supply pipe to the pumps. This would likely require additional environmental permitting.

Image 1- Example of alcove built into stream bank to house a cone-shaped fish screen.

Another possibility is relocating the intake from the current location to the 12 foot deep pool at the facility outfall. Water supply may be somewhat colder at this location, and water level would be more secure during drought periods. An intake at this location would also be more protected from leaves and other debris, reducing maintenance. However, pumping costs at this location would be significantly higher.

Fish Screen

Various types of fish screens are possible at this location. A cone screen (Image 2 below) is able to operate in as little as a foot of water depth. A cone screen also performs well under high debris and sediment loads. Given the shallow depth of this stream in summer, as well as past trouble here with heavy leafy debris and an expected increase in sediment supply, a cone screen would be a good choice for this project. A 3 cfs flow to the facility can easily be supplied by a relatively small (5 and 1/2 foot diameter) cone screen.

Image 2- Example of cone screen underwater in an alcove with external cleaning brushes in operation.

Pump Housing

The existing pump housing (wet well) should be improved. Maintenance, repair, and switching from one pump to another is difficult because the pump housing is in a cramped and partially submerged space. At higher flows, the entire pump housing is submerged and is therefore inaccessible. There are several ways to improve the safety and functionality of the pump housing, including:

1. Enlarge the housing.
2. Replace existing pumps with retractable pumps that are raised from above on rails.
3. Raise the motors and/or valve controls above the high water mark (Image 3 below). This would likely require installing a raised platform, and access during high water events would likely require a significant catwalk or a boat.

Image 3- Example of pump motor and electrical supply raised out of wet well to improve access.

EXISTING WATER SUPPLY

The facility currently operates between May and December in order to rear steelhead when river conditions are unfavorable. Approximately 900 gpm (2 cfs) of river water is pumped to the cooling tower, and from there flows into a cold well. From the cold well, water is pumped into the raceways, where it supports from 16,000 to 48,000 juveniles. After the last rearing pond, the water flows through a lava rock filter and back to the river. This is a single-pass system, meaning there is no water recirculation.

There are several water supply issues with the existing single-pass system. In some drought years, water depth at the existing intake is too low to operate. As a result (last year included), fish have had to be released from the facility prematurely, before river conditions were optimal. Also, the existing cooling tower is not cooling water to optimal levels (<60F) during periods of

hot, humid weather and warm river temperatures.

As described previously, facility operations are limited to the periods when the river levels are below the level of the pump motors, which are submerged at high flows and cannot be accessed. Access in the pump housing is difficult even when water levels are below the pump motors. Additionally, at low water conditions in the fall, the screen becomes clogged with leaves and requires frequent maintenance. Finally, there is no water disinfection system.

Recommendations

Water Recirculation

Installing a full or partial water recirculation system would improve the reliability of operations, improve fish health, and expand the capabilities of the facility to potentially include year-round operation. While at this time year-round operation is not required, it may make sense to plan for this potential need during facility improvements.

In such a system, water would be collected at the downstream end of the rearing facility and pumped back upstream to the beginning of the system (Diagram 1). There it would be chilled, filtered (solids filter, biofilter, and protein skimmer), disinfected, and passed back into the rearing ponds. A concept diagram is provided below. A small quantity of water would still need to be drawn from the river to make up for evaporative loss, water leakage in the rearing channels, and to dilute waste build-up in the recirculating system. Also, single pass operation may still be needed during periods of salt or chemical treatments in the rearing ponds.

Benefits of a recirculating system:

1. Sediment protection- Protect the intake pumps and recirculating pumps from damage from sediment, since intake water could be stopped when sediment levels in the river are high.
2. Reduced size of the fish screen and intake pumps, since less intake water would be needed.
3. Year round facility operation, if desired.
4. Improving control of temperature and water quality by selecting when water is drawn from the river.
5. Reduced energy cost to pump intake water. (This would be offset by increased energy costs to pump for recirculation).
6. Possibly increasing effectiveness of cooling tower- In hot and humid weather, water in the downstream rearing channels is cooler than river temperatures, and recirculating it will likely yield lower overall temperatures.

Drawbacks of a recirculating system:

1. Additional capital costs of pumps and piping to recirculate water.
2. Additional capital costs of filtration (solids filter, biofilter, and protein skimmer to remove fish waste).
3. Additional cost of water disinfection.
4. Additional energy cost to pump water from facility end to beginning. (This would be partially offset by reduced pumping costs of intake water).
5. Possible additional energy cost to chill water on an annual basis (see number 6 under "Benefits" above).
6. O&M costs of recirculation system components.

Potential Costs:

Adding recirculation to this facility would require a water collection tank below the last rearing pond, additional pumping, piping, filtration, protein skimmers, and disinfection. Based on the costs of two other recirculating facilities, a very rough estimate of the cost of additional equipment needed for recirculation at this facility is $500,000.

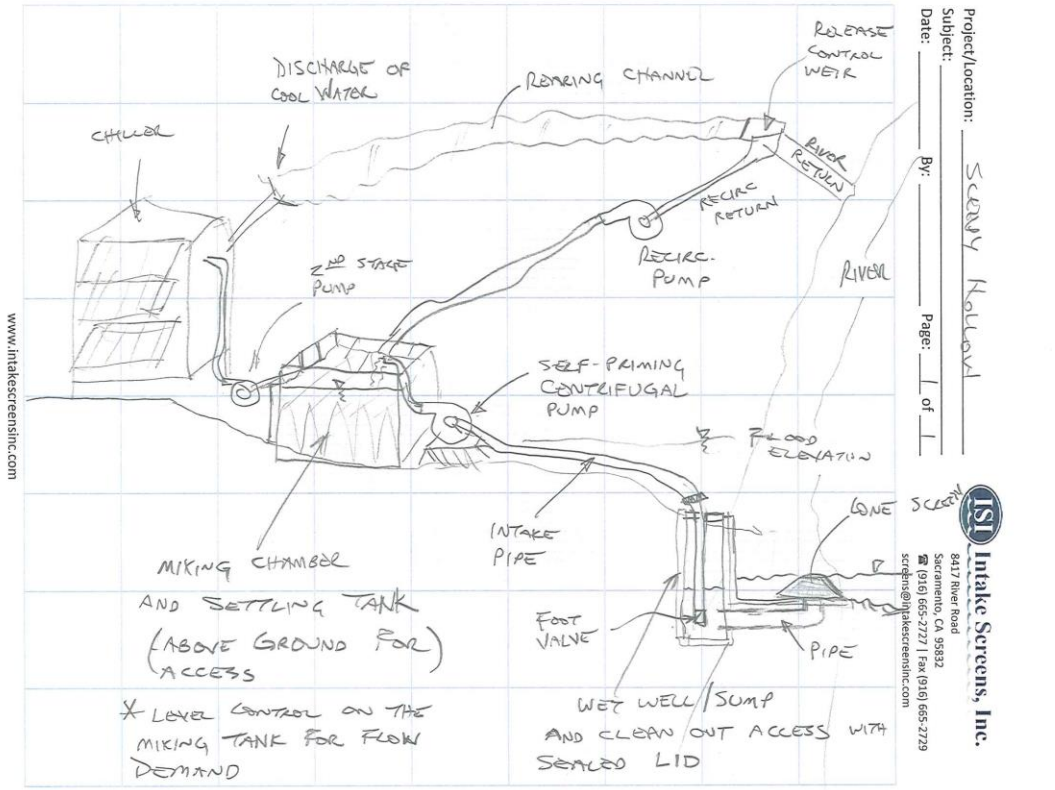


Diagram 1- Concept Drawing of Recirculating System (from Darryl Hayes, ISI)

Enclosure 2

Date:	November 18, 2015
To:	Larry Hampson, Monterey Peninsula Water Management District
Cc:	Kevan Urquhart, MPWMD; Katie Chamberlin, Anchor QEA; Brian Vinci, Freshwater Institute
From:	Darrel Nice, Tetra Tech
Project:	Sleepy Hollow Steelhead Rearing Facility – Raw Water Intake and Water Supply System Upgrade
Project Number:	135-124674-15001
Subject:	Response to Review Comments for Basis of Design Report

The purpose of this memorandum is to provide responses to review comments of the October 2015 Basis of Design (BOD) report. The BOD report was reviewed by the Coastal Conservancy and by NMFS. A brief summary of the comment is provided prior to each response. The original comments are attached to this memo for reference. Draft responses below are prepared by Tetra Tech and will be supplemented by Freshwater Institute and MPWMD. The final memo will be used during our meeting on November 24 (need to confirm date).

Responses to Coastal Conservancy Review Comments

Comment 1a: Additional analysis of the feasibility of a recirculation system is needed due to its significant cost. Consult with NMFS and CDFW to determine what flows the agencies would allow for diversions from the river.

Response: These agencies will be consulted to determine allowable diversion rates during low river flows. Technically the system requires a minimum river flow to replenish water lost in the rearing system, and to keep fresh water supplying the intake without causing flow reversal in the river. About 0.2 cfs of river flow beyond what is being withdrawn should keep water moving past the intake, resulting in at least 1.4 cfs flow needed in the river.

Comment 1b: Prepare an analysis of how often the recirculation system will be needed, taking into account any restrictions on water withdrawals. Analysis to take into account historical river flows.

Response: In addition to use during low river flows, the system will also operate during high river turbidity events and can improve normal facility operation. We estimate without reuse the river flow would need to be about 3 cfs, and with reuse river flow could be as low as 1.4 cfs for extended periods.

Comment 2: For option #3, is the second set of pipes that bypasses the treatment facility necessary? Is the increased cost of pipeline construction worth the savings in energy cost?

Response: The pipeline that goes directly from in RW intake pump station to the cooling tower provides operational flexibility to bypass the treatment facility when the river water quality is good. There is some increased energy costs associated with running the filters and re-pumping the

river water. The second pipeline allows the sediment basin and filter to be taken offline for maintenance, while still providing river water to the facility. Fish rearing operations benefit from this type of redundancy and the added pipe cost is minimal when two pipes are installed in one excavated trench as is planned.

Comment 3: Provide more information and justification for need of the proposed aeration/oxygenation tower. Consider installing a second smaller fan on existing cooling tower for aeration.

Response: The second fan option can be reviewed during design. The additional aeration tower is more efficient and allows for supplementation with pure oxygen in the future if it is needed. This will be discussed during the teleconference.

Comment 4a: Is the quarantine flow from river needed throughout the season?

Response: Yes, the quarantine occurs any time fish are rescued, which occurs throughout the season.

Comment 4b: Concern about formalin and other treatment chemical effects on river water quality during low river flows.

Response: The quarantine tanks are used to observe and sort fish and reduce shock when the fish first arrive. Formalin is the first treatment in every quarantine effort and is often the only treatment. When it is used the drain water is diverted to small storage tanks where it is treated and tested before release onto the gravel bar in accordance with the District's waiver form the RWQCB. The majority of the time the drain water is chemical free and safe for fish and returns to the river in an underdrain pipe that is installed below the rearing channel. This water could be used in the reuse system, but it is difficult to capture because of its lower elevation hydraulic grade line and was determined not cost effective.

Comment 5: When pumps are turned off will rearing channel quickly go dry? Consider channel modifications to address concern.

Response: The channel is already constructed to hold a certain level of water in each pool. There is some leakage that is unavoidable, which limits the amount of time it can hold water at a safe level. Another time limitation comes from fish consumption of oxygen and maintaining safe oxygen level. This does provide risk mitigation, but the only for limited time.

Comment 6: In the last sentence of section 4.8 "Effluent Water Treatment and Discharge" what is meant by "in the future"?

Response: This sentence should be revised. There is no requirement to store or remove the solids. The permitting agency has indicated discharge to the flood plain is acceptable and is consistent with the current practice.

Comment 7: Separate permitting and phased construction will not make sense unless it is agreed that the recirculation facilities are worth the cost.

Response: Permitting for the intake work will take longer because it impacts the river bank and includes in-water work. The reuse system construction is outside the normal river levels, and could be operated using the existing intake making the system more reliable.

Comment 8a: Revise cost summary table 6-1 to include line items for sub-total, contingency, and sales tax.

Response: This is a planning level cost estimate. The comments are helpful and will be included in future cost estimates once additional design detail is developed.

Comment 8b: Sales tax should be applied to materials only

Response: Tax will be clarified in future cost estimates.

Comment 8c: 25% contingency seems low given vague nature of the cost estimate

Response: At this planning level design each cost item also includes contingency.

Comment 8d: Cost estimate backup does not show how lump sum values were estimated

Response: Lump sum values and unit costs are based on several sources of information including: experience from similar past projects, bid tabs and schedules of values from other projects, consultation with RS Means, and correspondence with equipment suppliers.

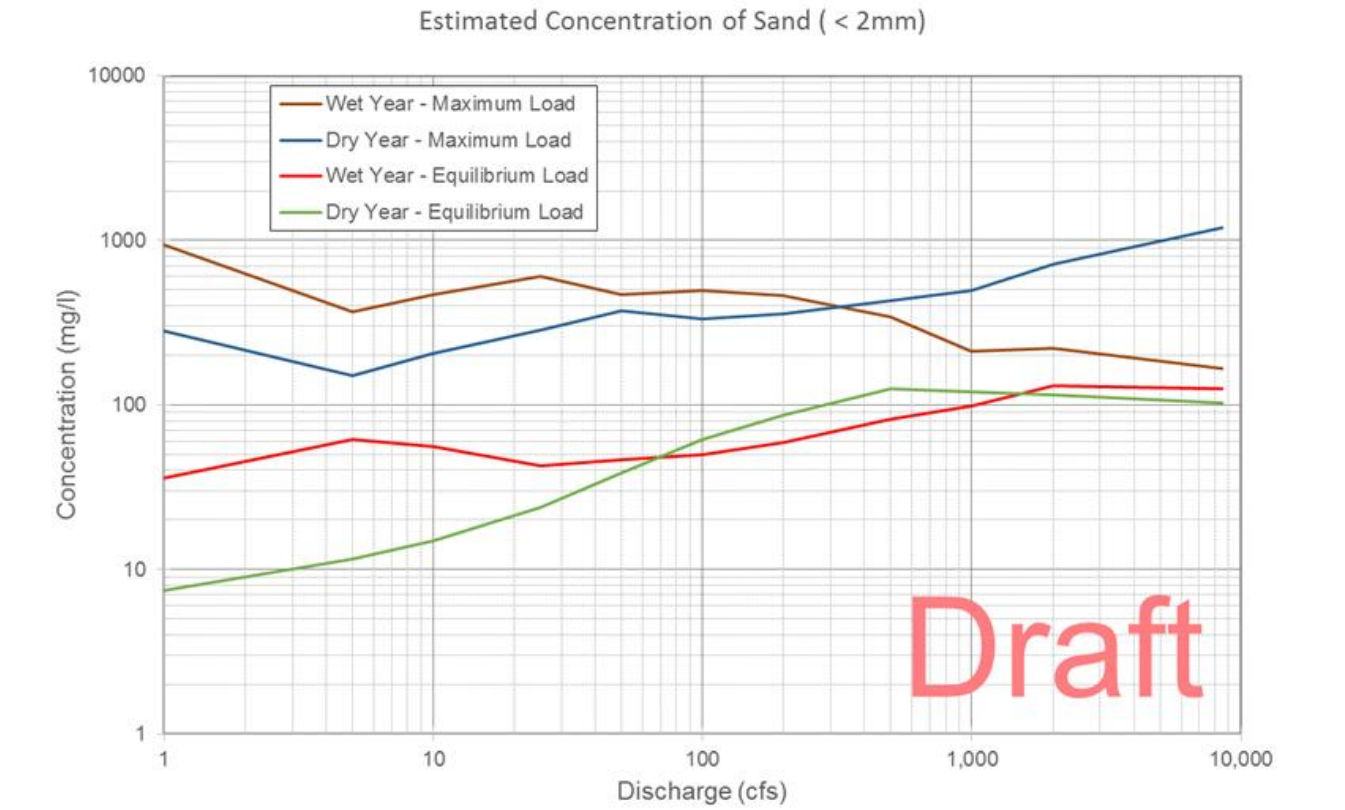
Comment 8e: Cost estimate does not include environmental monitoring and mitigation.

Response: These items will be reviewed more closely in future cost estimates.

Responses to NMFS Review Comments

Comment 1: Additional analysis of recirculation elements should include both low flow years and sediment mobilizing flows. Primary benefit of the recirculation system is as an insurance policy for future sediment transport events related to upstream dam removal. Recirculation may allow for improvements in normal facility operations such as increasing feed rates or increasing population density.

Response: The design for the project did incorporate the potential for some erosion of sediment deposited at the upstream end of the former San Clemente Reservoir. It is unknown how quickly that area will adjust to the new river grade, but we estimate it will happen fairly quickly if there are average flows. However, that area of reservoir deposits has the highest fraction of gravel (5-10%) and the sand fraction is likely to move downstream to the alluvial reach within a few years. Although MPWMD experience with Carmel River channel work is further downstream in a lower energy part of the system, from what was seen at the Reroute Project, we expect an initial adjustment of the Reroute Channel that could result in an elevated sediment level that will decrease over a number of years. The channel and floodplain are built with structural components (i.e., rip-rap and energy dissipaters) to withstand the 50-year and 10-year flood levels, respectively. Naturally recruited and planted vegetation will further reduce the potential for erosion in large events. The chart below shows estimated near term (Maximum Load) and long term (Equilibrium Load) sediment concentrations related to river discharge.



The more important and significant increase in sediment may come from other areas of the watershed. For example, intense rainfall on the 1,000-acre Tassajara fire (see photo) could send a mudslide into Cachagua Creek that will eventually pass by the Sleepy Hollow facility. In the past, erosion and sedimentation from upstream of the former San Clemente Dam appear to have been much more episodic than chronic. But, significant episodes can take several years to work through the system. So, the RAS can definitely benefit the facility by decreasing the volume of sediment reaching the rearing channel after an episodic event.

Comment 2: The Maximum Screen Approach Velocity in Table 2-1 should be changed to 0.33 feet/second and reference the NMFS Southwest Region Fish Screening Criteria for Anadromous Salmonids, 1997.

Response: Comment noted. Table 2-1 will be revised.

Comment 3: Did you consider a vertical cylinder screen located a bit downstream of the proposed location in a deeper area of the pool?

Response: We have considered the vertical cylinders and do not feel they are justified at this project. The river depth even in the pools is very limiting and cone screens are better for shallow conditions.

Comment 4: If there is significant current, internal baffles may be needed inside the fish screen to get the approach velocities right.

Response: Maximum river velocity at the screen location will be reviewed during design and baffles added if required.

Comment 5: Spray bar system suggested improvements / modifications

Response: The spray bar suggestions will be used during design and we may want to see some photos and details if they are available. We will also take a closer look at what we have designed at other facilities.

Comment 6: Air burst systems don't tend to much move sediment and they often promote growth of stubborn black algae on the screen

Response: It has been our experience that air burst does not remove sediment very well. However, based on the operators experience at Sleepy Hollow, air burst may be useful in removing lighter debris such as leaf mats that stick to the screen. This will be reviewed with the screen vendor during design.

Comment 7: Figure 2-3 River Pump Station: Should gate valve by provided between pump and check valve? Should the pipeline increase in size where the two 12" pipes come together at the wye?

Response: The isolation valve located downstream of the check valve is standard configuration for pump stations we have designed in the past, and is the recommended configuration in manufacturer literature and industry design references. The valve in this location can still be used for pump isolation and maintenance. The pumps will not need to be throttled open as there is sufficient static head to prevent the pumps from running off their curve. However, if throttling is needed, such as during testing, it can still be done downstream of the check valve.

The pumps are sized for one pump to deliver the entire facility flow. The pipe size increase is not needed because both pumps will typically not operate at the same time.

Comment 8: Ozone systems can be difficult to operate and maintain and can produce harmful byproducts. UV systems have been effectively used in other recirculating applications.

Response: We do not anticipate ozone use on this project. This will be discussed during the teleconference.

Comment 9: When calculating recirculation capacity, are you able to assume decreased feed rates or is cannibalism too big a problem?

Response: This will be discussed during the teleconference.

Comment 10: How much (if any) extra power does recirculating require? Would it require new transformers? Can the back-up generators power the recirculation system?

Response: The initial assessment concluded that the facility only has enough power for existing operations. TetraTech is working with PG&E to determine what additional power infrastructure will be required to add the RAS. Right now, the design goal is to be able to operate the facility under all conditions for as long as necessary (this will come under discussion in the near future). So, depending on the back-up generator to power the RAS may not be desirable (would we need a back-up for the back-up?).

SHSRF Raw Water Intage and Water Supply System Upgrade
Basis of Design Report, October 2015

Coastal Conservancy comments and questions

1. The recirculation elements of the project are a significant part of the cost. Before moving into more detailed design, additional analysis of the feasibility of using the system needs to be done. Specifically
    a. Consultation with NMFS and CDFW to determine at what flows the agencies would allow diversions from the river, with the understanding the other than evaporative losses, the water would be returned to the extraction point. For instance the river flow is now less than 2 cfs – would CDFW allow you to take out 1.2 cfs to operate at 75% recirc?
    b. Based on the outcome of these consultations, prepare an analysis of how often when recirc would be needed due to low river flows, water withdrawals would actually be allowed. For instance, in looking backwards at which years would have used recirc, what percentage of those had flows high enough throughout the rearing seasons to have successfully operated the system.
2. The preferred option #3 has a second set of pipes to allow for flow through of river water rather than having clean river water go through a solids treatment process (settling and filtration). Is this really necessary? If the river water is clean, wouldn't the "solids treatment process" by fast and easy? It will cost more to construct, so will it save significant energy costs?
3. Report does not adequately explain what the new aeration/oxygenation tower would be. Is this incorporated into the cooling tower or a separate structure? In either case, is a new structure more cost effective than just having a second smaller fan that can be used when only aeration is needed? More explanation and justification needed.
4. Quarantine flow from river
    a. Does this need apply throughout the season or only at the beginning when fish are being brought in?
    b. If you are operating on recirc, is there a level at which the channel water being discharged is not sufficient to dilute the formalin and other treatment chemical s in the water. I ask that particularly in light of the fact that recirc would be needed in dry years when the facility could be taking a very high percentage of the river flow out, so the new river water would be primarily outflow from the facility. For instance if you are running at 50% recirc and the river has 2 cfs, the flow from the holding tanks would be 30% of the flow. Is that going to be okay from an impact on the river standpoint?
5. It is my understanding that if the pump system is turned off or fails, then the channel will go dry fairly quickly. Is this correct? Is there a design revision that would allow for temporarily changing the channel to a system of holding ponds (by damning up the downstream end of the end of each segment? Would this be a valuable risk mitigation?

6. P25, Section 4.8, last sentence of paragraph – Explain what is meant by this sentence: "in the future" – what is this referring to?; "for storage and periodic removal as required" – required by who? Is it required now?
7. Permitting and Construction Strategy – It will only make sense to move forward with the recirc elements first if the regulatory agencies have signed off on the water withdrawal protocols that prove that recirc facilities are worth the cost. Based on this, I'm not sure separating the permitting will make sense.
8. Cost Estimate
    a. Summary cost estimate on page 30 should include line items for the subtotal of itemized elements, plus lines for contingency and tax.
    b. Sales tax is applied on materials, but not on labor. Why is 8% applied to everything.
    c. 25% contingency seems low given the very vague nature of the cost estimate.
    d. Cost estimate backup is largely based on lumpsum numbers that provide no indication of how they were estimated.
    e. Cost estimate is missing the cost of environmental monitoring and mitigation. For instance you will likely need to deal with bird surveys, woodrats, and revegation. $5K for erosion control doesn't seem adequate.

11/18/15 Response Memo
Attachment #2

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

November 2, 2015

MEMORANDUM FOR: Joyce Ambrosius

CC: Rick Wantuck

FROM: David White

SUBJECT: Environmental Services Branch Comments on Sleepy Hollow Raw Water Intake and Water Supply System Upgrade BOD Report

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1. Regarding recirculation elements being a significant part of the cost-- If further analysis of the benefits of a recirculation system is performed, the analysis should include both low flow years (when recirculation will expand the operational capacity of the SHSRF) ***and sediment mobilizing flows*** and bank failure events (from the newly constructed channel above the dam) that may overwhelm the proposed single pass screening and sediment removal system.

   For me, the primary benefit of the recirculation system is as an insurance policy for sediment transport events caused by dam removal, and secondarily as a means to expand the operational or seasonal capacity of the facility. I haven't been been closely involved in the sediment studies, but I would think that sediment transport risks will exist for several years as the newly cut channel and banks stabilize, especially in El Nino years. Perhaps someone more intimate with potential sedimentation issues can weigh in? Also, recirculation may allow significant improvements in normal operations such as increasing feed rates (to decrease cannibalism) or increasing allowable population density without increasing diversion from the river.

2. The Maximum Screen Approach Velocity in Table 2-1 should be changed to 0.33 feet/second and reference the NMFS Southwest Region Fish Screening Criteria for Anadromous Salmonids, 1997 (rather than the NMFS Northwest Region document, 2011). While the Northwest and Southwest regions have merged into a single West Coast Region, in California we still use the more protective 1997 criteria. Required Screen Effective Area should reflect this change. This should not affect the screen selected as the screen selected was sized with some excess

capacity.

3. The chosen location and type of cone screen will be a dramatic improvement over the existing configuration. Just curious--Did you consider a vertical cylinder screen located a bit downstream of the proposed location in a deeper area of the pool? Darryl Hayes has been having some success with that shape in deeper areas. Deeper may mean slower velocities and more sedimentation of course, but it makes me wonder if there is a circulation pattern or scouring that has caused that deeper pool to develop and persist and might be a good location. I only visited the site once so my recollection of the pool may be off on this.

4. If there is significant current, internal baffles may be needed inside the fish screen to get the approach velocities right. Without baffles, water tends to flow into the screen on the upstream side and out of the screen on the downstream side, reducing the effective surface area of the screen. We have found that 4 vertical baffles (dividing the cone into 4 quarter pie shapes) are effective.

5. In our fish screen inspections, we have seen spray bars work very well for resuspending sand and silt near fish screens. The most effective openings are small holes drilled in galvanized pipe--Nozzles tend to erode or plug. The spray bars work to about 2 feet away from the sprayer, so I don't think one spray bar will keep the whole 10 foot by 10 foot pad clean. I suggest building a spray ring around the cone rather than on just one side of it. In the plan view in Figure 2-2, the spray bar looks below the 12" pipe, but in the profile view below, it looks above the 12 inch pipe. It might be more effective to have the spray bar below the pipe so that it sprays and deflects near the hard pad.

6. We have not had much luck with air burst systems. They don't tend to much move sediment and they often promote growth of stubborn black algae on the screen. I have little experience with low elevation vanes in this type of application.

7. In Figure 2-3, I'm used to seeing a gate valve downstream from the pumps but before the check valve so we could throttle the pumps open, or isolate a pump for maintenance as check valves can fail. I defer to the designers however as I've never worked with 12" pipe or variable speed pumps. Where the two 12" pipes come together at the Y, should the pipe diameter increase?

8. I know of two expensive hatchery ozone systems that are not in use because they are complicated and can produce harmful byproducts, depending on what's in the water

supply. We ended up using UV effectively for raising endangered winter run Chinook in a near total recirculating system. Our water was free of sediment, however, and we were using Cornell-type tanks.

9. When calculating recirculation capacity, are you able to assume decreased feed rates or is cannibalism too big a problem? I would think that recirculation ability would be greatly enhanced by decreasing feed rate.

10. I see on page 28 that existing transformers barely provide enough power to the existing system. How much (if any) extra power does recirculating require? Would it require new transformers? Can the back-up generators power the recirculation system? How about adding a section on emergency procedures (power outage, high sediment load, water shortage)?

Enclosure 3

DRAFT

Sleepy Hollow Steelhead Rearing Facility Hydraulic Report and Scour Analysis

November 2, 2016

1 Introduction

This memo provides background information and hydraulic analysis to support the design of a cone screen intake structure at the Sleepy Hollow Steelhead Rearing Facility (SHSRF) on the Carmel River in Monterey County, CA. The current facility is located approximately 18.5 miles upstream from the Pacific Ocean and the proposed intake location is on the outside of a natural bend in the river at the upstream end of a deep pool (**Figure 1**). A one-dimensional HEC-RAS hydraulic model (USACE, 2010) was used to predict hydraulic conditions in the vicinity of the proposed location. These results were then used to estimate the amount of scour and specify appropriate countermeasures.

2 Hydrology

The Monterey County Flood Insurance Study (FEMA, 2009) contains a flood-frequency analysis developed for the Carmel River. This analysis provides projected peak discharge values for a range of recurrence intervals at the location "Below San Clemente Dam". This location is appropriate for the SHSRF analysis because the facility is located approximately 1.4 miles downstream of the former San Clemente Dam (SCD) site. Though the SCD has been removed since the FEMA study was completed, this is not expected to alter the discharge values because the former dam did not provide any meaningful flood storage or flow attenuating capacity (FEMA, 2009). **Table 1** summarizes the peak discharge values from the FEMA analysis.

Table 1. Project peak discharge values below San Clemente Dam (from FEMA, 2009).

Recurrence Interval (yr)	Annual Exceedance Probability (%)	Discharge (cfs)
10	10	5,700
50	2	10,200
100	1	12,100

3 Hydraulics

The HEC-RAS model boundary conditions were based on a model of the Sleepy Hollow Ford area developed for the Monterey Peninsula Water Management Agency in 2012 (Avila and Associates, 2012). A survey of the bathymetry in the area around the proposed intake was conducted in 2015 and used to create detailed digital surface of the existing conditions (**Figure 2**). From this survey additional model cross-sections were added to improve the understanding

of the hydraulics in the area. The proposed intake was modeled as a solid obstruction into the channel (**Figure 3**). The model was then run over a range of flows from 1 cfs to the 100-year peak flow of 12,100 cfs. As expected, velocity, depth and shear stress increase with discharge and are predicted to have maximum values at the highest discharges **(Figures 4 through 7**). Results indicate that at levels between the 10-year peak and 100-year peak discharge, the proposed intake location flow depths would vary between about 15 and 19 feet, velocities would be about 7 ft/s and shear stress would vary between about 3.5 lb/ft^2 and 3.7 lb/ft^2 (**Table 2**).

Table 2. Predicted hydraulics at proposed intake location.

Discharge (cfs)	Depth (ft)	Velocity (ft)	Shear Stress (lb/ft^2)
10-yr (5,700)	15.4	6.8	3.7
50-yr (10,200)	18.4	6.8	3.4
100-yr (12,100)	19.3	7.0	3.5

4 Scour Analysis

The proposed intake location is at the upstream end of a natural pool that forms as the Carmel River makes a right hard turn against a bedrock outcropping. The geometric configuration and resulting hydraulic conditions at this location will provide the flow depths and sweeping velocities that will optimize the intake operation over a range of flows. Mature vegetation and large substrate along the banks indicate a stable planform geometry that is not expected to migrate significantly over the expected lifetime of the installation. Evidence exists that indicates some amount of periodic natural erosion (scour) and deposition has occurred in the area and is projected to continue. Scour along the outside of the bend, however, may threaten the stability of the proposed intake and should be mitigated.

Bend scour represents erosion of the channel bed caused by the transverse or secondary flow that occurs within the bend of a meandering channel. The magnitude of the amount of scour was estimated by using the ratio of shear stress along the outside of the bend to the average shear across the channel using the following equation:

$$S_b = (\sqrt{K} - 1)y \quad (1)$$

where S_b is the bend scour depth, K is the ratio of local shear stress on the outside of the bend to the average shear across the channel, and y is the flow depth. The shear stress multiplier (K) was estimated using a relationship published by the U.S. Soil Conservation Service (1977) (**Figure 8**). For the range of flows examined, the maximum resulting scour depth occurred during the 100-year peak flow and was about 6 feet.

Installing the intake is anticipated to induce local scour due to the projection of the structure into the channel. The National Cooperative Highway Research Program (NCHRP) Abutment Scour Approach as outlined in the Federal Highway Administration (FHWA) HEC-18 circular (Arneson et al., 2012) was used to estimate the total anticipated scour depth. This approach has the advantage of considering both the effects of the acceleration of flow due to the contraction in channel width as well as the turbulence that develops in the immediate vicinity of the structure. At the 100-year peak discharge, the expected scour depth was about 7.5 feet. While this amount is larger than the predicted bend scour, the abutment scour approach is somewhat

conservative and likely over-predicts the amount of scour that will occur. For this reason, the bend scour limit of 6 feet was used as the determining depth.

5 Erosion Protection

With an understanding of the amount of scour to anticipate, it is necessary to determine the material that will resist movement and maintain protection over the range of expected flow conditions. Given the predicted hydraulic conditions at the proposed location with velocities up to 7 ft/s (100-year peak flow) and shear stresses up to 3.7 lb/ft^2 (10-year peak flow), a review of potential materials indicates that stone riprap is the most suitable application (Frischneich, 2001). Using the approach outlined in the FHWA HEC-23 circular (Lagasse et al., 2009) for sizing revetment riprap and hydraulic input from the HEC-RAS model, the stone should have a median diameter (D_{50}) of 12 inches and conform to the FHWA Class III size and shape as outlined in **Table 3**. The stone size assumes that it is placed at a slope angle of 2H:1V and that it is quarried, angular rock. If the final slope angle is steeper or angular rock is not available, the median stone size should be increased.

Table 3. Minimum and maximum allowable particle size (inches).*

Nominal Riprap Class by Median Particle Diameter		d_{15}		d_{50}		d_{85}		d_{100}
Class	Size	Min	Max	Min	Max	Min	Max	Max
I	6 in	3.7	5.2	5.7	6.9	7.8	9.2	12.0
II	9 in	5.5	7.8	8.5	10.5	11.5	14.0	18.0
III	12 in	7.3	10.5	11.5	14.0	15.5	18.5	24.0
IV	15 in	9.2	13.0	14.5	17.5	19.5	23.0	30.0
V	18 in	11.0	15.5	17.0	20.5	23.5	27.5	36.0
VI	21 in	13.0	18.5	20.0	24.0	27.5	32.5	42.0
VII	24 in	14.5	21.0	23.0	27.5	31.0	37.0	48.0
VIII	30 in	18.5	26.0	28.5	34.5	39.0	46.0	60.0
IX	36 in	22.0	31.5	34.0	41.5	47.0	55.5	72.0
X	42 in	25.5	36.5	40.0	48.5	54.5	64.5	84.0
Note: Particle size d corresponds to the intermediate ("B") axis of the particle.								

*Source: FHWA HEC-23 Table 4.1.

6 Summary and Recommendations

Scour calculations based on modeling results indicate that the design of the proposed cone intake structure should expect up to 6 feet of scour below the existing grade. A stone riprap application is recommended to mitigate the scour based on the predicted velocities and shear stresses, with a D_{50} of 12 inches (FHWA Class III Riprap). The stone should be placed down to the expected level of scour, unless bedrock is discovered in which case the bedrock layer can serve as the minimum depth. The stone must be placed at the recommended 2H:1V slope and should extend up to the top of the bank. The stone layer thickness of the application must be a minimum of 2 feet (the D_{100} for Class III Riprap). The rock protection should also be underlain by a granular filter or geotextile filter fabric to prevent piping. Final determination of the appropriate filter should be determined once the excavated surface is exposed and the native bank material is examined. Riprap placement along the bank should extend upstream and downstream of the structure a distance equal to the longitudinal distance (width) of the proposed structure such

that the total distance is three times the width of the structure. At the up- and downstream limits, the riprap should be keyed into the bank over a distance of 6 feet based on a minimum key length equal to three times the stone layer thickness.

7 References

Arneson, L.A., Zevenbergen, L.W., Lagasse, P.F., and Clopper, P.E., 2012. Evaluation Scour at Bridges. Fifth Edition, Hydraulic Engineering Circular No. 18 (HEC-18), Publication No. FHWA-HIF-12-003, April, 340 p.

Avila and Associates, 2012. Final Design Hydraulic Study, Carmel River Bridge at Sleepy Hollow Ford, Monterey, CA, May 22, 43 p.

Federal Emergency Management Agency (FEMA), 2009. Flood Insurance Study, Monterey County, California and incorporated Areas. Volumes 1 – 3. Flood Insurance Study Number: 06053CV001A, Revised: April 2.

Fishnenich, C., 2001. Stability Thresholds for Stream Restoration Materials. Water Operations Technical Support Program Special Report ERDC TN-EMRRP SR-29, Vicksburg, MS, May, 10 p.

Lagasse, P.F., Clopper, P.E., Pagan-Ortiz, J.E., Zevenbergen, L.W., Arneson, L.A., Schall, J.D., and Girard, L.G., 2009. Bridge Scour and Stream Instability Countermeasures. Third Edition, Hydraulic Engineering Circular No. 23 (HEC-23), Publication No. FHWA-NHI-09-111, September, 256 p.

U.S. Army Corps of Engineers (USACE), 2010. HEC-RAS Version 4.1 User's Manual, January.

U.S. Soil Conservation Service, 1977. Design of Open Channels, Engineering Division, Technical Release No. 25, Washington, D.C.

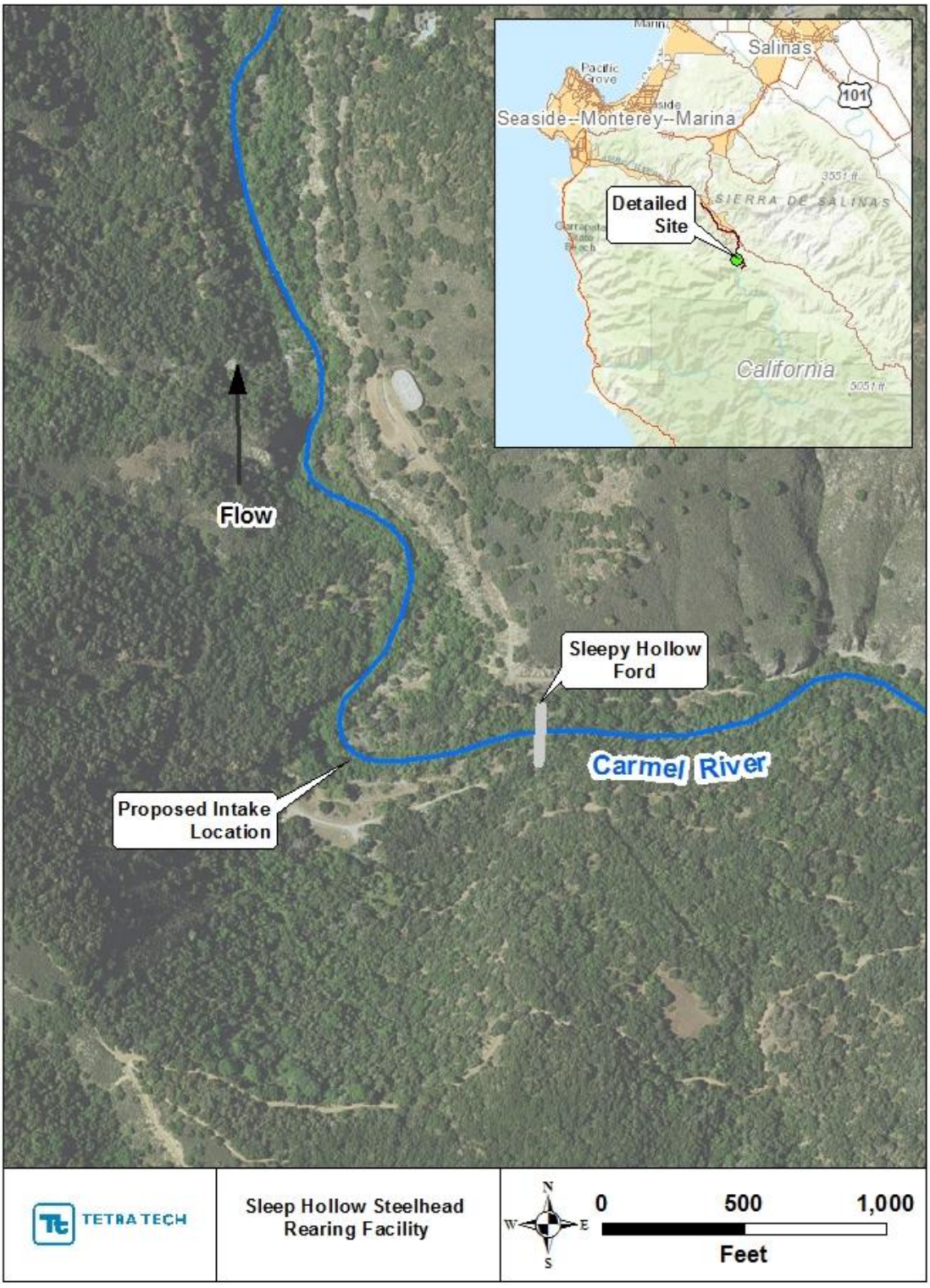

Figure 1. Sleepy Hollow Steelhead Rearing Facility site map.

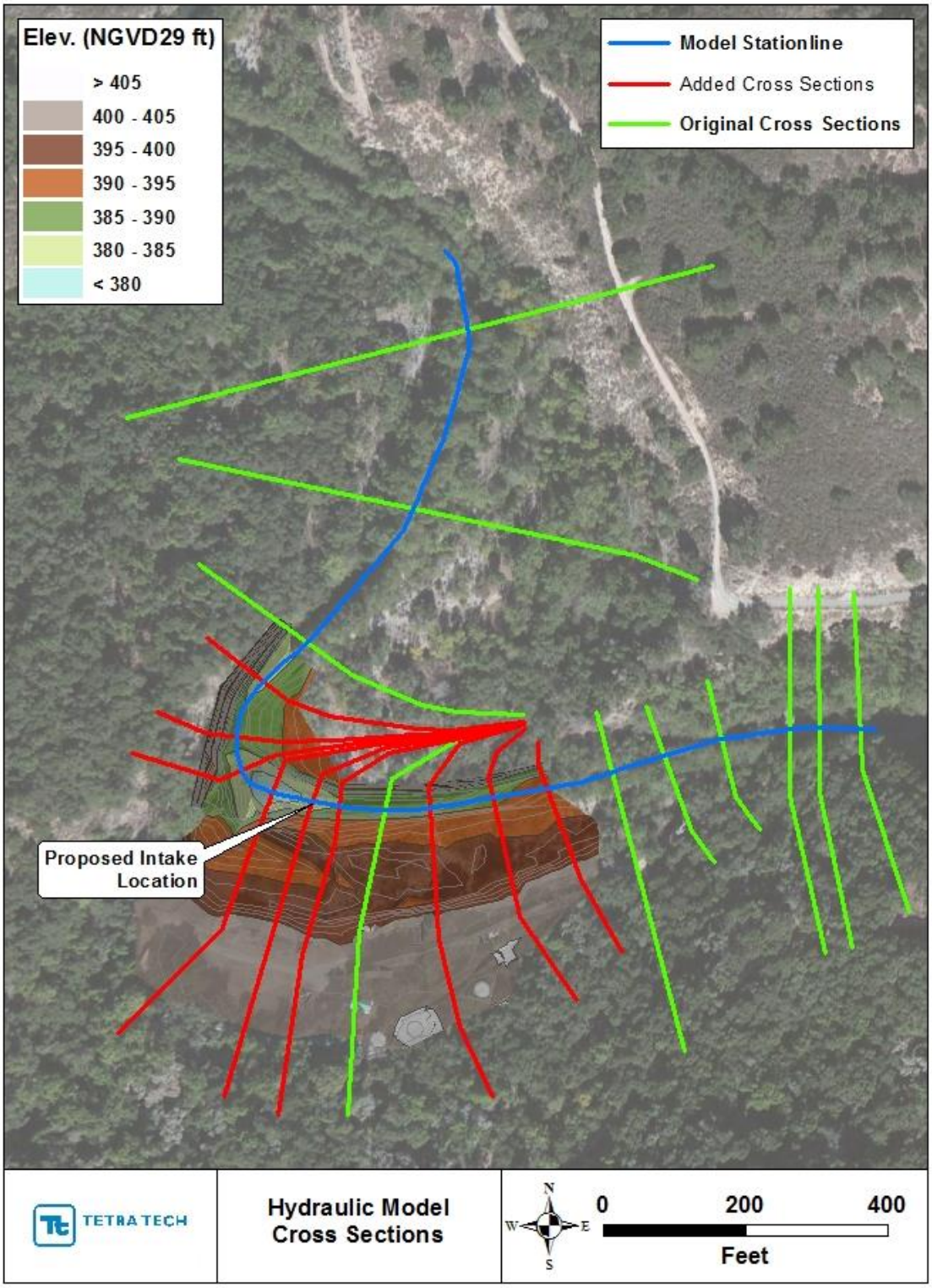

Figure 2. Detailed layout of digital surface and HEC-RAS model cross sections.

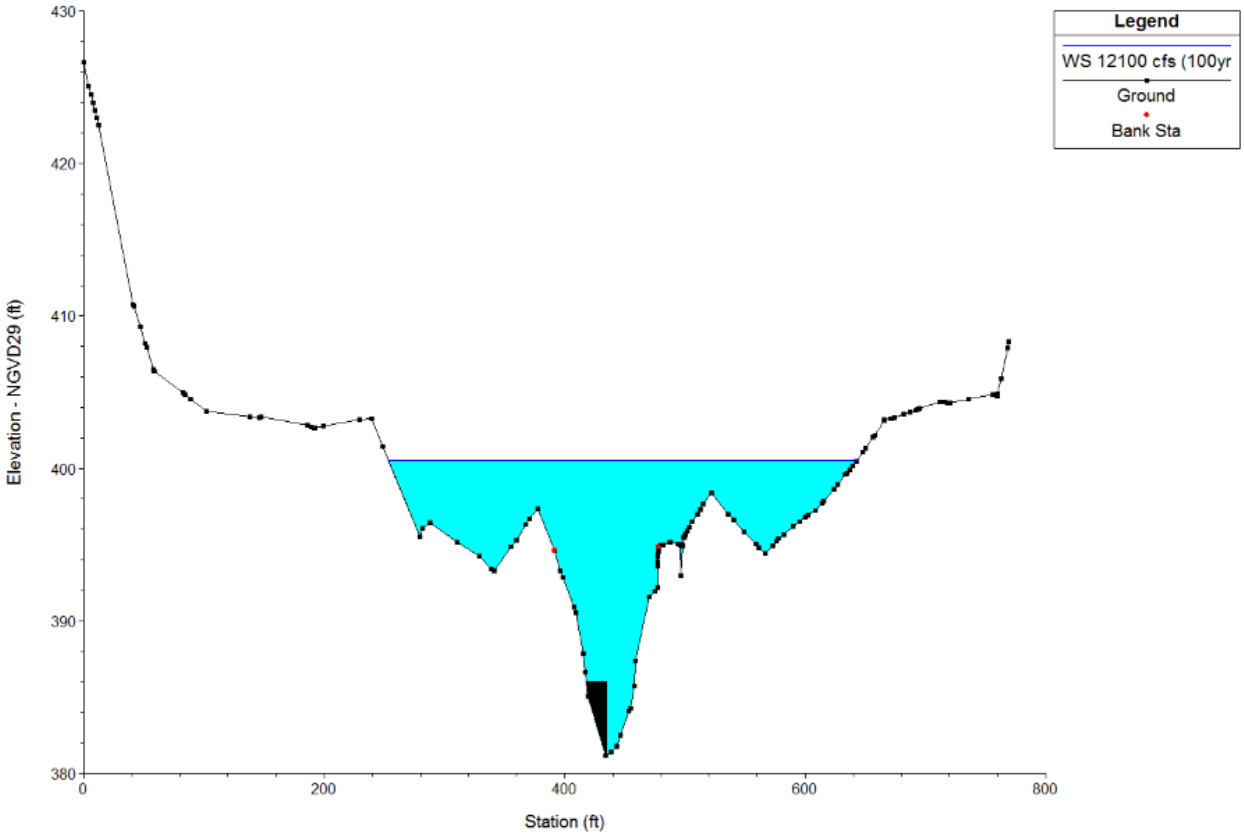

Figure 3. HEC-RAS cross section showing modeled proposed intake and water-surface elevation at the 100-year discharge (12,100 cfs).

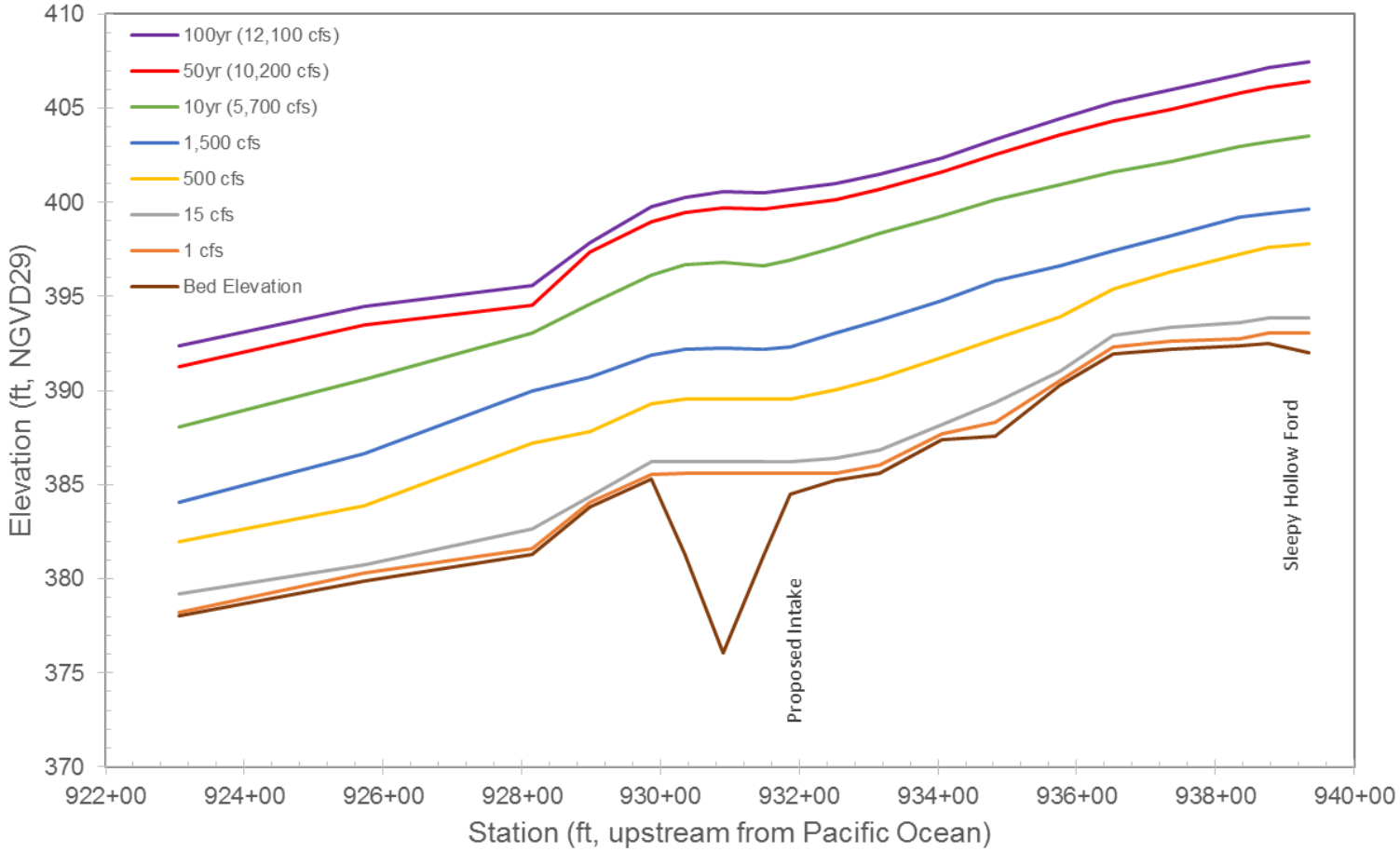

Figure 4. Predicted water-surface elevation of proposed condition.

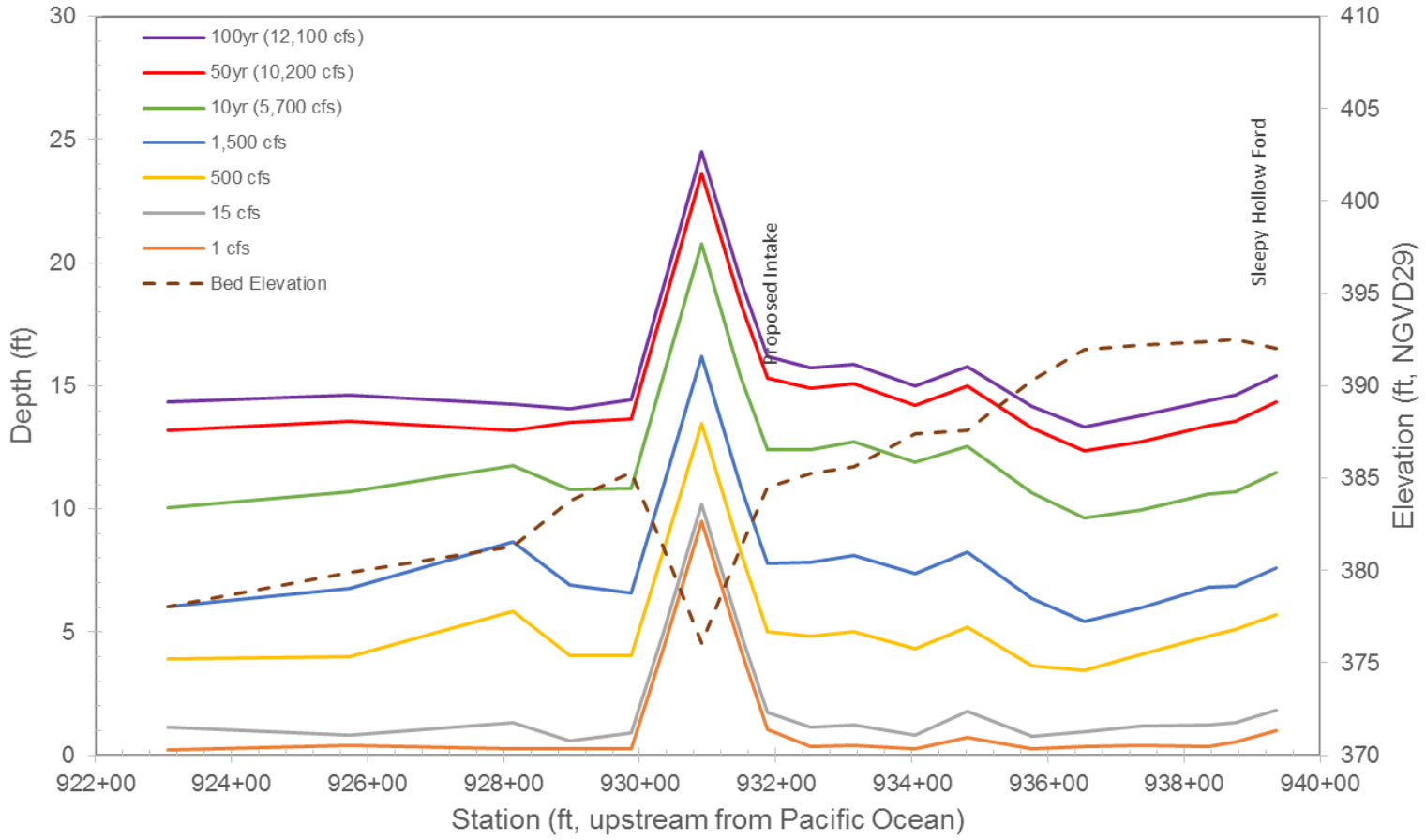

Figure 5. Predicted flow depths of proposed condition.

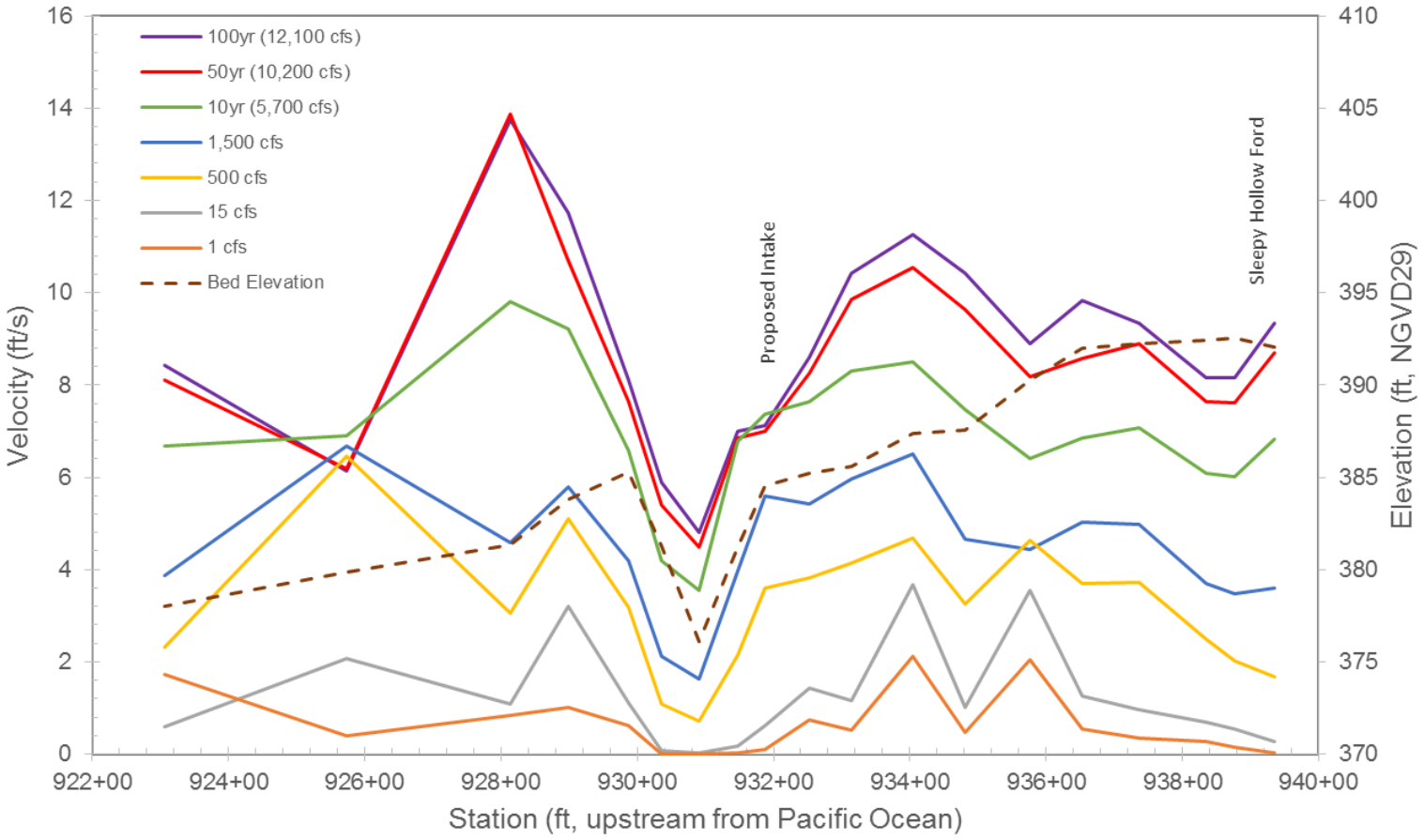

Figure 6. Predicted velocities of proposed condition.

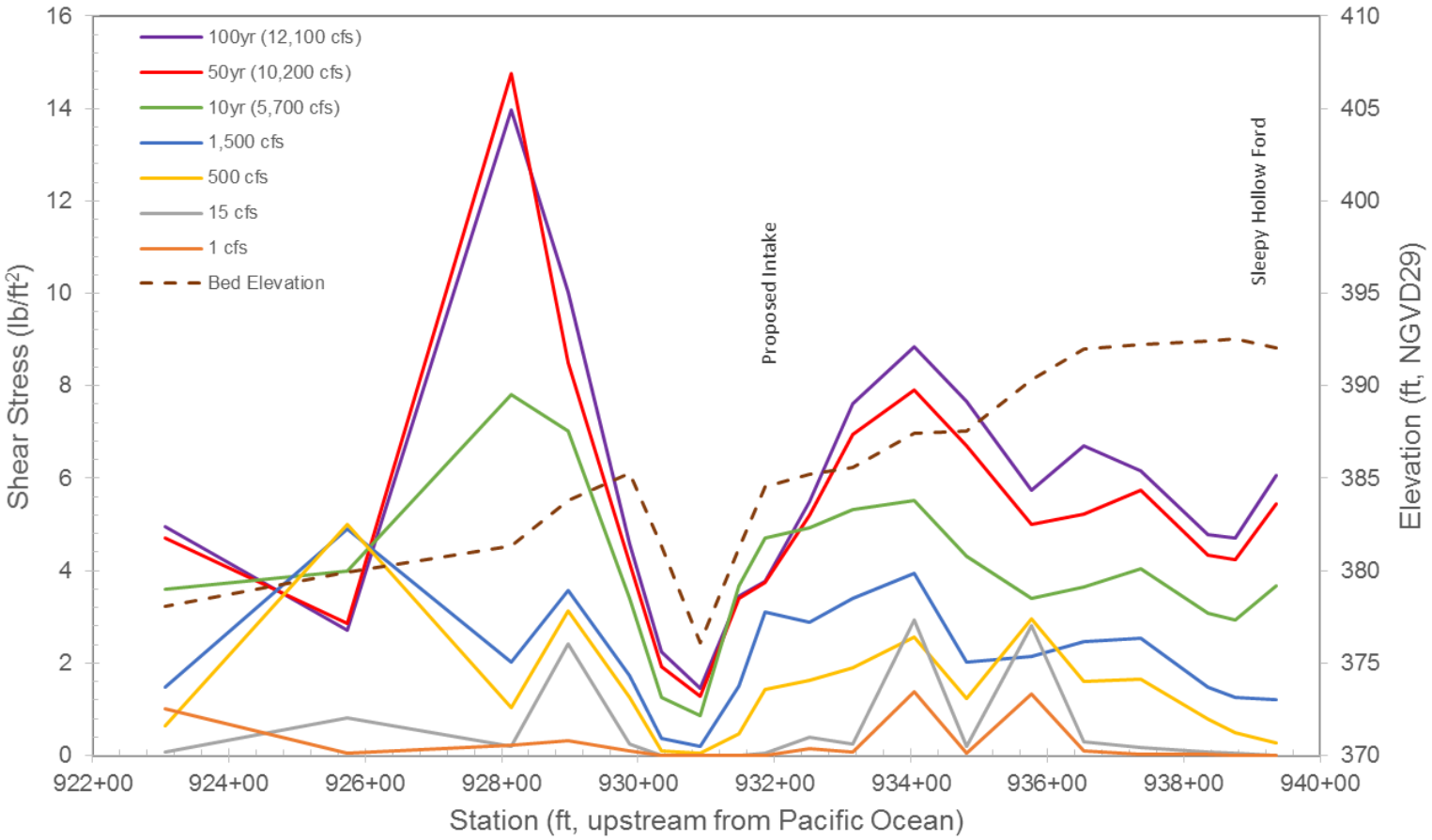

Figure 7. Predicted shear stress for proposed condition.

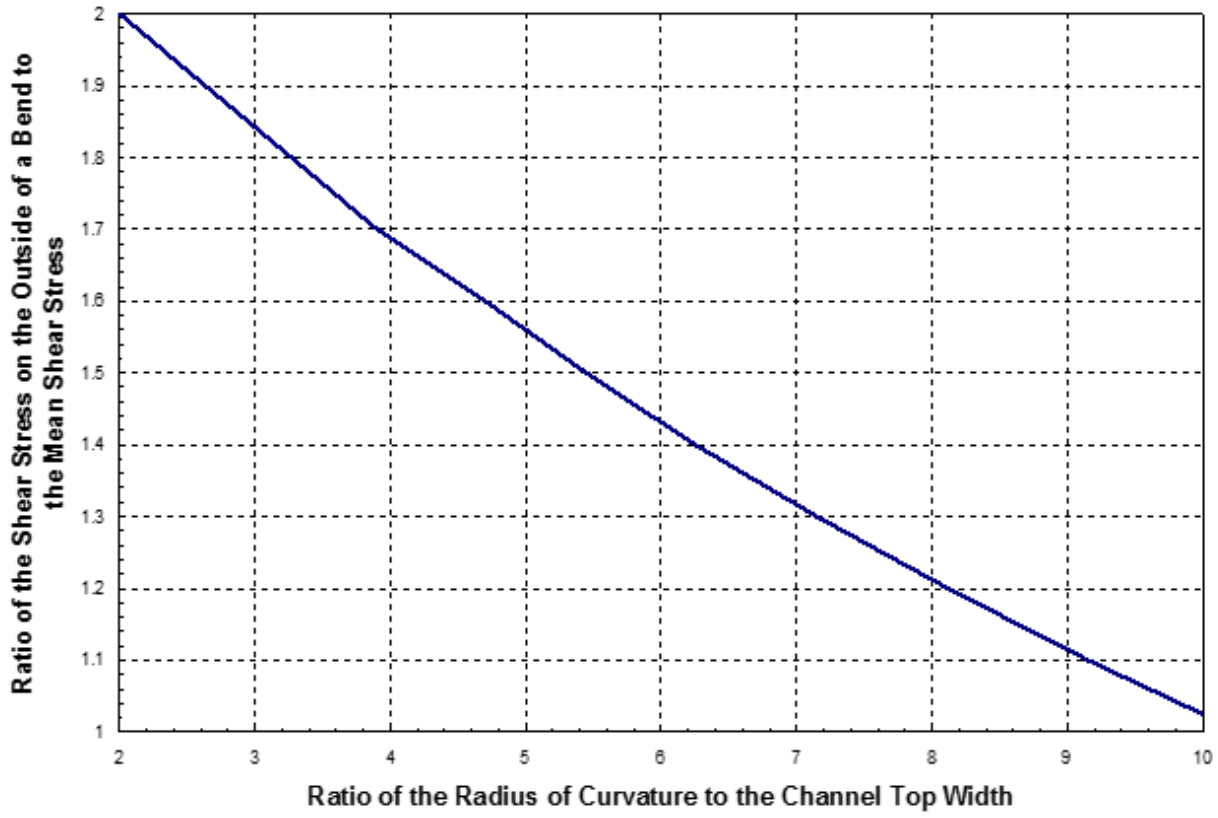

Figure 8. Relationship of bend shear stress to the mean shear stress (modified from U.S. Soil Conservation Service, 1977).


Enclosure 4