Appendix A

Biological Resources Assessment (BRA) Report

Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program

Biological Resources Assessment

prepared for

Casitas Municipal Water District
1055 Ventura Ave
Oak View, California 93022
Contact: Kelley Dyer, Assistant General Manager
Via email: kdyer@casitaswater.com

prepared by

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

September 2021

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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1 Introduction

Rincon Consultants, Inc. (Rincon) prepared this Biological Resources Assessment (BRA) to provide the Casitas Municipal Water District (Casitas) with an assessment of the potential impacts to biological resources associated with implementation of the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program (project) as outlined in Appendix A. This report documents the existing conditions of the project site and evaluates the potential for impacts to species, sensitive communities, jurisdictional waters (Ventura River), wildlife movement near the proposed project, and locally protected resources such as native trees. The biological evaluation herein includes the results of a background literature review and field reconnaissance surveys conducted by Rincon and other consultants.

1.1 Project Location and Description

Casitas is a special district formed in 1952 to develop water supply for agricultural, municipal, and industrial use in western Ventura County. Upon its formation, Casitas entered into an agreement with the Bureau of Reclamation (Reclamation) that led to the construction of the Casitas Dam and associated facilities (the Ventura River Project) which were completed in 1958. The facilities were built by Reclamation under a repayment contract with Casitas.

Casitas Municipal Water District (Casitas) operates the Robles Diversion and Fish Passage Facility (Facility), which includes the dam and the forebay constructed in the late 1950s, and the fish passage components (fish ladder, fish screen, high and low flow fish exit channels, a spillway energy dissipater, and a series of low-head stone weirs) constructed in 2003/04, after southern California anadromous steelhead (steelhead; *Oncorhynchus mykiss*) were listed as endangered under the federal Endangered Species Act. The Facility is located on the Ventura River, two miles downstream of Matilija Dam and 14.5 miles upstream of the Pacific Ocean, in unincorporated Ventura County, California (34.464820°N, -119.291107°W) (Figure 1). The project is in the Matilija U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The Robles Diversion allows Ventura River flows to be diverted into the Robles Canal, which transports the water to Lake Casitas for storage and ultimately municipal use. The fish passage improvements made to the Facility provide for the safe upstream passage of adult steelhead and the safe downstream passage of juveniles.

In 2003, Casitas acquired agreements and permits from California Department of Fish and Wildlife (CDFW), United States Army Corps of Engineers (USACE), Los Angeles Regional Water Quality Control Board (LARWQCB), National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) for construction of the Robles Diversion Fish Passage Facility. With the exception of the Biological Opinion (BO), issued by NMFS in 2003, these construction permits and authorizations did not cover maintenance of the Facility, and Casitas currently acquires agreements and permits on an as-needed basis for individual maintenance and repair activities at the Facility.

The Facility maintenance and repair activities (Appendix A) occur in and around the Ventura River where such activities are regulated by several state (CDFW, LARWQCB) and federal (USACE, USFWS, and NMFS) agencies. Typical maintenance activities include sediment removal, vegetation control, repair and maintenance of the radial gates (at the entrance to the headworks and spillway), instrumentation, and road maintenance. Repair activities may include concrete work within the

Figure 1 Regional Project Location

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Project Location

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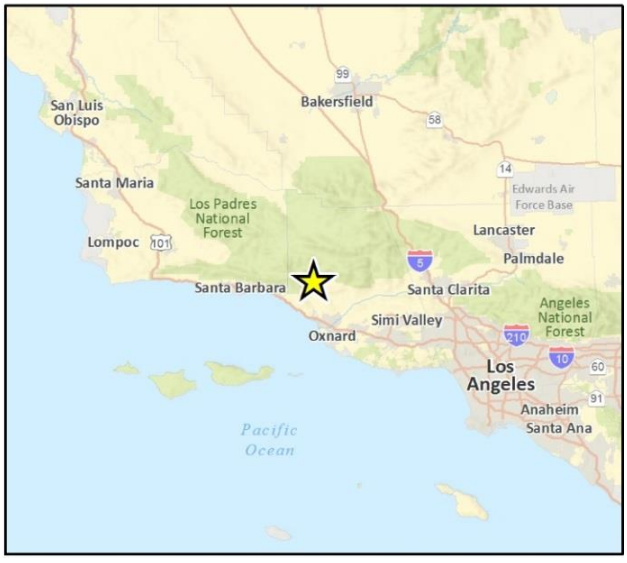

existing footprint of the Facility, and replacement of wood timbers to maintain the structural integrity of the timber cut-off wall and debris fence. Most recently, in 2019, Casitas acquired permits and authorizations for the Robles Forebay Restoration Project, which involves the removal and relocation of 100,000 cubic yards of trapped sediment in the forebay over a three-year period (2019, 2020, 2021). Casitas obtained a Lake and Streambed Alteration Agreement from CDFW pursuant to Section 1600 *et seq.* of the Fish and Game Code, an Individual Permit (IP) and a Water Quality Certification (WQC) from the USACE and LARWQCB, respectively, pursuant to Section 404 and 401 of the Clean Water Act (CWA); and a BO from USFWS for the Robles Forebay Restoration Project and its effects on California red-legged frog (*Rana draytonii*). Casitas is seeking permits and authorizations for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program (Appendix A) with a duration of 10 years or more for all regulated activities, including a streamlined administrative approval process to provide predictability and certainty on environmental protection measures. Long-term permits, as compared to case-by-case permitting, will reduce the administrative efforts involved by Casitas and the permitting agencies, and provide a more comprehensive and effective basis for protecting environmental resources.

2 Methodology

2.1 Regulatory Setting

Regulated or sensitive resources studied and analyzed herein include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. Regulatory authority over biological resources is shared by federal, state, and local authorities.

The Facility is under the jurisdiction of Reclamation. Maintenance activities at the Facility are subject to existing regulatory permits, including existing NMFS (2003) and USFWS (2019) Endangered Species Act (ESA) Section 7 BOs. The BOs include approvals from agencies with jurisdiction over resources in the Ventura River, namely CDFW. The existing NMFS BO (2003) for the Facility addresses effects from the operation of the Robles Diversion and Fish Passage Facility on endangered steelhead in accordance with Section 7 of the ESA. The BO includes measures recommended for the maintenance of the Robles Diversion and Fish Passage Facility.

The existing USFWS BO (2019) for the Facility addresses effects from the 2019 Robles Forebay Restoration Project on endangered California red-legged frog in accordance with Section 7 of the ESA. The USFWS BO does not address effects from all routine maintenance and repair activities associated with the Robles Diversion and Fish Passage Facility. Informal consultation is underway with USFWS to analyze potential effects to federally-listed species under the regulatory authority of the agency, from the proposed annual maintenance and repair activities described in Appendix A.

In 2003, Casitas acquired agreements and permits from CDFW, USACE, and LARWQCB for construction of the fish passage components of the Facility. These construction permits did not cover routine maintenance and repair of the Facility, and Casitas currently acquires the above agreements and permits on an as-needed basis for individual maintenance activities at the Facility.

In 2019, Casitas obtained a Lake and Streambed Alteration Agreement from CDFW pursuant to Section 1600 *et seq.* of the Fish and Game Code, an IP and WQC from the USACE and LARWQCB, respectively, pursuant to Sections 404 and 401 of the CWA for the Robles Forebay Restoration Project. This sediment removal and relocation project (Robles Forebay Restoration Project) which was permitted in 2019 is included in the annual maintenance and repair program and is referred to as Activity 1 in the Project Description (Appendix A).

Federal Regulations

Federal regulations include the ESA which was passed by Congress in 1973 to protect and recover imperiled species and the habitat upon which they depend. The lead federal agencies for implementing ESA are the USFWS, and the National Oceanic and Atmospheric Administration (NOAA), which includes NMFS. Section 9 of the ESA prohibits the "take" of species listed by USFWS and NMFS as threatened or endangered.

The Environmental Protection Agency (EPA) and the California State Water Resources Control Board regulate surface water quality in waters of the United States under Section 401 of the CWA. The objective is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. Clean Water Act Section 401 states before issuing a license or permit resulting in any discharge to waters of the United States, an applicant for a federal permit or license must obtain a

certification noting the discharge is consistent with the CWA from the EPA/Tribe/State where the proposed project is located, including attainment of applicable water quality standards is required.

The USACE and the EPA regulate the discharge of dredge or fill material into waters of the U.S. under Section 404 of the CWA. The term "discharge of dredged material" means any addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the waters of the United States. Section 404 (f)(1) states maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures qualify for exemption of permit requirements. Maintenance does not include any modifications changing the character, scope, or size of the original fill design. Emergency reconstruction must occur within a reasonable period of time after damage occurs in order to qualify for this exemption.

State Regulations

State regulations include the California Environmental Quality Act (CEQA), under Title 14 of the California Code of Regulations (CCR), which requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. This statute provides protection for federal and/or state listed species, as well as species not listed but that may be considered rare, threated, or endangered if the species can be shown to meet specific criteria for listing outlined in CCR Section 15380(b). Public Resources Code Section 21084 requires the state CEQA Guidelines to include a list of classes of projects having been determined not to have a significant effect on the environment and that are, therefore, exempt from CEQA (see Chapter 19 Sections 15301 through 15333 of the State CEQA Guidelines).

The California Endangered Species Act (CESA) protects native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a signification decline. California Department of Fish and Wildlife may authorize the take of any such species if certain conditions are met. Incidental take permits (ITPs) can be authorized under Section 2081(b) of the Fish and Game Code (CFGC), which allows CDFW to authorize take of species listed as endangered, threatened, candidate, or a rare plant, if take is incidental to otherwise lawful activities.

California Fish and Game Code Section 1600 et. seq. requires all diversions, obstructions, or changes to the natural flow of bed, channel, or bank of any river, stream, or lake in California are subject to the regulatory authority of the CDFW and require preparation of a Lake or Streambed Alteration Agreement (LSA). If work is necessary to protect life or property; or immediate repairs to public service facilities are necessary to maintain service as a result of a disaster in an area in which the Governor has proclaimed a state of emergency an emergency notification must be submitted in writing within 14 days of beginning emergency project/work.

Ventura County

The Ventura County Watershed Protection District (VCWPD) holds authority over its jurisdictional channels. The primary ordinance establishing VCWPD authority and the requirements to obtain permits for any encroachment into VCWPD jurisdictional channels, including right of way, is Ventura County Watershed Protection Ordinance WP-2. Red-line channels are those where the VCWPD has jurisdiction over and a watercourse or encroachment permit is required for work affecting the bed, banks and overflow areas of VCWPD jurisdictional red line channels. Government Code 53091 exempts the location or construction of facilities for the production, generation, storage, treatment,

or transmission of water, from the building and zoning ordinances of a county or city. In addition, Ordinance WP-2 exempts work performed by the Federal government pursuant to Section 203. The Robles Diversion and Fish Passage Facility is owned by Reclamation, therefore this ordinance would not apply.

2.1.1 Definition of Special Status Species

For the purpose of this report, special status species include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the project
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA)
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW)
- Species designated as sensitive by the U.S. Forest Service or Bureau of Land Management, if the project would affect lands administered by these agencies
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy

2.1.2 Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- Ventura County Watershed Protection Ordinance WP-2

2.1.3 Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

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

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

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.

2.2 Literature Review

The USFWS Information for Planning and Consultation (IPAC) system (USFWS 2020a), and Critical Habitat Portal (USFWS 2020b), and the CDFW California Natural Diversity Database (CNDDB) (CDFW 2020) were queried to establish a list of special status species previously documented in the project vicinity. The online Inventory of Rare Endangered Vascular Plants of California, California Native Plant Society ([CNPS] 2020) was reviewed. The results of these queries were used to determine whether any special status species, sensitive habitat, or jurisdictional waters are known to occur on or adjacent to the project site. The CNDDB records search of California special status species, CNPS search of rare plants, and the USFWS IPAC and Critical Habitat data for federally threatened and endangered species are presented in Appendix B. Observations are reported within a five-mile radius surrounding the project. The USFWS National Wetlands Inventory (NWI) Wetlands Mapper (USFWS 2020c) was utilized to determine wetland resources in the BSA, and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2020) was queried to determine soil map units in the BSA. In addition to the literature reviewed, aerial and site photographs of the Facility were used in this assessment.

2.3 Field Reconnaissance Survey

A biological reconnaissance field survey was conducted by Rincon botanist Robin Murray on March 5, 2020 to document existing conditions. In addition, a supplemental survey was conducted on March 18, 2020, by Rincon biologist Thea Benson. All surveys included the Facility, areas associated with the project and a 100-foot buffer surrounding the project site where routine maintenance and repair activities are proposed (Figure 2). For the initial survey, the project site was accessed via a dirt road from Rice Road. A cleared pad located east of the forebay, approximately 50 to 100 feet from the Ventura River, would be suitable for equipment and materials staging. The

Figure 2 Project Location

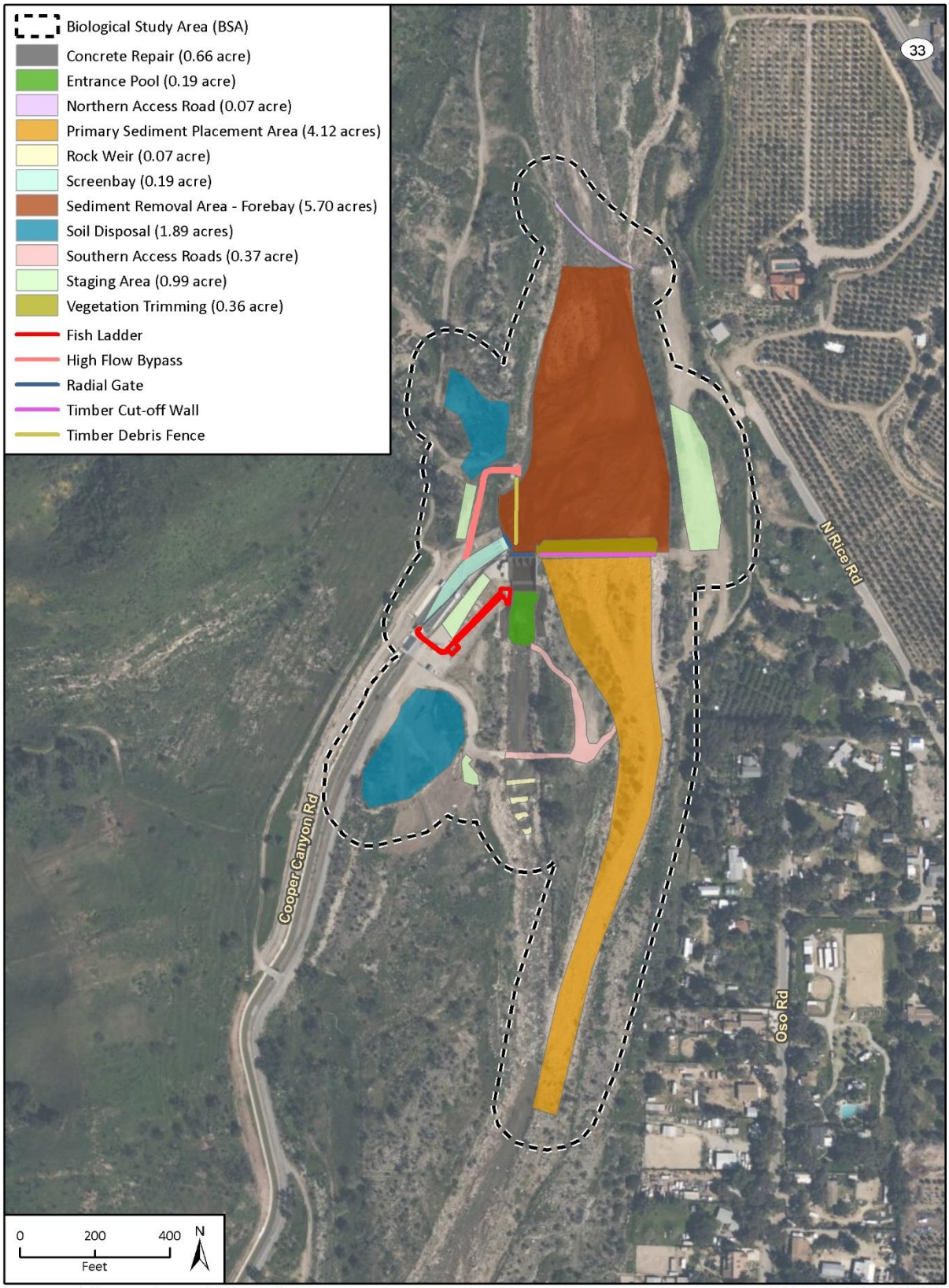

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Fig 2 Project Location Map 20201113 BSA

survey focused on sensitive flora and fauna species, including an assessment of the potential for special status species and/or habitats to occur.

Ms. Murray and Ms. Benson walked meandering transects throughout the survey area and visually inspected the area with binoculars. Drainage features and riparian habitat were noted. For the purpose of this report, the Biological Study Area (BSA) includes the Robles Diversion and Fish Passage Facility, upland staging sites and access roads adjacent to the Facility, approximately 1,100 feet of downstream river channel where excavated sediment from the forebay would be placed within the Ventura River, and a 100-foot buffer surrounding the area where routine maintenance and repair activities are proposed. Appendix C provides representative site photographs of the Facility from the field surveys.

Table 1 summarizes prior surveys completed to support the Forebay Restoration Project which was completed in November 2019. Results of the surveys were documented in the Robles Diversion Facility Botanical Report (Appendix D); Pre-Construction CRLF Survey Report which was submitted to USFWS on November 14, 2019 (Rincon 2019); and in the Pre-Construction Survey Report which was submitted to CDFW on November 1, 2019 (Rincon 2019).

Table 1 Robles Diversion and Fish Passage Facility Surveys Summary (2019)

Date of Monitoring	Activity	Biologist(s)
May 2	Pre-Construction Rare Plant Survey	Robin Murray
October 11 and 12	Pre-Construction Modified Protocol Surveys for CRLF (daytime)	Steve Howard
October 14 and 15	Pre-Construction Modified Protocol Surveys for CRLF (nighttime)	Steve Howard, Peter Gaede
November 1	Pre-Construction Wildlife Survey; Focused survey for Southern California steelhead	Danielle Yaconelli, Danielle Fitts (wildlife); Scott Lewis and crew (steelhead)
November 3	Pre-Construction Modified Protocol Surveys for CRLF (nighttime)	Steve Howard

3 Existing Conditions

3.1 Physical Characteristics

Portions of the Facility shown on Figure 2 are constructed of concrete and metal and surrounded by a chain-link fence (e.g. canal, spillway, baffled apron, headworks, radial gates, screenbay, high flow bypass, fish ladder, and measurement weir). The diversion headworks is located on the west bank of the Ventura River with three 11.5-foot-wide radial gates at the entrance to the concrete-lined screenbay which conveys screened water to the concrete lined canal from the Ventura River to Lake Casitas. The headworks is operated to control the amount of water diverted into the conveyance canal for delivery to Lake Casitas. The spillway structure is located adjacent to the headworks to the east with three 16-foot-wide and one 10-foot-wide radial gates. The spillway gates are adjusted to maintain the desired water elevation during times of high flows. A baffled apron structure is located immediately downstream of the spillway. The baffled apron is a reinforced concrete sill with baffled blocks on a sloping concrete slab designed to dissipate energy and limit turbulent flow to the entrance pool (located at the entrance to the fish ladder). The sill dissipates excess energy by creating a hydraulic jump within the entrance pool throughout a flow range (0 to 8,000 cubic feet per second [cfs]). The structure ties into the downstream end of the spillway apron and descends into the entrance pool at a 2:1 slope. The apron is embedded approximately ten feet into the entrance pool to control the extent of scour.

The construction of the entrance pool occurred as part of the permitted Robles Diversion Fish Passage Project in 2003, and its purpose is to provide attraction flows to the fish ladder. The entrance pool extends approximately 130 feet below the spillway and baffled apron structure and encompasses approximately 0.19 acres (8,238 square feet) of the Ventura River low flow channel. A relatively young stand of willows occurs within the lower limit of the entrance pool.

Approximately 300 feet downstream of the entrance pool, is a concrete low flow measuring weir/roadway constructed across the spillway channel (low flow channel). A series of four low-head stone weirs were installed within the channel below the measurement weir to produce a step-pool arrangement conducive to upstream and downstream fish passage.

The forebay, north of the timber cut-off wall, is a 5.70-acre earthen basin within the Ventura River. The forebay can become filled with sediment washed down from areas higher in the watershed. The sediment presently deposited in the forebay is mainly a result of erosion on fire-burned slopes throughout the watershed from the Thomas Fire in December 2017. Casitas has mechanically removed trapped sediment from the forebay to restore the volume capacity in order to maintain effective water diversion operations and provide fish passage. The forebay is sparsely vegetated and dominated by non-native fennel patches, but includes a low density of scattered native plants. A narrow strip of riparian vegetation occurs on the eastern bank of the forebay. No trees are present in the forebay. The habitat in uplands west of the forebay is predominantly coastal scrub. A disturbed area created during Facility construction occurs east of the forebay. This area is comprised of a gravel base and is proposed as a staging area. The western edge of this disturbed area borders a narrow band of individual coast live oak (*Quercus agrifolia*) trees. Residential properties and agricultural lands extend eastward from the east bank of the Ventura River floodplain. The Ventura River floodplain broadens downstream to the south of the Facility.

3.1.1 Topography and Soils

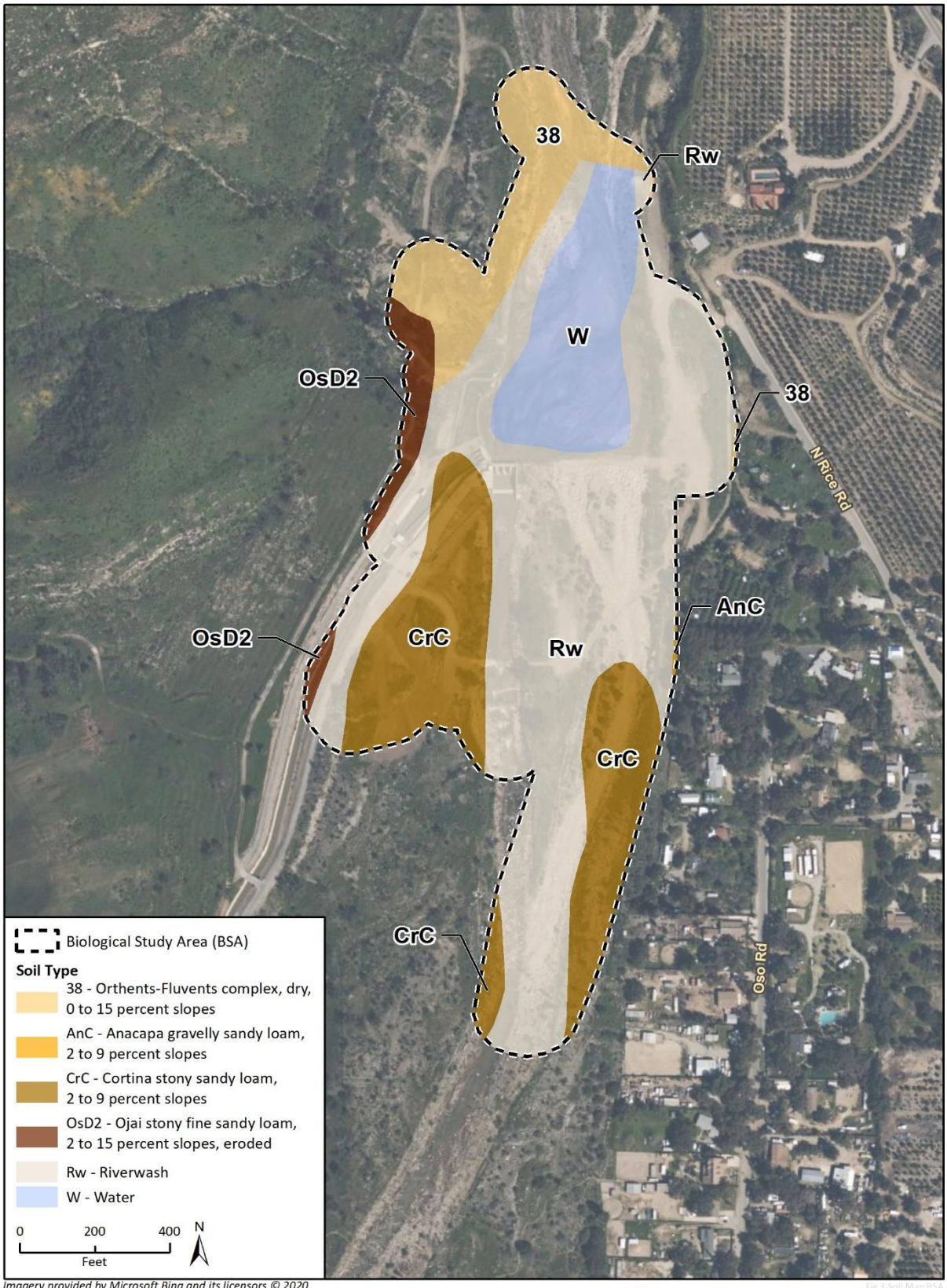
The BSA occurs between 724 to 790 feet above mean sea level (USGS Topographic Quadrangle Maps, Google Earth 2018). The USDA NRCS Web Soil Survey delineates four soil map units within the BSA. According to the NRCS Web Soil Survey, the BSA is dominated by Water (W), Riverwash (Rw), Orthents-Fluvents complex (38), dry, 0 to 15 percent slopes, Cortina stony sandy loam (CrC), 2 to 9 percent slopes, and Ojai stony fine sandy loam (OsD2), 2 to 15 percent slopes, eroded (Figure 3). Figure 3 maps the forebay as containing water, however, under normal circumstances in the dry season, the forebay contains limited water. Riverwash profile is comprised of sand (0 to 6 inches) and stratified coarse sand to sandy loam (0 to 60 inches). Riverwash is generally characterized as 'somewhat poorly drained' (USDA 2020). This soil type is found in drainageways. Orthents-Fluvents complex is comprised of sandy loam and is generally characterized as 'well drained' (USDA 2020). This soil type is generally found on terraces at the toeslope position. The Cortina stony sandy loam profile is comprised of stony sandy loam (0 to 36 inches) and stratified very stony loam sand to very stony loam (36 to 60 inches). The soil type is characterized as 'somewhat excessively drained' (USDA 2020) and is generally found on alluvial fans positioned on the back or toeslope. The Ojai stony fine sandy loam profile is comprised of stony fine sandy loam (0 to 12 inches), sandy clay loam (12 to 36 inches), and stratified very gravelly clay loam to very cobbly clay (36 to 55 inches). The soil type is characterized as 'well drained' (USDA 2020) and is generally found on fan remnants positioned on the backslope or shoulder.

Riverwash is designated as a hydric soil in the Ventura Area (USDA 2020).

3.2 Vegetation and Other Land Cover

Several plant communities and land cover types occur within the BSA (Figure 4). Portions of the Facility are hardscaped with concrete and metal (e.g. radial gates) and surrounded with a chain-link fence. The Facility is surrounded by gravel base and disturbed bare ground. The forebay is predominately unvegetated riverbed, however a narrow strip of riparian vegetation occurs on the eastern bank of the forebay and is comprised of mulefat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*). East of the forebay is a disturbed area created during Facility construction (it includes the proposed staging site) and containing a gravel base and scattered non-native species including Russian thistle (*Salsola* sp.) and tocalote (*Centaurea melitensis*). The habitat in uplands west of the forebay and on the eastern bank of the river downstream of the timber cut-off wall, is predominantly laurel sumac (*Malosma laurina*) scrub, a native California vegetation community. Red brome grassland is co-dominant in disturbed upland portions of the BSA immediately downstream of the timber cut-off wall. Downstream of the spillway, a riparian strip comprised of mulefat scrub, individual coast live oak trees and sycamore trees occurs along both sides of the spillway channel (low flow channel). Farther downstream, approximately 300 feet below the confluence of the low flow channel with the mainstem of the Ventura River, a narrow strip of mulefat scrub is present on both sides of the channel.

Figure 3 Soil Map



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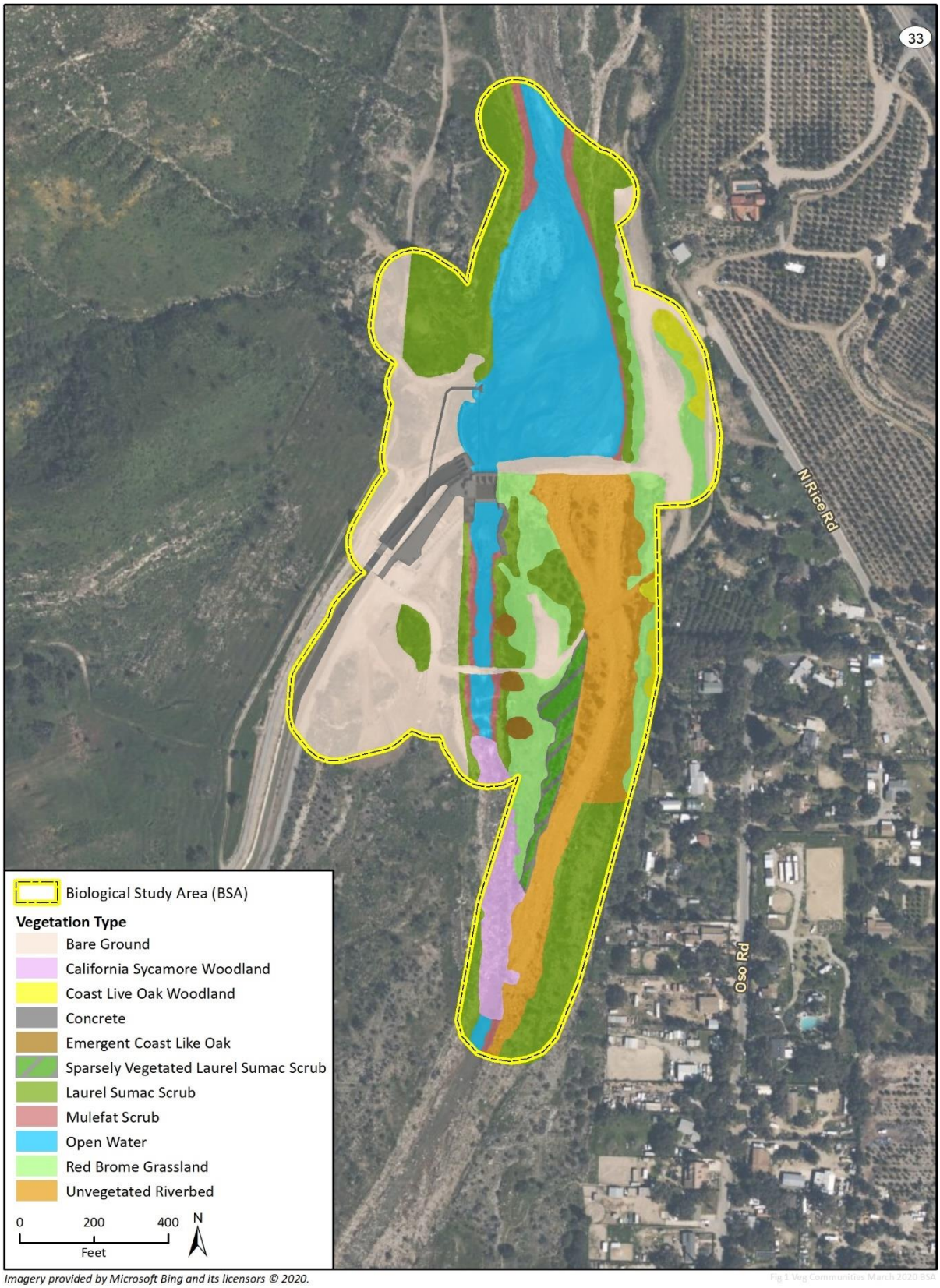
Additional data provided by NRCS SSURGO, 2019.

Figure 4 Vegetation Communities Map



Residential properties and agricultural lands extend eastward from the east bank of the Ventura River floodplain. The Ventura River floodplain broadens downstream of Facility, to the west. A list of plants observed within the BSA are presented in the Botanical Report in Appendix D.

3.3 General Wildlife

The BSA provides suitable habitat for wildlife species that commonly occur in semi-rural, residential areas. The proposed project site is surrounded by a chain-link fence, and suitable habitat for wildlife does not occur within the concrete-lined portions of the Facility or within the immediate surrounding area. Suitable habitat for wildlife does occur within the Ventura River above and below the Facility. The wildlife species detected on site during field surveys are common, widely distributed, and adapted to living in proximity to human development. Common avian species detected on or adjacent to the site include great egret (*Ardea alba*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), California scrub-jay (*Aphelocoma californica*), American coot (*Fulica americana*), great blue heron (*Ardea herodias*), killdeer (*Charadrius vociferus*), Anna's hummingbird (*Calypte anna*), acorn woodpecker (*Melanerpes formicivorus*), California towhee (*Melozone crissalis*), great-horned owl (*Bubo virginianus*), and barn owl (*Tyto alba*). Inactive mud nests, likely from a species of swallow, were observed on the underside of the Robles Diversion Dam structure during the pre-construction Forebay Restoration Project survey conducted on November 1, 2019.

Other wildlife species observed include Baja California chorus frogs (*Pseudacris hypochondriaca hypochondriaca*), California chorus frogs (*Pseudacris cadaverina*), arroyo chub (*Gila orcutti*), green sunfish (*Lepomis cyanellus*), American bullfrogs (*Lithobates catesbeianus*), western toads (*Anaxyrus boreas*), red-swamp crayfish (*Procambarus clarkii*), western fence lizard (*Sceloporus occidentalis*), western brush rabbit (*Sylvilagus bachmani*), California ground squirrel (*Otospermophius beecheyi*), deer mouse (*Peromyscus maniculatus*), California pocket mouse (*Chaetodipus californicus*), and mule deer (*Odocoileus hemionus*). Five western pond turtles (*Actinemys marmorata*) were also observed approximately 500 feet upstream of the forebay during pre-construction surveys conducted in November 2019.

4 Sensitive Biological Resources

4.1 Special Status Species

Local, state, and federal agencies regulate special status species and require an assessment of their presence, or potential presence, to be conducted prior to the approval of proposed development on a project site. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites near the survey area, and previous reports for the project site. The potential for each special status species to occur in the survey area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential**. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

4.1.1 Special Status Plant Species

A total of thirteen special status plant species have been recorded from the project region (within 5 miles of the BSA) (Appendix B). Special status plant species have specialized habitat requirements, including plant community types, soils, and other components. The natural disturbance to the project site caused by continuous scouring during high-flow rain events, coupled with the inundation of the forebay with sediment, generally result in low potential for special status species to occur within the project site. Although elements of suitable habitat occur in the riparian habitat surrounding the forebay and the spillway channel for several special status species, no special status plants are expected to occur within the proposed project site given the current site conditions and level of disturbance. During the field surveys, no special status, federal, or state listed species were observed or otherwise detected within the BSA. Appendix B provides a discussion of findings, special status, habitat requirements and occurrence potential in the project site. Appendix D provides the results of a focused botanical survey conducted on May 2, 2019.

4.1.2 Special Status Wildlife Species

Special status wildlife species typically have specific habitat requirements including vegetation communities, elevations, topography, and availability of primary constituent elements (i.e., space for individual and population growth, breeding, foraging, and shelter).

Fourteen special status wildlife species are listed in the CNDDB and tracked within the project region (Appendix B). During the field surveys and biological monitoring conducted in November 2019 for the Forebay Restoration Project, two special status species were **present** within the BSA:

- Western pond turtle (*Emys marmorata*; [WPT]): State Species of Special Concern
- Arroyo chub (*Gila orcutti*): State Species of Special Concern

No other federal or state listed species were observed or otherwise detected within the BSA.

Seven special status wildlife species have a **moderate potential** to occur in the BSA:

- San Bernardino ringneck snake (*Diadophis punctatus modestus*): State Special Animal
- Coast patch-nosed snake (*Salvadora hexalepis virgultea*)*:* State Species of Special Concern
- Coast horned lizard (*Phrynosoma blainvillii*): State Species of Special Concern
- Two-striped garter snake (*Thamnophis hammondii*): State Species of Special Concern
- California red-legged frog (*Rana draytonii;* [CRLF]): Federally threatened, State Species of Special Concern
- Least Bell's vireo (*Vireo bellii pusillus;* [LBVI]): Federally Endangered, State Endangered
- Steelhead – Southern California DPS (*Oncorhynchus mykiss irideus;* [steelhead]): Federally Endangered, State Species of Special Concern

Based on the existing condition of the project site, special status reptile species (San Bernadino ringneck snake, coast patch-nosed snake, coast horned lizard, two-striped garter snake) have moderate potential to occur given the presence of potentially suitable habitat for foraging and breeding. Intermittent flows are present to provide potential aquatic habitat for reptile and amphibian species.

The forebay may provide marginally suitable habitat for aquatic and semi-aquatic species including CRLF, although none were observed during protocol surveys conducted in 2018 and 2019 one mile upstream and downstream of the Facility, within the Facility screenbay, and within the forebay upstream of the diversion headworks (Appendix G).

LBVI are known to occur in similar habitats downstream of the BSA, based on a query of the CNDDB (2020). The BSA may therefore provide moderate suitable habitat for LBVI due to the presence of early successional mulefat scrub and documented occurrences of LBVI downstream.

The project site occurs within steelhead critical habitat, although the BSA did not have the Primary Constituent Elements (PCEs) needed for steelhead. The PCEs required for steelhead include adequate freshwater to support a migration corridor and access to spawning sites, neither of which is present in the BSA.

The BSA contains potentially suitable nesting habitat for birds protected under CFGC 3503 and the MBTA. The March 5, 2020 survey and follow-up survey on March 18, 2020 were conducted within the early breeding and nesting season for resident and migratory birds. No active nests or birds exhibiting breeding behavior (e.g., courtship displays, copulation, vegetation or food carries,

presence of fledglings, or territorial displays) were observed within the BSA. Tall eucalyptus trees west of the forebay could support nesting raptor species, however no large stick nest structures were observed in the trees.

Two special status wildlife species have a **low potential** to occur in the BSA:

- Southwestern willow flycatcher (*Empidonax trailii extimus;* [SWFL]): Federally Endangered, State Endangered
- Hoary bat (*Lasiurus cinereus*): Special Animal

The project site occurs within SWFL critical habitat, although the BSA does not have the PCEs needed for SWFL. The PCEs required for SWFL include dense riparian vegetation not present in the BSA. Although the habitat within the BSA may not provide suitable breeding habitat for SWFL, the mulefat scrub and California sycamore woodland habitats may support SWFL during brief periods during migration and the BSA may serve as an important stop-over habitat for the species.

The hoary bat has a low potential to occur in the BSA. Suitable foraging habitat for the species occurs within the BSA adjacent upland laurel sumac scrub habitat west of the Facility. Impacts could occur if project activities occur adjacent to maternity roosts during the breeding season, because unlike adult bats, juvenile bats are unable to escape impacts. However, as a winter migrant the hoary bat does not commonly form maternity roosts in California. In addition, the hoary bat requires a permanent water source. Flowing water is not anticipated to be present within the project site when annual maintenance and repair activities would be initiated.

Federal and State Listed and Fully Protected Species

Steelhead – Southern California Distinct Population Segment (DPS) (Oncorhynchus mykiss): Federally Endangered, State Species of Special Concern

The CNDDB lists one sensitive natural community in the nine quadrangles surrounding the survey area (Appendix A). This mapped community, Southern California steelhead stream, occurs in the Ventura River within the BSA. Portions of the Ventura River watershed are listed as critical habitat and a high priority watershed for the recovery of Southern California steelhead. The BSA contains several of the PCEs needed for steelhead, including adequate fresh water to support a migration corridor and access to spawning sites, both which are present within the BSA during average to above average rain years. While the species occurs in areas above the Facility, access to the Ventura River above the Facility has been limited in recent years because of extended drought. Therefore, it is likely that steelhead could be present within the BSA if adequate precipitation and stormflows are available to support a migration corridor and access to spawning sites. As favorable hydrologic conditions appear likely, this analysis conservatively assumes that the species occurs within the BSA if flowing water is present.

Fish passage monitoring conducted by Casitas at the diversion has detected 11 steelhead adults passing the Facility with the last detection occurring in 2011, before the extended drought. No passage was detected through the Facility in recent monitoring and this coupled with the low suitability of habitat for the species, result in low potential for the species to be present near the Facility. Bank and snorkel surveys for steelhead were conducted from January 12, 2018 through October 3, 2018 in the area from approximately 140 meters (m) above and 200 m below the Facility (Appendix G). In 30 surveys conducted covering approximately 33,000 feet (10,000 meters) linear distance, no *O. mykiss* have been observed near the Facility. A focused survey for steelhead was conducted by Scott Lewis, a Casitas biologist, with assistance from additional Casitas biologists on

November 1, 2019. Two biologists snorkeled all habitats within the survey reach. The survey reach included 300 feet downstream of the forebay, within the forebay, and 300 feet upstream of the forebay. Fish species observed were primarily arroyo chub and fathead minnow (*Pimephales promelas*) and a few partially armored threespine stickleback (*Gasterosteus aculeatus macrocephalus*). No *O. mykiss* were observed during the survey. Given that annual maintenance and repair activities will typically be initiated in dry conditions, it is not likely steelhead will be present within the project site.

California Red-legged Frog (Rana draytonii): Federally Threatened, State Species of Special Concern

The CLRF breeds during the winter and early spring from late November through April. Breeding sites include coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, ponds and backwater portions of streams, and small artificial impoundments. Eggs are laid in ponds or backwater pools in creeks attached to emergent vegetation and hatch within 6 to 14 days. The young frogs inhabit slow moving, shallow riffle habitats in creeks or margins of ponds. The older frogs can be found close to ponds or deep pools in creeks where there is emergent vegetation, undercut banks, or rootwads that offer shelter from predators. These older frogs may also be found in a variety of upland areas near ephemeral water bodies or many meters from the water taking refuge in small mammal or other animal burrows.

One record from 1999 for CRLF occurs in the watershed above Matilija Lake, approximately three miles from the Facility (CNDDB 2020). In addition, one sighting of CRLF in a two-mile survey reach was documented during steelhead surveys conducted in the Ventura River in 2010, with a single CRLF tadpole collected by dipnet approximately one mile downstream of the Facility (Allen and Riley 2012). Multiple records for this species were recorded in the San Antonio Creek watershed in 2016, some as close as about 4 miles from the BSA (CNDDB 2020).

The reach between the State Route (SR) 150 bridge and the Facility was described as non-suitable for CRLF during surveys conducted in 2007 (Catalyst 2019). The reach from the Facility to one mile upstream was described as suitable habitat only in the first 2,000 feet of river, just upstream of Facility (ERA 2007). The 2007 surveys extended above Matilija Reservoir and all CRLF documented were located above the reservoir (ERA 2007). Between November 13, 2018 and November 20, 2018, protocol surveys were conducted by Catalyst (2018) within a two-mile reach upstream and downstream of the Facility (Appendix F). No CRLF were observed within these reaches. Between October 10, 2019 and November 3, 2019, protocol surveys were conducted again by Rincon (2019) within a two-mile reach upstream and downstream of the Facility, and no CRLF were observed (Appendix F). Habitats adequate for CRLF survival and breeding occurred in the two-mile reach of the river surveyed. Much of the habitat in the river above the diversion is comprised of riffles with a few habitats with slow-moving water suitable for CRLF and the presence of some deep pools with emergent vegetation could support breeding, but the presence of predatory aquatic species in these habitats create unfavorable conditions for CRLF. The fact that there is a large bullfrog presence in suitable CRLF habitat within the survey reach downstream and upstream of the Facility could account for the lack of CRLF presence and a reason that CRLF known to exist in the lower river and San Antonio Creek may not successfully exploit habitats in these reaches. In one study (Lawler et al. 1999), the presence of just 50 bullfrog tadpoles nearly precluded recruitment of red-legged frog tadpoles to the juvenile stage in ponds that were studied. Much of the lower mile of river below the Facility goes dry in many years and deep pools with emergent vegetation required for breeding are sparse.

The forebay area and entrance pool provide marginal aquatic habitat for the species, consisting of intermittent sources of standing freshwater occasionally present during the summer months following an above average rainfall season. The forebay conditions are dynamic. Currently, most of the forebay is unvegetated, relatively shallow, but with annual removal and relocation of sediment from the forebay (Activity 1, Appendix A), its depth would be increased. Riparian and even emergent vegetation such as cattails (*Typha* sp.) can develop at the periphery or in the forebay and where flows slow, respectively. Vegetation at the forebay wanes during extended drought, and during high flows, it is scoured away. As with sedimentation in the forebay that slowly builds up and needs to be removed, vegetation associated with the forebay also may develop over years and would be modified through future sediment removal actions. Mulefat scrub habitat is situated immediately north of the upstream limit of the forebay, and in narrow strips along the banks of the Ventura River, adjacent to open water within the low flow channel. The potential for CRLF to be present within the project site when annual maintenance and repair activities are proposed is low because work would be done when there is little or no water in the riverbed and the shallow water is restricted to areas lacking emergent vegetation, riparian cover, boulders, undercut banks or rootwads that would provide habitat for the species. Maintenance and repair activities would be initiated during the time of year when frogs are less likely to be dispersing through the BSA.

Least Bell's vireo (Vireo bellii pusillus): Federally Endangered, State Endangered

The LBVI formerly nested through the coastal slope of southern California, interior coast ranges of central California, the San Joaquin and Sacramento valleys and surrounding foothills, and parts of Inyo County. It now is limited to isolated locations of extensive riparian habitat in the southern California coastal slope and has bred in small numbers at widely scattered sites elsewhere in its former range (USFWS 2006). The species nests in structurally diverse dense riparian thickets, mostly in warmer climates of southern California. In 1994, the USFWS defined critical habitat for LBVI and determined the physical and biological habitat features referred to as PCEs that support feeding, nesting, roosting and sheltering, specifically riparian woodland vegetation generally containing both canopy and shrub layers and including some associated upland habitats.

The LBVI may use habitat within the lower reach of Ventura River for breeding, foraging, and sheltering. Greaves (2004) reported one pair of LBVI nesting in the vicinity of the Main Street Bridge and Ventura River in 2001, 2002, 2003, and 2004. A second pair of least Bell's vireos was reported nesting approximately 0.75 mile downstream of Shell Road in June of 2003, and another pair was reported in the Ventura River near Stanley Road in June of 2003. Limited suitable habitat and the presence of brown-headed cowbirds in the upper reaches of the Ventura River may preclude additional occurrences of this species.

Rincon completed a habitat assessment for LBVI on March 17, 2020 (Appendix E). The study area included the existing Facility, an additional 1,400 feet upstream, and approximately 2,200 feet downstream within the Ventura River. The mulefat scrub community occurring in the study area can be described as early successional habitat. This community may not provide adequate dense, stratified canopy and cover LBVI prefer as nest sites due to the space between mulefat plants caused by the large amount of boulders in the Ventura River bottom. However, LBVI are known to occur in similar habitats downstream of the study area, based on the CNDDB review (CNDDB 2020). The BSA may therefore provide moderate suitable habitat for LBVI due to the presence of early successional mulefat scrub and documented occurrences of LBVI downstream. However, based on survey results, review of previous reports and data base information, and the habitat conditions within the BSA, the potential for presence of individual LBVI during nesting season is very low.

Southwestern willow flycatcher (Empidonax traillii extimus): Federally Endangered, State Endangered

The SWFL has been identified in the Ventura River, approximately 1 mile below the confluence with San Antonio Creek and above Matilija Dam. Nesting has not been documented in the Ventura River below Matilija Dam, and suitable nesting habitat is absent from the BSA due to the lack of structural diversity and vertical complexity preferred by the species as described in the Habitat Assessment (Rincon 2020; Appendix E). As habitat conditions continue to improve in local watersheds, the probability of future nesting activity along the Ventura River downstream of the project site is moderate. The species is suspected to use the Matilija Creek drainage as a migration corridor and could potentially use the riparian habitats below Shell Road as temporary stopover during the migration period (Greaves 1998, 2000).

Critical Habitat was designated on the Ventura River for SWFL on January 3, 2013 (78 FR 343-534). The BSA includes federally designated Critical Habitat for the SWFL. Critical Habitat for SWFL was designated on the Ventura River in 2013 (FR 78 (2): 343-534). The 2005 critical habitat rule for the SWFL (Federal Register 70 (201): 60912 – 60999) identified physical and biological features (PBFs) for the species, including:

Physical and Biological Feature 1
Riparian vegetation. Riparian habitat along a dynamic river or lakeside, in a natural or man-made successional environment (for nesting, foraging, migration, dispersal, and shelter) that is comprised of trees and shrubs (that can include Goodding's willow, coyote willow, Geyer's willow, arroyo willow, red willow, yewleaf willow, Pacific willow, box elder, tamarisk, Russian olive, buttonbush, cottonwood, stinging nettle, alder, velvet ash, poison hemlock, blackberry, seep willow, oak, rose, sycamore, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut) and some combination of:

a. *Dense riparian vegetation with thickets of trees and shrubs that can range in height from about 2 to 30 m (about 6 to 98 ft.). Lower-stature thickets (2 to 4 m or 6 to 13 ft tall) are found at higher elevation riparian forests and tall stature thickets are found at middle and lower-elevation riparian forests;*
b. *Areas of dense riparian foliage, at least from the ground level up to approximately 4 m (13 ft.) above ground, or dense foliage only at the shrub or tree level as a low, dense canopy;*
c. *Sites for nesting that contain a dense (about 50 percent to 100 percent) tree or shrub (or both) canopy (the amount of cover provided by tree and shrub branches measured from the ground);*
d. *Dense patches of riparian forests that are interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat that is not uniformly dense. Patch size may be as small as 0.1 ha (0.25 ac) or as large as 70 ha (175 ac).*

Physical and Biological Feature 2
Insect prey populations. A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, which can include: flying ants, wasps, and bees (Hymenoptera); dragonflies (Odonata); flies (Diptera); true bugs (Hemiptera); beetles (Coleoptera); butterflies, moths, and caterpillars (Lepidoptera); and spittlebugs (Hemiptera).

No SWFLs were observed during surveys for this project or previous surveys in the vicinity. Although the BSA contains some attributes of PBF #2, dense riparian vegetation (PBF #1) is not present, due in part to effects from the Thomas fire in 2018, and also the high flows that occurred in 2019, which mobilized the bed material and removed vegetation. In most years, this reach of the river lacks the open water component of PBF #1. The BSA consists of a rocky riverbed that naturally does not provide standing water for periods long enough to support marshy habitat or attract insects. Although the habitat within the BSA may not provide suitable breeding habitat for SWFL, the mulefat scrub and California sycamore woodland habitats may support SWFL during brief periods during migration, although the potential is low.

Special Status Aquatic Species

Arroyo chub (Gila orcutti): State Species of Special Concern

Arroyo chubs are physiologically adapted to survive in habitats with low oxygen concentrations and wide temperature fluctuations, conditions common in southern coastal streams. They are found in habitats characterized by slow-moving water, mud or sand substrate, and depths greater than 40 cm (Wells and Diana 1975). However, they have also been found in pool habitats with gravel, cobble and boulder substrates (Feeney and Swift 2008). Arroyo chub has been documented upstream and downstream of the Facility within the Ventura River (Catalyst 2019; Rincon 2019). Arroyo chub are not native to the Ventura River (Moyle 2002). They are most common in streams with gradients of less than 2.5% slope (Feeney and Swift 2008), where water temperatures range from 10 to 28 degrees Celsius (^{o}C) (J. O'Brien, CDFW, unpublished data). Most spawning occurs in habitats with low velocity, such as pools or edge waters, at temperatures of 14 to 22 ^{o}C. They are most abundant in low gradient pools and flat-water habitats with gravel and sand substrate that support at least some aquatic/emergent vegetation (J. O'Brien, CDFW, unpublished data, 2009). Juveniles spend their first 3 to 4 months in the water column, usually in habitats with still water and vegetation or other submerged cover (Tres 1992). Arroyo chubs spawn primarily in June and July, but can breed more or less continuously from February through August, as the eggs of females ripen in small batches (Tres 1992). Arroyo chubs are true omnivores that feed on algae, insects, and small crustaceans, but they prefer to feed on algae. The species has potential to occur within the project site if adequate flowing water is present. Due to the timing of the project during the dry season, flowing water within the BSA is not anticipated. Therefore, the species is not expected to occur when annual maintenance and repair work is performed.

Special Status Terrestrial Species

San Bernardino Ringneck snake (Diadophis punctatus modestus): State Special Animal

San Bernardino ringneck snake has a moderate potential to occur in the BSA. The species is most common in open, relatively rocky areas and occurs often in moist microhabitats near intermittent streams. Seasonally suitable permanent and ephemeral waterbodies are present which provide potential aquatic habitat for the species. The species was observed in 2015 along Stewart Canyon Creek on the east side of South Ventura Street in oak and sycamore duff within a residential area, approximately 3 miles southeast of the BSA (CNDDB 2020). In addition, an adult snake was found dead on McAndrew Road, approximately 6 miles east of the BSA on May 1, 2015.

Coast Patch-nosed Snake (Salvadora hexalepis virgultea): State Species of Special Concern

The coast patch-nosed snake has a moderate potential to occur in the BSA. The species is most common in brushy or shrubby vegetation and requires small mammal burrows for refuge and overwintering. Upland vegetation, consisting of laurel sumac, was present within the BSA and may provide suitable habitat for the species. The species was observed in 2016 at the north end of Matilija Lake on the side of the Forest Route Road, approximately 0.25 miles southwest of SR-33 (CNDDB 2020). This sighting was approximately 2.75 miles northwest of the BSA. Translocation or movement of the species within the watershed may have occurred in 2018 and 2019 following the Thomas Fire and subsequent storm events; specifically, high river flows could have transported snakes downstream from populated areas higher in the Ventura River watershed.

Coast Horned Lizard (Phrynosoma blainvillii): State Species of Special Concern

The coast horned lizard has moderate potential to occur within the BSA. The species is most common in lowlands along sandy washes with scattered low bushes in a wide variety of habitat types including coastal bluff scrub and coastal scrub habitat. The species requires open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects. A juvenile was observed north of the Robles Diversion Canal in coastal foothill chaparral on March 24, 2002 (CNDDB 2020). The sighting was approximately 1.8 miles southwest of the BSA. Translocation or movement of the species within the watershed may have occurred in 2018 and 2019 following the Thomas Fire and subsequent storm events.

Two-striped Garter Snake (Thamnophis hammondii): State Species of Special Concern

The two-striped garter snake has moderate potential to occur within the BSA. The species is commonly found along the coast of California from Salinas to northwest Baja California at elevations ranging from sea level to 7,000 feet. The species is highly aquatic and is found in or near permanent fresh water, often along streams with rocky beds and riparian growth. Four adults were observed along Matilija Creek, approximately 3.75 river miles upstream of the BSA in 2016. In addition, one individual was observed along North Fork Matilija Creek, approximately 1.4 river miles upstream of the BSA in 2013 (CNDDB 2020). Similar to other special status reptile and amphibian species, translocation or movement of the species within the watershed could have occurred in 2018 and 2019 when high river flows may have transported snakes downstream from populated areas higher in the Ventura River watershed.

Western Pond Turtle (Emys marmorata): State Species of Special Concern

The upstream portion of the Ventura River (above the Facility) provides suitable habitat for pond turtle. The western pond turtle is thoroughly aquatic and is commonly found in ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. The species requires basking sites and suitable upland habitat (sandy banks or grassy open fields) up to 0.5 kilometers from water for egg-laying. Three separate sightings of western pond turtle were recorded in April 2010 and 2013 at the confluence of Ventura River and Matilija Creek, approximately 1.5 river miles upstream of the Facility (CNDDB 2020). In addition, five western pond turtles were observed approximately 500 feet upstream of the forebay area on November 1, 2019 during a pre-construction survey conducted by Rincon. Therefore, the species is known to be present within the BSA.

California Fish and Game Code and Migratory Bird Treaty Act

In addition to the special status wildlife species discussed above, several bird species protected by CFGC 3503 and the MBTA may also nest in trees and shrubs within the BSA. Several species of birds common to the area, that typically nest in the habitats found within the BSA, such as Anna's hummingbird, California scrub-jay, American crow, acorn woodpecker, California quail, and house finch were detected during the reconnaissance survey. Mud nesters, including swallows, are known to nest on the concrete walls of the Facility. Tall eucalyptus trees approximately 100 feet north of the Facility could support nesting raptor species; however, no large stick nest structures were observed in the trees. Repair and Maintenance activities should be scheduled outside of the nesting season (typically February 1 through August 31) for special status birds, if possible, to avoid potential permit limitations.

4.2 Sensitive Natural Communities

The CNDDB lists one sensitive natural community in the nine quadrangles that surround the BSA (Appendix B). This community, Southern California steelhead stream, is present in the BSA. Portions of Ventura River flows are routed through the concrete-lined screenbay and fish ladder within the Facility. The fish ladder does not function for steelhead passage until approximately 5-10 cfs flow occurs and it was designed only to operate above 10 cfs. Therefore, during the project, no functional change in fish passage conditions are anticipated to occur, since the maintenance and repair activities will typically occur when conditions would not be suitable for steelhead passage through the Facility.

4.3 Jurisdictional Waters and Wetlands

The BSA is located on the Ventura River. The Ventura River is a relatively permanent water (RPW) because it contains flows for at least 3 months out of most years and connects to the Pacific Ocean, a traditional navigable water (TNW). Therefore, the Ventura River is subject to the jurisdiction of the USACE and RWQCB. The River is also subject to CDFW jurisdiction under CFGC 1600 et. seq.

4.4 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The habitats in the link do not necessarily need to be the same as the habitats that are being linked. Rather, the link merely needs to contain sufficient cover and forage to allow temporary inhabitation by ground-dwelling species. Typically, habitat linkages are contiguous strips of natural areas, though dense plantings of landscape vegetation can be used by certain disturbance-tolerant species. Depending upon the species using a corridor, specific physical resources (e.g., rock outcroppings, vernal pools, or oak trees) may need to be located in the habitat link at certain intervals to allow slower-moving species to traverse the link. For highly mobile or aerial species, habitat linkages may

be discontinuous patches of suitable resources spaced sufficiently close together to permit travel along a route in a short period of time.

Wildlife movement corridors can be both large- and small-scale. Regionally, the northern portion of the BSA occurs within an Essential Connectivity Area (ECA) as mapped in the report, *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (2010). ECAs represent principal connections between Natural Landscape Blocks. ECAs are regions in which land conservation and management actions should be prioritized to maintain and enhance ecological connectivity. ECAs are mapped based on coarse ecological condition indicators, rather than the needs of particular species and thus serve the majority of species in each region. The Ventura River facilitates regional connectivity for a number of species including, but not limited to the steelhead – Southern California DPS, California red-legged frogs and western pond turtle.

The Facility is located within the Sierra Madre – Castaic ECA. The ECA lies north of the City of Ojai. The ECA surrounds the entire northern section of the city of Ojai and is approximately ten miles across to the north of the city. Hardscaped portions of the Facility, outside of the river channel are surrounded by a chain-link fence, which does not currently limit wildlife movement between wildlife habitat within the Ventura River. The portion of the Ventura River which traverses the BSA is compatible with wildlife movement up and down the river. In addition, the Facility includes a fish ladder to allow movement of aquatic species. There is approximately 10 miles of ECA around the Facility for wildlife movement. The proposed Annual Repair and Maintenance Program would result in a temporary limitation on wildlife movement within the Ventura River immediately upstream and downstream of the Facility as a result of human presence. However, wildlife could still move through the area when activities aren't occurring, such as outside of work hours or on non-work days (e.g. weekends).

4.5 Resources Protected by Local Policies and Ordinances

The project site is located in unincorporated Ventura County, and is under the jurisdiction of Reclamation. According to the Ventura County General Plan (VCGP), the BSA is within designated open space. The VCGP was reviewed, and it is anticipated that the proposed Annual Repair and Maintenance Program would be consistent with applicable policies and ordinances listed below. However, according to the VCGP, the County has no or limited land use authority in open space areas owned by state or federal landowners.

Protected Tree Regulations

The Ventura County Tree Protection Ordinance requires a permit be obtained for the removal, alteration, or encroachment into the tree protection zone (TPZ) of a protected tree. Protected trees are defined as oaks (*Quercus*) and sycamores (*Platanus*) over 9.5 inches in circumference (3-inch diameter at breast height [dbh]) (or 6.25 inches circumference [2-inch dbh] for multi-stemmed oaks). In the unincorporated non-coastal zone, this ordinance protects most native tree species over 9.5 inches in circumference (3-inch dbh). Heritage Trees (any species of tree with a single trunk of 90 or more inches in girth [28.6-inch dbh] or with multiple trunks, two of which collectively measure 72 inches in girth [23-inch dbh] or more) and Historical Trees (any tree or group of trees identified by the county or a city as a landmark, or identified on the federal or California Historic Resources Inventory to be of historical or cultural significance, or identified as contributing to a site or structure of historical or cultural significance) are also protected.

Ministerial tree permits are generally allowed if the tree interferes with public utility facilities, as certified by a qualified tree consultant. However, a discretionary permit is required for impacts to heritage or historical trees, impacts to more than 6 protected trees or more than 4 protected oaks or sycamores, and must include an arborist report by an International Society of Arboriculture (ISA) certified arborist. Mitigation is also generally required for impacts to protected trees. Mitigation can involve a range of options, including on-site or off-site tree replacement, off-site land acquisition for the purpose of tree protection, or in-lieu fee paid directly to the County. The cost of mitigation can vary, depending on the degree of tree impacts required mitigation. The eastern edge of the disturbed area proposed to be used as a staging area borders a stand of coast live oak trees along the west bank of the Ventura River. In addition, oak trees are scattered throughout the Ventura River downstream of the timber cut-off wall adjacent to the primary placement area. The oak trees are likely protected under the County Municipal Code. It is not anticipated that oak trees would be removed, pruned or encroached upon.

Ventura County General Plan

The Ventura County General Plan (VCGP) is the primary planning document for the County. It represents the community's collective vision for preserving and improving the quality of life in Ventura County. Under Gov. Code Section 65302, State Planning and Zoning Law requires each county and city to adopt a comprehensive, long-term General Plan for the physical development of a county or city and any land outside its boundaries which, in its judgment, bears relation to its planning (i.e., sphere of interest). The following provides applicable policies for the protection of biological resources.

- **Locally Important Species.** The VCGP identifies locally important species as significant biological resources to be protected from incompatible land uses and development. The VCGP defines a Locally Important Species as a plant or animal species that is not an endangered, threatened, or rare species, but is considered by qualified biologists to be a quality example or unique species within the County and region. Locally important species are not expected to be present in the project areas.
- **Wildlife Migration.** The VCGP specifically includes wildlife migration corridors as an element of the region's significant biological resources. In addition, protecting habitat connectivity is critical to the success of special status species and other biological resource protections. Potential project impacts to wildlife migration are analyzed by biologists on a case-by-case basis. The issue involves both a macro-scale analysis—where routes used by large carnivores connecting very large core habitat areas may be impacted—as well as a micro-scale analysis—where a road or stream crossing may impact localized movement by many different animals. The project located within the Sierra Madre – Castaic ECA boundary. The Ventura River provides a means to facilitate regional connectivity for several species including, but not limited to the steelhead – Southern California DPS, California red-legged frogs and western pond turtle.
- **Wetland Habitats.** The VCGP contains policies which strongly conditions discretionary development to protect wetland habitats. The Ventura River is located within the BSA; however, the project involves maintenance of an existing Facility; therefore, the policies for discretionary development would not apply.

4.6 Habitat Conservation Plans

The project parcel does not occur within any Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan areas. The proposed project would not conflict with the provisions of any such plans.

5 Impact Analysis and Avoidance and Minimization Measures

The project would result in impacts from maintenance and repair activities to jurisdictional aquatic resources regulated by the USACE, RWQCB, and CDFW, and avoidance of these areas would be infeasible. These impacts require permits from the abovementioned agencies prior to initiating work in jurisdictional areas. Additionally, the project has potential to result in effects to listed species and critical habitat, and requires consultation under the federal Endangered Species Act. Reclamation is currently in consultation with both NMFS and USFWS to determine whether or not the action would affect federally listed species or designated critical habitat for southern California steelhead (NMFS), and CRLF, LBVI and SWFL (USFWS).

The project is not likely to impact protected trees or special status plant species.

In addition to the permit conditions required by the resources agencies (USACE, RWQCB, and CDFW), recommendations for Avoidance and Minimization Measures (AMMs) to avoid and minimize impacts to biological resources resulting from implementation of the project are provided below. Timing for implementation of AMMs is aligned with the various proposed Annual Repair and Maintenance Activities, and is discussed further in Appendix A.

5.1 Special Status Species

No special status plant species were observed or detected during field surveys. No special status plant species have potential to occur within the project site. Special status plant species have specialized habitat requirements, including plant community types, soils, and other components. The project site generally lacks these requirements. In addition, none of the species analyzed were documented in the BSA during previous surveys (Appendix D). Based on the lack of suitable habitat and results of botanical surveys, no special status plants are expected to occur within the project site. Therefore, potential impacts to special status plant species would be less than significant.

Two special status wildlife species (arroyo chub and western pond turtle) were observed within the BSA in November 2019 during field surveys and biological monitoring performed to support the Forebay Restoration Project. Six special status wildlife species were determined to have a moderate potential, and two special status wildlife species were determined to have a low potential to occur in the project site based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, and existing conditions.

Federal and State Listed and Fully Protected Species

Steelhead – Southern California Distinct Population Segment (DPS)

Flowing water is not anticipated to be present within the Facility when Casitas initiates maintenance and repair activities annually, given that the activities will typically occur during the dry season of a historically intermittent or ephemeral reach of the Ventura River (Walter 2015). If flowing water is present (i.e., Activity 2; Appendix A), and Casitas determines maintenance and repair is critical, the portion of the facilities requiring repair or maintenance will be temporarily shut down. The necessary repairs or maintenance on the facility will be conducted as soon as possible and the

structure(s) will be put back in service once it is fixed. After the gates are closed, flow is redirected through the spillway and the remaining water within the fish ladder, screenbay, and high-flow bypass is allowed to gravity flow out of the Facility via the canal or fish ladder. A bank survey for federal listed species (e.g. southern California steelhead and California red-legged frog) is conducted as the water recedes. If no listed species are observed in the Facility work will proceed. It is possible for water to pool within the lower portion of the fish ladder (i.e., entrance box). If this portion of the fishway needed critical repair, block nets will be used to encourage fish and frogs to leave the Facility via the fish ladder, and prevent individuals from re-entering the Facility while the fish ladder entrance gates are closed. Any remaining water would be lowered only enough to conduct repairs by pumping water out of the fish ladder via two doubly screened pumps (5-10 horsepower) with 3 millimeter (mm) mesh to prevent impingement. This 'residual water' pump system would be operational for up to 2 days depending on extent of repairs. The water would be directed to the canal which flows to Lake Casitas. The necessary repairs or maintenance on the Facility will be conducted as soon as possible and the structure(s) will be put back in service once it is fixed. Visual monitoring for listed species would be performed periodically while repair and maintenance activities are performed.

If no flowing water is present, maintenance and repair activities would not affect southern California steelhead. The effects from spreading the spoil over the previously disturbed areas where spoil has been spread in the past (Activity 1), and along the channel banks downstream of the timber wall cut-off, would also have a negligible effect on steelhead given the current post-Thomas Fire site conditions in the watershed and the amount of sediment moving through the system naturally during storm events. Given the proposed timing of activities outlined in the Annual Maintenance and Repair Program (Appendix A), existing river conditions, and with the implementation of AMM-1, AMM-2, AMM-5, and AMM-7 the effects from the project would be is discountable and less than significant to southern California steelhead.

California Red-legged Frog (Rana draytonii)

Potential adverse effects to CRLF during project activities include direct mortality or injury as a result of vehicle traffic and equipment operation on access roads, at access points along the banks of the Ventura River, and in the river channel. In addition, CRLF may be injured or killed as a result of being trampled by workers, and from activities such as excavation of sediment and debris, placement of sediment and debris, material stockpiling, and vegetation removal. Vehicle and equipment operation, worker foot traffic, material stockpiling and vegetation removal in the BSA could result in directly crushing adults, larvae, or eggs if present while activities are conducted. Adult CRLF shelter in slow moving and ponded water but will leave the water and disperse or forage across upland area generally between May 1 and July 1. During these dispersal and foraging events adults may be subject to direct mortality or injury. Adults and juveniles could become trapped and die in upland sheltering habitat or be exposed to predators if burrows or other refugia are crushed or covered.

Project activities may result in mortality, injury, or harm from changes in behavior and physiological stress to CRLF. Direct mortality, injury, or harm may occur if they become entangled or trapped in project-related materials (e.g., fencing, netting, wires, buckets, pallets) or open excavations in the BSA. Pre-construction surveys (AMM-3), conducting activities in the dry season (AMM-2), covering steep-walled excavations at night (AMM-4) and relocation of individuals prior to construction would limit these impacts.

Project activities that generate noise and vibrations, such as the use of heavy equipment during sediment excavation, could lead to behavioral changes such as flushing from shelter, decreased foraging, decreased dispersal, and hypervigilance. Encroachment by personnel into areas occupied by CRLF during project activities could result in disruption to behavior and cause physiological stress from similar effects. Pre-construction surveys (AMM-3), conducting activities in the dry season (AMM-2), and relocation of individuals prior to construction would limit these impacts.

The introduction of trash and chemical contaminants during project activities could result in mortality or harm from behavior changes and physiological stress if items are ingested during foraging or if toxins are absorbed through the skin. Trash littered around a project site may attract predators, such as cats, raccoons, ravens, and gulls, to the project site and may expose CRLF to increased predation pressure. This potential impact would be reduced or avoided by the control of waste products at all work sites (AMM-20).

Uninformed workers could disturb, injure, or kill California red-legged frogs. The potential for this to occur would be reduced by educating workers on the presence and protected status of these species and the measures that are being implemented to protect them during project activities (AMM-1). The use of flagging to demarcate work areas would further reduce these potential impacts by preventing workers from encroaching into environmentally sensitive habitat.

Contaminants, such as herbicides, pesticides, soil binders, and fertilizers may kill individuals, affect development of larvae, or affect their food supplies or habitat. Siltation in breeding pools could asphyxiate eggs and newly hatched larvae. Decreased water quality could result in mortality or decreases in reproduction success for this species. Trimming vegetation by hand along the timber cut-off wall would help to minimize these effects (AMM-9).

Stockpiles of removed sediment stored onsite can attract CRLF seeking upland refugia, and lead to injury or death if individuals become entrapped or are present when these materials are moved. Inspecting stockpiled materials by a qualified biologist for CRLF prior to disturbance would reduce these effects (AMM-7).

The CRLF could be subject to mortality or harm from the introduction of invasive species or pathogens inadvertently transferred to the BSA by personnel, vehicles, and equipment. Project activities could result in the introduction or spread of non-native invasive plant species, such as arundo (*Arundo donax*) and tamarisk (*Tamarix* sp.), into potentially suitable CRLF habitat on vehicles, equipment, or the clothing and boots of personnel. Non-native invasive plant species often out-compete and exclude native species, potentially altering the structure of the vegetation community and degrading or eliminating habitat utilized by CRLF. To reduce this effect, any noxious vegetation identified by the biological monitor shall be removed from the work area and soil disposal areas. Noxious vegetation shall be disposed of in a manner and at a location that will prevent its re-establishment. Whenever possible, noxious species will be removed by hand or by hand-operated power tools, rather than by chemical means (AMM-9).

Personnel, vehicles, and equipment may also inadvertently be the mechanism by which pathogens, such as chytrid fungus (*Batrachochytrium dendrobatidis*), are transferred from off site to the BSA resulting in a novel introduction of the disease (Bossard et al. 2000). To avoid transferring disease or pathogens between aquatic habitats during California red-legged frog surveys, capture, and relocation efforts, approved biologist(s) must follow the Declining Amphibian Population Task Force's Code of Practice, in accordance with the USFWS BO (2019).

Project activities could alter water quality (chemistry) through accidental spills of pollutants like petro-chemical fluids from vehicles and equipment resulting in mortality or injury to CRLF and the

introduction of contaminants into the Ventura River. Such impacts may cause increased nitrogen levels leading to mortality and developmental abnormalities in CRLF and impact prey populations (Rouse et al. 1999). Sedimentation can lead to smothering of eggs and tadpoles (Rabeni and Smale 1995), filling of habitat, restriction of water flow, and the reduction of oxygen levels. These effects vary depending on the amount of sediment introduced into the stream, the amount of stream flow, gradient, and other instream factors. The potential for this effect to occur would be reduced by informing workers of the importance of preventing hazardous materials from entering the environment, locating staging and fueling areas away from aquatic habitat, and by having an effective spill response plan and materials in place on the work site.

Pursuant to the USFWS BO (2019), capture and relocation of CRLF could result in injury or death as a result of improper handling, containment, transport, or release into unsuitable habitat. Although survivorship for translocated CRLF has not been estimated, survivorship of translocated wildlife in general is reduced due to intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation. Using qualified biologists, limiting the duration of handling, requiring proper transport of individuals, and identification of suitable relocation sites close to the area of capture should reduce these impacts. The relocation of individuals from the project site is expected to greatly reduce the overall level of injury and mortality, if any, which would otherwise occur if individuals were not removed (USFWS 2019).

No long-term effects to the overall population, reproductive capacity, or recovery of CRLF are anticipated from the proposed project. The proposed project could adversely affect CRLF of any life stage given the known occurrence of the species, marginally suitable habitat within the project site, and potential overlap of proposed project activities with the species' dispersal period (May 1 and July 1). The proposed project would cause temporary disturbance and/or loss of aquatic, upland, and dispersal habitat, and could result in mortality of some CRLF larvae, juveniles or adults, with a lower probability of effects to egg masses. However, based on the limited spatial and temporal extent of proposed project impacts, proposed work window (dry season), and the fact that CRLF were never observed at the Facility, few, if any, CRLF are likely to be killed or injured. With the implementation of Avoidance and Minimization Measures (AMM) AMM-1, AMM-2, AMM-3, AMM-4, AMM-7, AMM-8 and AMM-9 the effects from the proposal Annual Repair and Maintenance Program to CRLF would be further reduced.

Least Bell's vireo (Vireo bellii pusillus) and Southwestern willow flycatcher (Empidonax traillii extimus)

Least Bell's vireo and southwestern willow flycatcher have not been documented within the BSA. Casitas will conduct protocol surveys within the BSA for LBVI and SWFL in the 2020 nesting season. LBVI are known to occur in similar habitats downstream of the BSA, based on a query of the CNDDB (CDFW 2020). The BSA may therefore provide moderately suitable habitat for LBVI due to the presence of early successional mulefat scrub and documented occurrences of LBVI downstream. However, based on a review of previous reports and data base information, and habitat assessment conducted within the BSA (Appendix E), the potential for presence of individual LBVI during nesting season is low. SWFL nesting has not been documented in the Ventura River below Matilija Dam, and suitable nesting habitat is absent from the BSA due to the lack of structural diversity and vertical complexity preferred by the species. Although the habitat within the BSA may not provide suitable breeding habitat for SWFL, the mulefat scrub and California sycamore woodland habitats may support SWFL during brief periods during migration, although the potential is low. With the implementation of AMM-1, AMM-2, AMM-6, AMM-7, AMM-8, and AMM-9, the effects from the

proposed Annual Repair and Maintenance Program would be discountable and less than significant on LBVI and SWFL.

AMM-1 Environmental Training (Activities 1-6)

Prior to initiation of all maintenance activities (including staging and mobilization), all workers associated with project activities shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in recognizing special status biological resources that may occur in the project area. District staff will attend a WEAP training annually. This training will include information on the biology and ecology of protected species, and the measures being incorporated to avoid take (e.g., for California red-legged frog (CRLF), least Bell's vireo (LBVI), southern California steelhead (steelhead), southwestern willow flycatcher (SWFL), critical habitat for SWFL and steelhead, and other species and critical habitat protected under the ESA.

The program shall include identification of sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and measures required to avoid and minimize impacts to biological resources within the work area. A poster and a fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with performing the maintenance or repair project. All employees shall sign a form provided by the trainer documenting they have attended the WEAP and understand the information presented to them. The project supervisor shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to sensitive species.

AMM-2 Work Period (Activities 1-6)

Maintenance and repair activities within the Ventura River shall occur only when the river is dry, with one exception. If water is present, the Activity 2 work area would be isolated from the Ventura River channel by shutting down the Facility, and allowing water to recede only enough to conduct the repair. If needed to access a specific work area, two double-screened pumps (5-10 horsepower) with 3 millimeter (mm) mesh may be used to route the remaining pooled water from the lower portion of the fish ladder into the canal before work is initiated. No earthwork shall be conducted during rain events, or if 0.25 inches or more of rain is forecast within 12 hours of scheduled work.

AMM-3 CRLF Pre-Construction Survey (Activities 1, 3, 4, 6A and 6E)

Prior to ground disturbing activities within Ventura River, Casitas or their contractor(s) or representative(s) will conduct surveys to confirm there are no CRLF in the Facility. Per USFWS guidance (USFWS 2005), and unless otherwise provided for by USFWS, because site specific conditions may warrant modifications to the timing of survey periods for CRLF, modified survey protocols shall be implemented as follows, prior to the start of maintenance or repair projects in suitable habitat for CRLF:

- One nighttime presence/absence surveys prior to the start Activities 1, 3, 4 and 6A.
- Once clearance survey immediately prior to the start of Activities 1, 3, 4 and 6A.

If CRLF is detected during the project, the observer shall notify the USFWS, CDFW and Reclamation biological staff within one workday of the detection and further consultation with the agencies will be conducted to determine the course of action before proceeding with work.

AMM-4 Cover Excavations (Activity 6A)

Any steep-walled excavations that may trap California red-legged frog which will be left open overnight in areas within or adjacent to the Ventura River shall be covered and checked for California red-legged frog before resuming activities in the excavation.

AMM-5 Steelhead Pre-Construction Survey (Activity 2)

For avoidance of effects to steelhead, as deemed appropriate by the Casitas Fisheries Program Manager, and in accordance with the existing BO's or other regulating documents, Casitas staff will conduct a bank survey at the Facility for steelhead prior to commencing repair and maintenance activities within the fish ladder, screenbay, and high-flow fish bypass (Activity 2), if flowing water is present, a full shut down is required, and it is safe to do so. The critical maintenance and/or repair will be performed to maintain diversion and fish passage operations. If steelhead are observed during the survey, further coordination with Reclamation, NMFS, and CDFW biological staff will be conducted to determine the appropriate course of action before proceeding with work.

AMM-6 LBVI and SWFL Pre-Construction Survey (Activities 1, 3, 4, 6A and 6E)

If project activities must begin during the breeding season (February 1 – August 31), then a pre-construction nesting bird survey for LBVI and SWFL will be conducted immediately prior to project activities within suitable habitat for the species. The survey will be conducted by a qualified biologist who possesses a valid 10(a)(1)(A) Recovery Permit, State Memorandums of Understanding (MOUs), and experience with the target species. If LBVI or SWFL nests are found, project activities would be set back a minimum of 500 feet from nest sites or avoided until the young have fledged.

AMM-7 On-site Biological Monitoring (Activities 1, 2, 3, 4, 5, 6A and 6E)

A qualified biological monitor (with all of the required collection permits) will be onsite during all project operations that involve removal of the first 12 inches of soil/substrate, water diversions, de-watering, exposed (excavated) work areas, and work within sensitive habitat areas where sensitive species may be present. After the previously specified work activities are completed that require a monitor to be onsite, the monitor will then remain onsite for the remainder of the project (as work occurs in the Ventura River) for no less than two days per week, for a minimum two-hour period per day. Dependent upon work conditions and/or prolonged project activities, Casitas may potentially arrange for a decrease in biological monitoring with Reclamation, USFWS, NMFS, and CDFW.

AMM-8 Noxious Weeds and Invasive Species (Activities 1-6)

To avoid the introduction or spread of noxious weeds and invasive biota into areas not infested, Casitas staff or its contractors, with the assistance of the biological monitor, will implement the following measures:

a. Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations;
b. Conduct a follow-up inventory of the construction area to verify construction activities have not resulted in the introduction of new noxious weed infestations; and
c. If new noxious weed infestations are located during the follow-up inventory, the appropriate resource agency shall be contacted to determine the appropriate species-specific treatment methods for removal and the noxious vegetation shall be removed.

d. Implement measures as appropriate from Reclamation Technical Memorandum No. 86-68220-07-05. Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species. 2012 Edition.

AMM-9 Noxious Vegetation Removal (Activities 1-6)

Any noxious vegetation identified by Casitas staff or biological monitor shall be removed from the work area, soil disposal areas, upland areas, and around the perimeter of the concrete-lined portions of the Facility. Noxious vegetation shall be disposed of in a manner and at a location to prevent its re-establishment. Noxious species will be removed by hand or by hand-operated power tools, rather than by chemical means. Casitas staff or contractors will perform chipping of giant reed (*Arundo donax*) and disperse chipped material in designated locations where materials would not wash downstream or be allowed to propagate. All cut/removed noxious vegetation will be taken to a dump as a destruction load.

Special Status Terrestrial Species and Protected Nesting Birds

San Bernardino ringneck snake, coast patch-nosed snake, and coast horned lizard, have a moderate potential to occur within the restoration area given the presence of suitable habitat within the BSA. San Bernardino ringneck snake has potential to be present in open, relatively rocky areas in intermittent streams. Coast horned lizard is most common in lowlands along sandy washes with scattered low bushes and pen areas for sunning. Coast patched-nosed snake prefers brushy or shrubby vegetation with small mammal burrows nearby for refuge. Two-striped garter snake, western pond turtle, and arroyo chub have low to moderate potential to occur within the forebay area, given their highly aquatic nature and habitat requirements.

The proposed project would commence during the dry season when flowing water is not anticipated within the project site. Since these species are highly aquatic, they would not be expected to be present in the project site unless there is adequate water flow. However, if maintenance and repair activities are initiated following an above average rainfall season, ponded water could be present in backwatered areas of the Ventura River upstream of the forebay, which could potentially support two-striped garter snake and western pond turtle. If these special status species are present in the project site, they could be affected by activities. Avoidance and Minimization Measures (AMM-1, AMM-2, AMM-7, AMM-8, AMM-9, AMM-10, and AMM-12) require environmental education to aid workers in recognizing special status biological resources that may occur in the project site, work in dry conditions, on-site biological monitoring, noxious weed control, pre-construction surveys, and adherence to speed limits. The effects to these special status species would be less than significant with incorporated measures.

The BSA contains habitat that can support nesting birds, including raptors protected under the CFGC and the MBTA. The stand of coast live oak trees along the west bank of the Ventura River, and downstream near the sediment placement area, provides suitable nesting habitat for avian species. The project could adversely affect raptors and other nesting birds if construction occurs while they are present within or adjacent to the restoration area, through direct mortality or abandonment of nests. The loss of a nest due to construction activities would be a violation of the MBTA and CFGC Section 3503. AMM-11 is recommended for compliance with the MBTA and CFGC 3503.

The proposed project does not include removal or trimming of trees; therefore, the project has been designed to avoid impacts to hoary bat roosting habitat. In addition, the hoary bat requires a permanent water source. Flowing water is not anticipated to be present within the project site upon project initiation. Foraging bats would be expected to evade areas where repair and maintenance

activities will occur with the onset of disturbance. Therefore, project activities are not expected to impact foraging bats.

AMM-10 Pre-Construction Wildlife Surveys (Activities 1-6)

Within one week prior to the commencement of project activities, a qualified wildlife biologist shall conduct pre-construction surveys in all areas associated with project activities (work area, staging area, and access route) with focus on special status species including San Bernardino ringneck snake, coast patch-nosed snake, coast horned lizard, two-striped garter snake, western pond turtle and arroyo chub.

A qualified biologist will conduct a survey within the project area locations and document existing conditions and search for special status species. If San Bernardino ringneck snake, coast patch-nosed snake, coast horned lizard two-striped garter snake, western pond turtle, or arroyo chub are found in harm's way, individual animals shall be relocated to similar habitat away from construction activities, at least 200 feet from restoration areas in suitable habitat for the species.

AMM-11 Nesting Birds (Activities 1-6)

If maintenance or repair activities must begin during the breeding season (February 1 – August 31), a pre-construction nesting bird survey shall be conducted no more than seven days prior to initiation of ground disturbance and vegetation removal activities. Although presence of nesting migratory birds is unlikely, special emphasis shall be placed on potential occurrences of nests of SWFL and LBVI. The nesting bird pre-construction survey shall be conducted on foot and will include the entire area of disturbance, plus a 500-foot buffer around the work area. Inaccessible areas (e.g., private lands) will be surveyed from afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined so that take is avoided, and the area demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground-disturbing activities shall occur inside this buffer until the avian biologist has confirmed breeding/ nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

AMM-12 Speed Limits (Activities 1-6)

Project-related vehicles will observe a daytime speed limit of 15 miles per hour throughout the impact areas. Night work will be avoided to the maximum extent possible; however, if night work must occur (e.g., Activity 2), the speed limit for transport and spreading material shall be reduced to 10 miles per hour. Off-road traffic outside of designated impact areas is prohibited.

5.2 Sensitive Communities

A southern California steelhead stream, Ventura River, is present within the BSA. As stated above, the proposed project would typically occur within the Facility when conditions for steelhead migration would not be suitable. Therefore, potential impacts to the species are not anticipated. However, the implementation of Avoidance and Minimization Measures AMM-8, AMM-9 and AMM-

13 through AMM-23 will ensure construction materials do not indirectly impact the sensitive community. Therefore, the project would have a less than significant impact to the southern California steelhead stream with implementation of these measures.

The proposed project activities would result in impacts to aquatic habitat in the forebay (5.70 acres), when the area is dry. During Activity No. 1, removal of sediment and emergent vegetation from the Facility (i.e. forebay) and placement of sediment downstream over 4.61 acres of aquatic habitat (during dry river conditions) may have indirect effects on water quality downstream due to increased turbidity, which would have an adverse effect on aquatic wildlife and their aquatic and riparian habitats in the Ventura River. Alternatively, the placement of sediment downstream would move the active channel towards the center of the river channel and assist in clearing the center channel of vegetation. That will, in turn, establish a more stable channel through this reach of the river, a beneficial effect to migration/dispersal habitat for aquatic species. Implementation of mitigation measures to control erosion and sedimentation (AMM-23) and locate equipment and materials outside of wetted areas (AMM-13) would reduce effects to less than significant.

Activity 4 described in detail in Appendix A involves the removal of the young stand of willows, and the excavation of the entrance pool to an 8 to 10-foot depth. The construction of the entrance pool occurred as part of the permitted Robles Diversion Fish Passage Project in 2003. The entrance pool extends approximately 130 feet below the spillway and baffled apron structure and encompasses approximately 0.19 acres (8,238 square feet) of the Ventura River low flow channel. Cleaning sediment/debris and emergent vegetation out of the entrance pool is necessary to maintain the energy-dissipating hydraulic jump, allow proper fish entrance gate operation, and ensure overall uniform hydraulic flow patterns throughout the entrance pool. Vegetation in the entrance pool wanes during extended drought, and during high flows, it is scoured away. Typically, sediment does not accumulate in the entrance pool to the extent that it has in recent years. The sediment in the pool became trapped during intense storm events following the Thomas Fire.

The removal of the immature, small stand of willows in the entrance pool would not have a substantial adverse effect on riparian habitat of sensitive natural communities. The entrance pool is located in a fluvial area, within the Ventura River where no vegetation is considered to be permanent given the natural hydrologic regime. Sediment is routinely scoured and redeposited annually in the entrance pool. The extent of vegetation in the entrance pool changes from year to year, under natural conditions. The proposed maintenance activity would occur during the dry season when surface water is absent, therefore effects to aquatic species would be less than significant. Conducting the vegetation removal outside of the breeding season(February 1 – August 31); or conducting pre-activity surveys (AMM-6) if work occurs within the breeding season would reduce impacts to avian species to less than significant.

5.3 Jurisdictional Waters and Wetlands

The Ventura River is subject to the jurisdiction of the USACE, and RWQCB, and CDFW within the BSA.

Activity 1A and 1B includes the removal of sediment from the forebay and the relocation of sediment downstream of the timber cut-off wall in the Ventura River, annually. The area within the forebay where sediment removal will occur is devoid of hydrophytic vegetation. Relocation of sediment from the forebay to a portion of the river below the timber cut-off wall would restore the normal function of the forebay and eroded banks downstream and thus the project is not expected to have a substantial adverse impact on state or federally protected wetlands. In addition, no

permanent impacts would occur as a result of the project. The sediment removal and relocation activity would occur during the dry season when no flowing water is present in the Ventura River.

Activity 4 involves the removal of trapped sediment from the entrance pool, which is located downstream of the spillway within the Ventura River low-flow channel. Occasionally, sediment becomes deposited in the entrance pool following intense storm events. Sediment and immature vegetation will be removed annually and stockpiled outside of jurisdictional areas in designated soil disposal sites. The project will occur during the dry season and no permanent impacts to the low-flow channel will occur. All other proposed project activities will occur within the Ventura River, in dry conditions, and no permanent impacts to jurisdictional waters or wetlands will occur.

Indirect impacts from construction materials (e.g. stockpiled materials, construction equipment, and trash) stored onsite could adversely affect water quality (e.g., increased turbidity, altered pH, decreased dissolved oxygen levels, etc.) within the water features if runoff were to occur during storm events. Therefore, AMM-13 through AMM-23 outlined above are recommended to avoid potential indirect impacts to water quality within the potentially jurisdictional waters. The implementation of these AMMs would reduce potential impacts to jurisdictional waters to less than significant.

AMM-13 Staging Equipment (Activities 1-6)

Staging and laydown areas shall be unvegetated areas and previously disturbed sites, outside of jurisdictional areas.

AMM-14 Pollutant Management (Activities 1-6)

All vehicles and equipment shall be in good working condition and free of leaks. Stationary equipment such as motors, submersible sump pumps, generators, and welders, located within or adjacent to the river shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from any logging, construction, or other associated project-related activity shall be allowed to contaminate the soil and/or enter into or placed where it may be washed by rainfall or runoff into the Ventura River. Any of these materials, placed within or where they may enter a stream, shall be removed immediately and disposed of properly. When project-related activities are completed, any excess materials or debris shall be removed from the work area.

AMM-15 Material Storage (Activities 1-6)

Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage. Material storage shall be at least 100 feet from flowing water that could come in contact with Ventura River. Any material/spoils from activities shall be located and stored 100 feet from potential jurisdictional areas as practicable. Construction materials and spoils shall be protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

AMM-16 Tracking Loose Material (Activities 1-6)

BMPs such as street sweeping, vacuuming, and rumble plates will be implemented to prevent the off-site tracking of loose construction and landscape materials, as appropriate.

AMM-17 Stabilize Exposed Soil (Activities 1,4, 6A and 6E)

To limit erosion, minimize soil disturbance work in channels and basins to that which can be stabilized prior to rain events.

AMM-18 Avoid Road Base Discharge (Activities 1 and 6E)

Do not place or spill road base, fill, or sediments beyond the previously established roadbed when working adjacent to channel bottom.

AMM-19 Concrete Washout Protocol (Activity 5)

Plastic-lined sandbag concrete wash out pits stationed in uplands are required where concrete placement occurs. A vacuum system may be utilized when sandblasting or jackhammering of concrete occurs to avoid release of materials into channels or surface waters. If a vacuum system is not utilized, appropriate BMPs (i.e. visqueen plastic sheeting) to contain the work area, collect/contain concrete debris, and prevent such materials from entering the Ventura River (even in dry conditions) shall be implemented. Fluids associated with the curing, finishing, and wash-out of concrete shall not be discharged to the channel or basin. Concrete wastes (liquid, dust, solids) shall be stockpiled separately from sediment and protected by erosion control measures to prevent discharge to the Ventura River. Conduct appropriate waste management practices based on considerations of flow velocities, site conditions, suitability of erosion control materials, and construction costs.

AMM-20 Site Materials and Refuse Management (Activities 1-6)

All food-related trash shall be disposed in closed containers and removed from the project area each day during the construction period. Construction personnel shall not feed or otherwise attract wildlife to the construction area. At project completion, all project-generated debris, vehicles, building materials, and rubbish shall be removed from the impact area.

AMM-21 Re-fueling and Maintenance (Activities 1-6)

All re-fueling, cleaning, or maintenance of equipment will occur at least 100-feet from the Ventura River.

AMM-22 Responding to Spilled Materials (Activities 1-6)

A Spill Prevention Plan will be prepared and implemented throughout the project. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned, and any contaminated materials properly disposed. For all spills, the project foreman or other designated liaison will notify Casitas immediately.

AMM-23 Best Management Practice (BMPs) to Prevent Erosion (Activities 1-6)

Spoil shall be spread in the designated disturbed area outside of jurisdictional areas (with the exception of sediment to be placed in the primary placement area, as discussed for Activity 1B). Spoil shall be spread to avoid or minimize risk of erosion.

5.4 Wildlife Movement

The Facility is located within a known wildlife corridor that provides connectivity for wildlife north of the City of Ojai, and the Ventura River facilitates regional wildlife movement through the BSA. Fully developed properties are present adjacent to the BSA and common wildlife adapted to urban and suburban areas (e.g., raccoon and striped skunk) likely use the Ventura River for local movement. However, the proposed project would not permanently modify the Ventura River. Maintenance and repair activities may result in a temporary limitation on wildlife movement within the Ventura River immediately upstream and downstream of the forebay.

Overall, the proposed project is not expected to hinder wildlife movement in the region, considering maintenance and repair activities would not create new barriers to wildlife movement. Maintenance and repair activities would be located within previously developed infrastructure and no new infrastructure is proposed. Therefore, the project would have a less than significant impact to wildlife movement.

5.5 Local Policies and Ordinances

No removal or trimming of protected trees is proposed, therefore tree protection policies would not apply. The Ventura County General Plan (Biological Resources Policy 1.5.2-3 and 1.5.2-4) contains policies to protect potentially jurisdictional waters from development. No new development is proposed.

Within the County jurisdiction, the Ventura County Watershed Protection District (VCWPD) holds authority over its jurisdictional channels. The primary ordinance establishing District authority and the requirements to obtain permits for any encroachment into VCWPD jurisdictional channels, including right of way, is Ventura County Watershed Protection Ordinance WP-2. The Robles Diversion and Fish Passage Facility is owned by the Reclamation and is exempt from Ordinance WP-2. The removal of sediment would occur within the forebay and entrance pool. Implementation of AMM-13 through AMM-23 would avoid and minimize potential indirect impacts to the Ventura River. Therefore, the proposed project would not conflict with local policies or ordinances protecting potentially jurisdictional waters and impacts would be less than significant.

The Ventura County General Plan contains a policy to protect habitat connectivity and wildlife migration corridors. The Facility is located within the Sierra Madre – Castaic ECA boundary. The ECA surrounds the majority of the infrastructure within Ojai to the north of the City. Maintenance and repair activities would not result in new permanent structures that would impede wildlife movement. Although temporary impacts to movement may occur, implementation of AMM-20 would minimize the attraction of wildlife to the project site. Therefore, the proposed project would not conflict with local policies or ordinances protecting habitat connectivity and impacts would be less than significant.

County policy regulates locally important species as significant biological resources to be protected from incompatible land uses and development. The list of locally important species was reviewed, and no species were observed within the BSA. Therefore, the proposed project would not conflict with local policies or ordinances protecting locally important species and impacts would be less than significant.

5.6 Conservation Plans

The project parcel does not occur within any Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan areas. The proposed project would not conflict with the provisions of any such plans. Therefore, the proposed project would have no impact to HCP, NCCP, or other approved local, regional, or state habitat conservation plans.

6 Conclusions

Potential impacts to special status wildlife, nesting birds, sensitive communities, and potentially jurisdictional waters and wetlands would be less than significant with implementation of the avoidance and minimization measures recommended herein. Potential impacts to wildlife movement and local policies and ordinances would be less than significant. Additionally, the proposed project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plans.

7 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Reconnaissance biological surveys for certain taxa may have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

8 References

Allen, M. and S. Riley. 2012. Effects of electrofishing on adult frogs. Prepared for Casitas Municipal Water District. Normandeau Associates, Inc. Submitted June 30, 2012.

Behnke, R. J. 1992. Native trout of western North America. *American Fisheries Society Monograph* 6.

Bossard, C., J. Randall, and M. Hoshovsky (eds). 2000. Invasive plants of California's wildlands. University of California Press. Berkeley, California.

Busby, P. J., T. C. Wainwright, G. J. Bryant, L. Lierheimer, R. S. Waples, F. W. Waknitz, and I. V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-NWFSC-27, 261p.

California Department of Fish and Wildlife (CDFW). 2020. CDFW California Natural Diversity Data Base (CNDDB), Rarefind V. 5.

California Native Plant Society (CNPS). 2020. *Inventory of Rare and Endangered Plants* (online edition V8-030.39). Updated online and accessed via: http://www.rareplants.cnps.org/

Catalyst Environmental Solutions. 2018. California Red-Legged Frog Surveys, Robles Diversion Reach- Ventura River. Prepared for Casitas Municipal Water District. Submitted February 2019.

Clemento A., Anderson E.C., Boughton D., Girman D., Garza J.C. 2009. Population genetic structure and ancestry of Oncorhynchus mykiss populations above and below dams in south-central California. Conserv Genet 10:1321–1336

Ventura County Planning Division. Ventura County General Plan. 2019. Goals, Policies and Programs. 19 March 2019 edition.

____.2014. Locally Important Animal List. Accessed March 2020.

____. 2014a. Locally Important Plant List. Accessed March 2020.

EcoSystems Restoration Associates (ERA). 2007. California red-legged frog survey report and relocation plan. Prepared for the Ventura County Watershed Protection District. June 2007.

Entrix and WCC (Entrix, Inc and Woodward Clyde Consultants). 1997. Ventura River Steelhead Restoration and Recovery Plan. Prepared for Casitas Municipal Water District, City of San Buenaventura, Ventura County Flood Control District, Ventura County Transportation Department, Ventura County Solid Waste Management Department, Ojai Valley Sanitary District, Ventura River County Water District, Ojai Basin Ground Water Management Agency, Meiners Oaks County Water Districts, and Southern California Water Company. December 1997.

Entrix, Inc. 2001. Surface Water-Groundwater Interaction Report for the Ventura River Habitat Conservation Plan. Prepared for Casitas Municipal Water District, City of San Buenaventura, Ventura County Flood Control District, Ventura County Transportation Department, Ventura County Solid Waste Management Department, Ojai Valley Sanitary District, Ventura River County Water District, Ojai Basin Ground Water Management Agency, Meiners Oaks County Water Districts, and Southern California Water Company. February 2001.

Feeney, R. and C. C. Swift. 2008. Description and ecology of larvae and juveniles of three native cypriniforms of coastal southern California. Ichthyological Journal, 55(1) (IN PRESS)

Greaves, J., 1998. Least Bell's vireo and willow flycatcher surveys in 1998 for a proposed project on the PetroChem property along the Ventura River. Letter report prepared for URS Greiner Woodward Clyde, Santa Barbara.

____. 2000. Assessment of riparian habitats in the Ventura River watershed. Letter report to URS Corporation, Santa Barbara.

____. 2003. Electronic mail communication as referenced in the USFWS Biological Opinion for the Matilija Dam Ecosystem Restoration Project, Ojai, Ventura County, California (CON 1-8-04-F-38). Dated March 31, 2005.

____. 2004. Electronic mail communication as referenced in the USFWS Biological Opinion for the Matilija Dam Ecosystem Restoration Project, Ojai, Ventura County, California (CON 1-8-04-F-38). Dated March 31, 2005.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.

Moyle, P.B., R.M. Yoshiyama, J.E. Williams, and E.D. Wikramanayake. 1995. Fish species of special concern of California. 2nd edition. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA 272p.

Moyle P.B. 2002. Inland fishes of California. Berkeley: Univ. Calif. Press.

National Marine Fisheries Service (NMFS). 2003. Biological Opinion for the Robles Fish Passage Facility Project. Dated March 31, 2003.

____. 2005. Endangered and threatened species; designation of critical habitat for seven evolutionarily significant units of Pacific Salmon and Steelhead in California; final rule. Federal Register 50:52488-52586.

____. 2012. Southern California Steelhead recovery plan. Southwest Region, Protected Resources Division, Long Beach, California.

National Park Service. 2014. Wild and Scenic River System in the U.S. Retrieved from https://nps.maps.arcgis.com/apps/MapJournal/index.html?appid=ba6debd907c7431ea765071e9502d5ac

Normandeau Associates. 2012. Steelhead Population Assessment in the Ventura River/Matilija Creek Basin. Retrieved from http://matilija-coalition.org/TRPA%20Steelhead%20Studies/Matilija%20Data%20Summary%202011%20Final.pdf

O'Brien, J.W., H.K. Hansen, and M.E. Stephens. 2011. Status of fishes in the Upper San Gabriel River Basin, Los Angelos County, California. California Fish and Game 97:149-163.

Rincon Consultants, Inc. 2019. California Red-Legged Frog Survey Report. Prepared for Casitas Municipal Water District. Submitted November 2019.

____. 2020. Least Bell's Vireo and Southwestern Willow Flycatcher Habitat Assessment for the Casitas Municipal Water District Robles Diversion and Fish Passage Facility Project. Prepared for Casitas Municipal Water District. Submitted March 2020.

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California.

Shapovalov, L. & Taft, A. C. 1954. The life histories of the steelhead rainbow trout (*Salmo gairdneri gairdneri*) and silver salmon (*Oncorhynchus kisutch*) with special reference to Waddell Creek, CA and regarding their management. *California Department of Fish and Game Fish Bulletin* 98, 375.

Stebbins, R. C. 2003. A Field Guide to Western Reptiles and Amphibians. 2nd ed. Houghton-Mifflin Company. Boston, Massachusetts.

Stoecker, Matt W. and Conception Coast Project. 2002. Steelhead Assessment and Recovery Opportunities in Southern Santa Barbara County, California. Conception Coast Project, Santa Barbara, California. Available on the internet at http://www.conceptioncoast.org/

Tres, J. 1992. Breeding biology of the arroyo chub, *Gila orcutti* (Pisces: Cyprinidae). MS Thesis, California State University, Pomona, CA 73 p.

United States Fish and Wildlife Service (USFWS) 2002. Recovery plan for the California Red-Legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, OR.

____. 2005. Revised guidance on site assessments and field surveys for the California red-legged frog. August 2005 report.

____. 2011. U.S. Fish and Wildlife Service Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. August 2005. 26 pp.

____. 2019. Biological Opinion for the Robles Diversion Forebay Restoration Project (SCC-423, 2.2.1.06). Dated October 23, 2019.

____. 2020a. Information, Planning, and Conservation System. https://ecos.fws.gov/ipac/

____. 2020b. Critical Habitat Portal. https://ecos.fws.gov/ipac/

____. 2020c. National Wetlands Inventory (NWI). https://www.fws.gov/wetlands/data/mapper.html

____. 2020d. Regulation for Listing Species and Designated Critical Habitat. Federal Register, Vol. 84, No. 166, pgs. 45020-45053. https://www.federalregister.gov/d/2019-17518/p-2

____. 2020e. Designation of Critical Habitat for Southwestern Willow Flycatcher. Federal Register, Vol. 78, No. 2, pgs. 343-534. https://www.federalregister.gov/d/2012-30634/p-2

United States Bureau of Reclamation (Reclamation). 2006. Hydrology, Hydraulics, and Sediment Studies for the Matilija Dam Ecosystem Restoration Project, Ventura CA. *Draft Report*. United States Department of the Interior, Bureau of Reclamation, Technical Service Center (USBR), Denver, Co.

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Official Soil Series Descriptions. Available online at http://websoilsurvey.nrcs.usda.gov/app/ Accessed March 24, 2020.

Walter, L. 2015. Ventura River Watershed Management Plan, Prepared for the Ventura River Watershed Council. March 2015.

Wells A.W., Diana J.S. 1975. Survey of the freshwater fishes and their habitats in the coastal drainages of southern California. Los Angeles: Report of the California Department of Fish and Game, Inland Fish Branch. 360 p.

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Appendix A

Annual Maintenance and Repair Program Project Description

Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program

Project Description

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1 Introduction

Casitas Municipal Water District (Casitas) is a special district formed in 1952 to develop water supply for agricultural, municipal, industrial, and residential use in western Ventura County. Casitas entered into an agreement with the U.S. Department of Interior, Bureau of Reclamation (Reclamation) that led to the construction of the Casitas Dam and associated facilities (the Ventura River Project) which were completed in 1958. The facilities were built by Reclamation under a repayment contract with Casitas. The Robles Diversion facility, on the Ventura River, allows Casitas to divert a portion of river flows into the concrete-lined Robles Diversion Canal, which flows approximately 5.5 miles to Lake Casitas.

In August 1997, Southern California (SC) Distinct Population Segment of steelhead (*Oncorhynchus mykiss*; SC steelhead) were listed as an endangered species under the federal Endangered Species Act (ESA; 16 U.S.C. § 1531 et seq.). SC steelhead are the listed species in the Ventura River. In 2004, Casitas constructed a fish ladder (fishway), fish screen, high- and low-flow fish exit channels, a spillway energy dissipater, and a series of low-head rock weirs at the Robles Diversion Facility. The project modified the existing Robles Diversion Facility to provide for the safe upstream and downstream passage of adult steelhead and the safe downstream passage of juveniles. Reclamation owns the Robles Diversion and Fish Passage Facility (Facility), and Casitas operates and maintains this Facility.

Typical maintenance activities at the Facility include sediment/debris removal; vegetation control; repair and maintenance of the radial gates (at the entrance to the headworks and spillway) and other facility control gates; instrumentation; and road maintenance. Repair activities also include concrete work within the existing footprint of the Facility and replacement of wood timbers (timber cut-off wall and debris fence).

The Facility maintenance and repairs occur in and around the Ventura River where such activities are regulated by several state and federal agencies. Modifications to the bed, bank, and/or vegetation in a natural drainage are regulated by the California Department of Fish and Wildlife (CDFW) under Section 1600 *et seq.* of the state Fish and Game Code. Such modifications require a Streambed Alteration Agreement. Activities that result in discharge of dredged or fill material into watercourses (such as bank stabilization and excavation) are also regulated by the United Stated Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Issuance of a Section 404 permit authorizing discharge also requires a Section 401 Water Quality Certification by the Los Angeles Regional Water Quality Control Board (RWQCB). Maintenance and repair activities conform to those described in the existing Biological Opinion issued to Reclamation by the National Marine Fisheries Service (NMFS) in 2003 for effects to SC steelhead from the construction and operation of the Facility. In addition, the United States Fish and Wildlife Service (USFWS) issued a Biological Opinion (BiOp) to Casitas in October 2019 for the Robles Diversion Forebay Restoration Project and its effects on California red-legged frog (*Rana draytonii*). Maintenance and repair activities conform to those described in the USFWS issued BiOp.

In 2003, Casitas acquired agreements and permits from CDFW, USACE, LARWQCB, and USFWS for construction of the Robles Diversion Fish Passage Facility (Appendix A). Additionally, a Mitigated Negative Declaration (MND) was prepared for the fish passage improvements at the Robles Diversion Facility (Appendix B). However, the construction permits and BiOp issued in 2003 did not address the comprehensive maintenance activities required for the Facility, and therefore Casitas

acquired the above agreements and permits on an as-needed basis for individual maintenance activities at the Facility. This approach is time-consuming, inefficient, and often results in delays, which has prompted Casitas to seek consolidated coverage for the ongoing maintenance and repair program. Casitas is seeking regulatory permits and coverage under the ESA for effects to ESA listed species and critical habitat from a comprehensive program of maintenance activities. The period for the program would be 10 years or more, to include all regulated activities, include a streamlined administrative approval process, and to provide predictability and certainty on environmental protection measures. Long-term permits, as compared to case-by-case permitting, reduces the administrative efforts by Casitas and the permitting agencies, and provide a more comprehensive and effective basis for protecting environmental resources.

Casitas has implemented environmental protection measures as requested by the state and federal resource agencies pursuant to past permits and authorizations issued for as-needed maintenance and repair projects. Casitas proposes continuing to implement environmental protection measures into its ongoing annual maintenance and repair program, which have reduced effects of the past projects on the environment. The environment protection measures, called environmental Best Management Practices (BMPs), are described in Section 3.

BMPs are included in the proposed action and their effects are analyzed for the ESA section 7 consultation. Their effects also must be evaluated in the environmental review requirements of the California Environmental Quality Act (CEQA). The proposed action, including the BMPs to avoid or minimize effects of the activities on the environment, are described herein.

Casitas held preliminary meetings with the state (RWQCB and CDFW) and federal (NMFS, Reclamation, USACE and USFWS) agency representatives to discuss the proposed maintenance and repair activities to be included in the programmatic permits. Meetings took place on January 15, 2020 and February 11, 2020 with CDFW; January 21, 2020 with Los Angeles RWQCB; and February 5, 2020 with the USACE, USFWS, and NMFSs. All agency representatives provided feedback on the proposed activity descriptions, which Casitas has incorporated into the Final Project Description, which is described in Section 2.4.

2 Description of Maintenance and Repair Program

This section describes Casitas' Maintenance and Repair Program, referred to hereinafter as the proposed project. The primary objective of the Casitas' routine maintenance and repair program is to ensure the continued and proper operation of the Robles Diversion and Fish Passage Facility. By maintaining this Facility consistent with its original design, Casitas reduces or prevents ineffective operation of the water diversion and fish ladder. The Robles Diversion allows a portion of Ventura River flows to be diverted into the Robles Diversion Canal, which transports the water to Lake Casitas for storage and delivery for municipal and agricultural use. Casitas provides drinking water for approximately 70,000 western Ventura County residents (City of Ventura, City of Ojai and unincorporated Ventura County areas). Additionally, Casitas provides irrigation water for roughly 5,000 acres of mostly permanent agricultural crops. Lake Casitas is the only reservoir from which Casitas supplies its customers, and adequate lake levels are dependent on receiving sufficient inflows from the Robles Diversion Canal. The proposed maintenance and repair activities preserve the conveyance capacity of the Facility by preventing the accumulation of obstructing vegetation and sediments that could impede Facility fish passage and water diversion operations.

2.1 Routine versus Emergency Maintenance

Most of the maintenance and repair activities are routine. Maintenance work is scheduled in advance based upon the results of regular inspections and consists of activities to keep the Facility operating in accordance with its design specifications. Work is scheduled taking into account time of year, hydrologic and environmental conditions, staff and equipment resources, and budget. The extent and frequency of maintenance varies greatly from year to year, depending upon the frequency and intensity of storm events, conditions of Facility, and environmental constraints.

Emergency actions which require immediate repair to protect life and property are addressed separately on a case-by-case basis with state and federal regulatory agencies, and are not part of the proposed action.

2.2 Project Location

Casitas operates the Facility as part of Reclamation's Ventura River Project. The Robles Diversion Facility was designed in 1957 by Reclamation (United States Department of Interior, Bureau of Reclamation, Robles Diversion Dam General Plan, February 8, 1957) and constructed in 1958. The forebay footprint in 1957 (Appendix C) was larger than it is now. Following severe storms in 1978, the forebay was inundated with sediment, substantially decreasing the area and depth of the earthen basin. Presently, the forebay includes approximately 5.70 acres of the Ventura River. The Facility comprises approximately 10 acres of the Ventura River. Fish passage facilities were constructed in 2004 to provide for passage of endangered SC steelhead around the diversion dam, while avoiding entrainment in the Robles Diversion Canal.

The Facility is located on the Ventura River, 2 miles downstream of Matilija Dam and 14.5 miles upstream of the Pacific Ocean, in unincorporated Ventura County, California (34.464820°N, -119.291107°W) within the Matilija USGS 7.5-minute topographic quadrangle (Figure 1). The project

Figure 1 Regional Project Location

Figure 2 Project Area

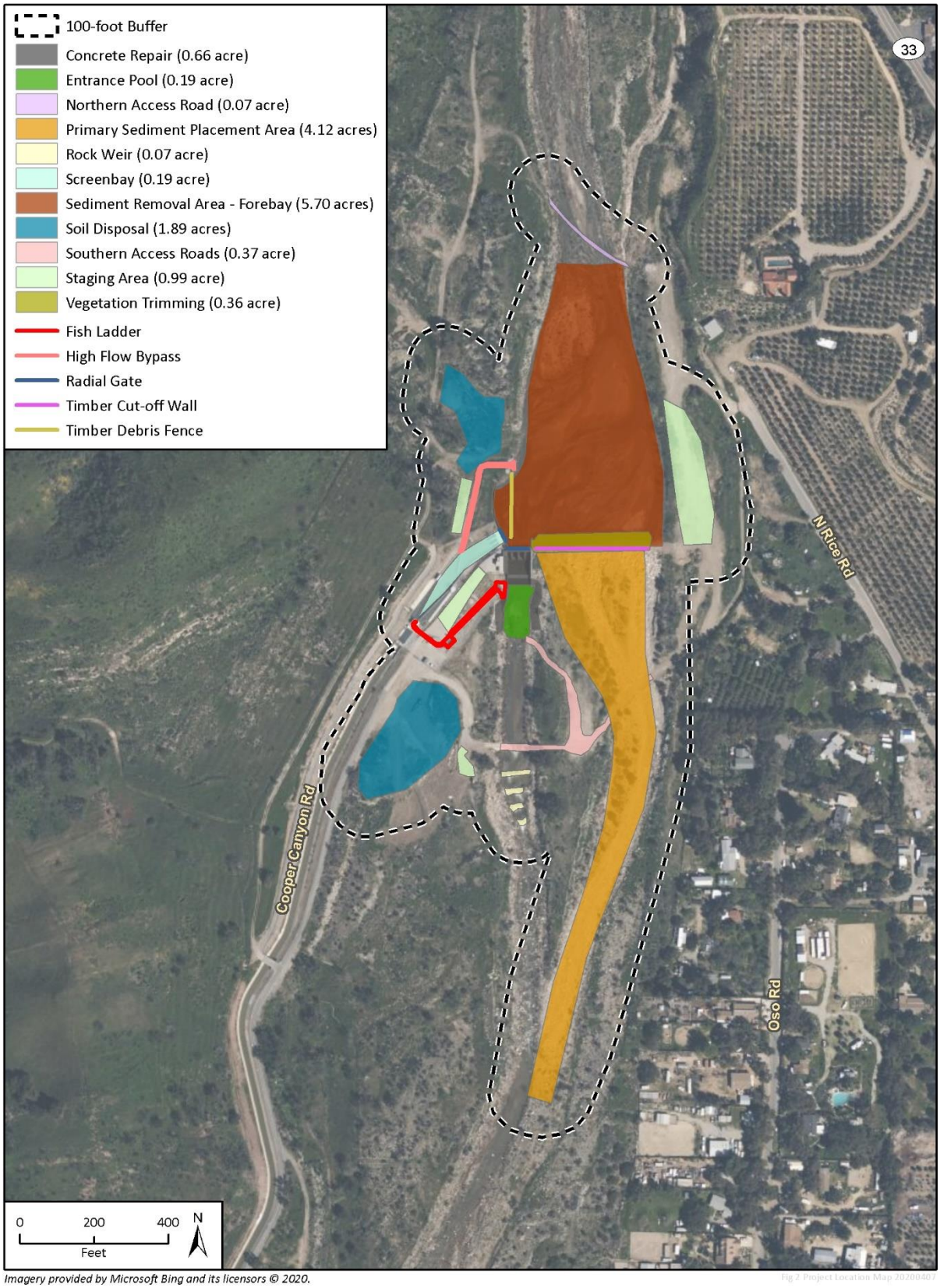

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Fig 2 Project Location Map 20200407

area (Figure 2) encompasses all of Casitas' facilities associated with the Robles Diversion, including the forebay; radial gates and instrumentation and measuring devices, proposed sediment placement area downstream of the timber cut-off wall; fish passage facility (high-flow fish bypass, timber debris fence, screenbay, screens, brush arms, fish ladder, "entrance box," and all appurtenances) ; rock weirs, measurement weir, and entrance pool downstream of the spillway gates; stockpile and staging areas; and access roads (hereafter referred to as Project Area) (Figure 2). The Robles Diversion allows a portion of Ventura River flows to be diverted into the Robles Diversion Canal, which transports the water to Lake Casitas for storage and subsequent delivery for municipal and agricultural use. No repair and maintenance activities are proposed within the Robles Diversion Canal as part of this program. Instrumentation within the canal downstream of the diversion, such as the staff gauge on the bridge near Cooper Canyon Road, do not typically require repairs that would affect the Ventura River or related biological resources.

2.3 Activities Descriptions

For the purposes of Casitas' Annual Maintenance and Repair Program, the proposed Maintenance and Repair Activities are grouped as follows:

- No. 1 (Forebay Sediment)
  a. Forebay Sediment Removal
  b. Forebay Sediment Placement
     i. Stockpile area
- No. 2 (Fish Ladder, Screenbay, High-flow Bypass)
- No. 3 (Rock Weir and Measurement Weir)
- No. 4 (Entrance Pool and entrance box)
- No. 5 (Concrete Repair)
- No. 6 (Routine Repair and Maintenance)
  a. Timber Cut-off Wall
  b. Debris Fence
  c. Radial Gates
  d. Instrumentation and measuring devices
  e. Roads and access surfaces

Detailed Project Descriptions for each activity are provided in the following subsections.

2.3.1 Activity No. 1 Forebay Sediment

Permit History

Maintaining the depth and volume of the forebay is critical to operation of the Robles Diversion Facility and to fish passage. When the forebay was designed in 1957, the footprint of the earthen basin was larger than it is now (Appendix C). Following the severe storms in 1978, the forebay decreased in size to 5.70 acres, and Casitas has continued to maintain this footprint (Appendix D). The forebay requires regular maintenance, especially after heavy rainfall years, or during post-fire

watershed recovery periods. Casitas currently acquires several state and federal agency agreements and/or permits on an as-needed basis for restoration of the forebay.

In accordance with the NMFS BiOp issued to Reclamation for operation of the Facility (NMFS 2003), Casitas must maintain the storage capacity of the forebay for effective diversion and fish ladder operations. As described in the BiOp, sediment and debris accumulate in the forebay and requires periodic removal, and large storm events can create the need to shore up the earthen dam (timber cutoff wall) and forebay banks. The 2003 NMFS BiOp allows Casitas to create a shallow channel within the forebay to direct low-flows to the diversion structure. This shallow channel is re-constructed after high runoff events and may not be required every year. The creation of the shallow channel and removal of excess sediment is accomplished by heavy equipment when the channel is dry.

In 2019, Casitas completed permitting and consultations through the resource agencies for the action to remove and relocate 100,000 cubic yards of sediment downstream over a three-year period. NMFS issued a letter of concurrence (LOC) to remove up to 50,000 cubic yards in 2019, as proposed. Approximately 32,600 cubic yards of sediment trapped in the forebay was relocated by Casitas to the designated placement area downstream of the cut-off wall, in November 2019. Provisions for removing additional sediment had been arranged through 2021 but may be forestalled.

Sediment Removal (1A)

The annual maintenance and repair program (proposed action) sediment removal would occur during the dry season, when surface water is absent in the forebay. It is anticipated the project would require up to 60 working days to complete. Access to the forebay and downstream sediment placement area will be from the north end of Rice Road located east of the forebay. The northern and southern access roads would be utilized.

The heavy equipment needed for this activity will be staged in disturbed areas created previously during Facility construction. This includes amenable areas located immediately west of the forebay adjacent to the high-flow bypass and also due east of the forebay, with each having a supportive gravel base and providing ready access, requiring minimal travel (Figure 2).

Maintenance of the forebay requires moving sediment, rock, and emergent vegetation within the channel using heavy equipment. The solids would be removed from the forebay with equipment that could include for example, a backhoe, Caterpillar 950 loader, Caterpillar dozer (D8 & D6), Caterpillar excavator 320, Caterpillar 120 grader, Caterpillar excavator 350, Caterpillar articulated dump truck 725, work trucks (Ford F350 type), and a water truck or similar types of equipment (e.g., generically – excavators, graders, bulldozers, dump truck, etc.) or other similar equipment suitable to the purpose. This equipment is used to transport and spread the sediment and shore up the channel banks of the timber cut-off wall eroded by heavy storms (1A; Figure 3).

This maintenance and repair activity may occur annually to restore the forebay's operational volume. The maintenance will return the forebay closer to its historic operational grade (Appendix D) by removing accumulated sediment, and relocating it downstream (1B; Figure 3), or to a stockpile area above the mean high water mark. Remaining sediment excavated may be exported offsite. The quantity of sediment/debris to be removed depends greatly on storm load deposition, which is highly dynamic. In some years no removal would be needed, in other years moderate amounts would be required to be removed and at such times it is generally anticipated that it will not exceed approximately 56,500 cubic yards per year. When annual accumulation is unusually great, as has

Figure 3 Activity 1 Forebay Sediment

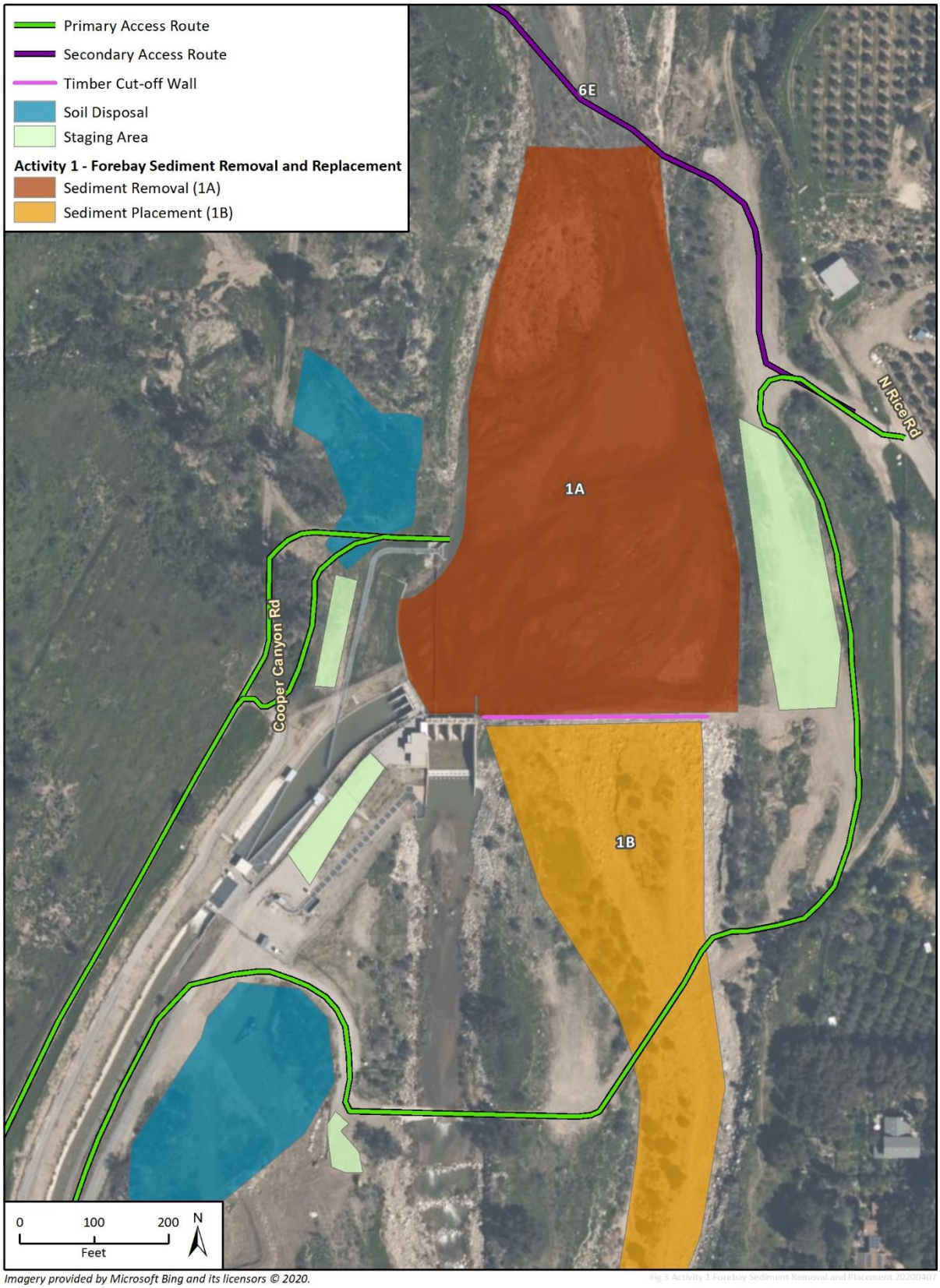

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Fig 3 Activity 1 Forebay Sediment Removal and Placement 20200407

occasionally occurred in the past, there may be a need to remove additional sediment. This would extend the work duration by approximately one week for every 10,000 cubic yards of additional sediment to be removed. All work would be conducted within permitted work windows and under dry conditions.

Sediment Placement (1B)

When flows are sufficiently high to overtop the cut-off wall, erosion of the streambed and banks of the overflow channel downstream occurs. Sediment removed during forebay maintenance activities is first used to restore these storm-eroded areas. For the purpose of routine maintenance, Casitas proposes to restore the forebay area by removing the accumulated sediment annually, typically when 10 percent of basin capacity is occupied by sediment and debris, subject to flow and sediment conditions. The sediment removed will be used to restore storm-eroded areas within 1,100 linear feet downstream of the timber cut-off wall, in the designated primary placement area. The sediment would be deposited downstream of the timber cut-off wall over approximately 4.12 acres, where forebay sediment has been placed in the past, and where active flow within the channel would not be impeded (Figure 3).

Prior to placing sediments in the 2019 maintenance, Casitas developed a fill design for the downstream placement area, determining what the contours and elevation of the streambed would be after 50,000 cubic yards of sediment was placed in the area in November 2019. In December 2019, following the placement of approximately 32,600 cubic yards[1] of sediment downstream of the timber cut-off wall, a photogrammetric aerial survey was conducted that will be utilized in conjunction with the fill design plan to determine how much sediment can be placed downstream in subsequent actions. Because overtopping of the cut-off wall does not occur unless flow in the Ventura River generally exceeds 7,000 to 8,000 cubic feet per second (cfs), it may not be possible to relocate sediment from the forebay to the placement area every year. Therefore, before initiating sediment removal actions, Casitas will evaluate conditions of the sediment placement area at the end of the storm season (April/May) to determine how much sediment can be placed there. If the amount of sediment to be excavated exceeds the capacity of the placement area, the excess sediment that cannot be placed downstream will be stockpiled above the ordinary high-water mark of the Ventura River in designated soil disposal areas (Figure 2), or exported offsite. If sediment is stockpiled in designated disposal areas onsite, Casitas will evaluate whether stockpiled sediment can be placed back into the river each year, pending capacity established in the survey of the deposition area.

Prior to placement of sediment, any noxious vegetation identified by a qualified biological monitor within pre-selected soil disposal areas shall be removed (Figure 3). Noxious vegetation shall be disposed of in a manner and at a location to prevent its re-establishment. Casitas or contractors will perform chipping of giant reed (*Arundo donax*) and disperse chipped material in designated locations where materials would not wash downstream or propagate. All cut/removed noxious vegetation will be taken to a dump as a destruction load. Noxious species will be removed by hand or by hand-operated power tools, rather than by chemical means. Casitas will monitor the soil

[1] Preliminary calculations revealed the volume of sediment to be removed from the forebay in 2019, 2020, 2021 totaled 100,000 cubic yards. Based on more extensive post-placement surveys and review of Casitas' historic sediment removal practices, Casitas determined the forebay can hold up to approximately 56,500 cubic yards of sediment (maximum volume of water to a flat surface at the top of the timber cut-off wall). Post-placement comparison of the LiDAR data revealed that approximately 32,600 cubic yards of sediment was removed from the forebay in November 2019 and deposited in the primary placement area and approximately 15,500 cubic yards of sediment remains in the forebay. Going forward, Casitas will maintain the forebay footprint (5.70 acres) by typically removing up to approximately 56,500 cubic yards of sediment each year. Typically, the sediment removal project will occur when 10-20% percent of basin capacity is occupied by sediment and debris.

disposal areas following sediment placement in these areas, and remove noxious species by hand, if necessary, before seeds ripen.

Table 1 shows the extent of temporary impacts to potentially jurisdictional areas resulting from this activity.

Table 1 Anticipated Temporary Impacts to Ventura River from Activity 1A/B

Feature	Waters of the U.S.[1]		Waters of the State[2] (acres/linear feet)	CDFW Jurisdictional Area[2] (acres/linear feet)
	Non-wetland Waters of the U.S. (acres/linear feet)	Wetland Waters of the U.S. (acres/linear feet)		
Forebay	5.34[3] /800	–/–	5.34[3] /800	5.34[3] /800
Primary Placement Area	4.12/1,100	–/–	4.12/1,100	4.12/1,100

[1] Calculated to OHWM or edge of wetland

[2] Calculated to top of bank or edge of riparian

[3] Calculation excludes the portion of the forebay which overlaps with the vegetation trimming area along the cut-off wall (Activity 6A; 0.36 acres).

2.3.2 Activity No. 2 Fish Ladder, Screenbay, High-flow Bypass

Permit History

The construction of the fish ladder (2A), screenbay (2B), and high-flow bypass (2C) occurred as part of the permitted Robles Diversion and Fish Passage Project in 2003/2004 providing for fish passage through the Facility (Figure 4). Casitas provided compensatory mitigation in the form of onsite restoration to compensate for permanent impacts to jurisdictional areas (Appendix A). No additional temporary or permanent impacts to jurisdictional areas requiring compensatory mitigation for USACE, RWQCB, or CDFW requirements will result from maintenance of the fish ladder, screenbay, and high-flow bypass structures.

In accordance with the NMFS BiOp, during the fish flow operations season, January through June, the Robles Diversion Facility is monitored for large debris by on-site staff. During operation, sediment and debris can accumulate in the fish ladder, screenbay, and high-flow bypass and impede fish passage and proper operation of the fish screens. When this occurs, small debris is removed by hand, including hand tools, via the access grating above the fish ladder, screenbay, and high-flow bypass. Depending on flow conditions, sediment may be removed mechanically from the fish ladder, screenbay, and high-flow bypass. If Casitas must use mechanical equipment to remove sediment/debris or make repairs in these areas, the Facility is shut down temporarily and water diversions cease until sediment/debris is removed and/or repairs are made.

Facility Maintenance

It is anticipated the Facility can operate throughout a single fish passage season without the need for any extensive repairs or maintenance. Whenever possible, extensive maintenance or repairs are performed during dry periods or when the fishway is not in operation. The potential exists, however, for substantial damage to result from debris accumulation during the fish passage season. For example, debris or sediment accumulation in the fish ladder, screenbay, and high-flow bypass could impede the function of the baffles, flow meter, entrance gates, and sill blocks. Should this happen during the fish flow operations season (January 1 through June 30), Casitas will evaluate

Figure 4 Activity 2 Fish Ladder, Screenbay, High-flow Bypass

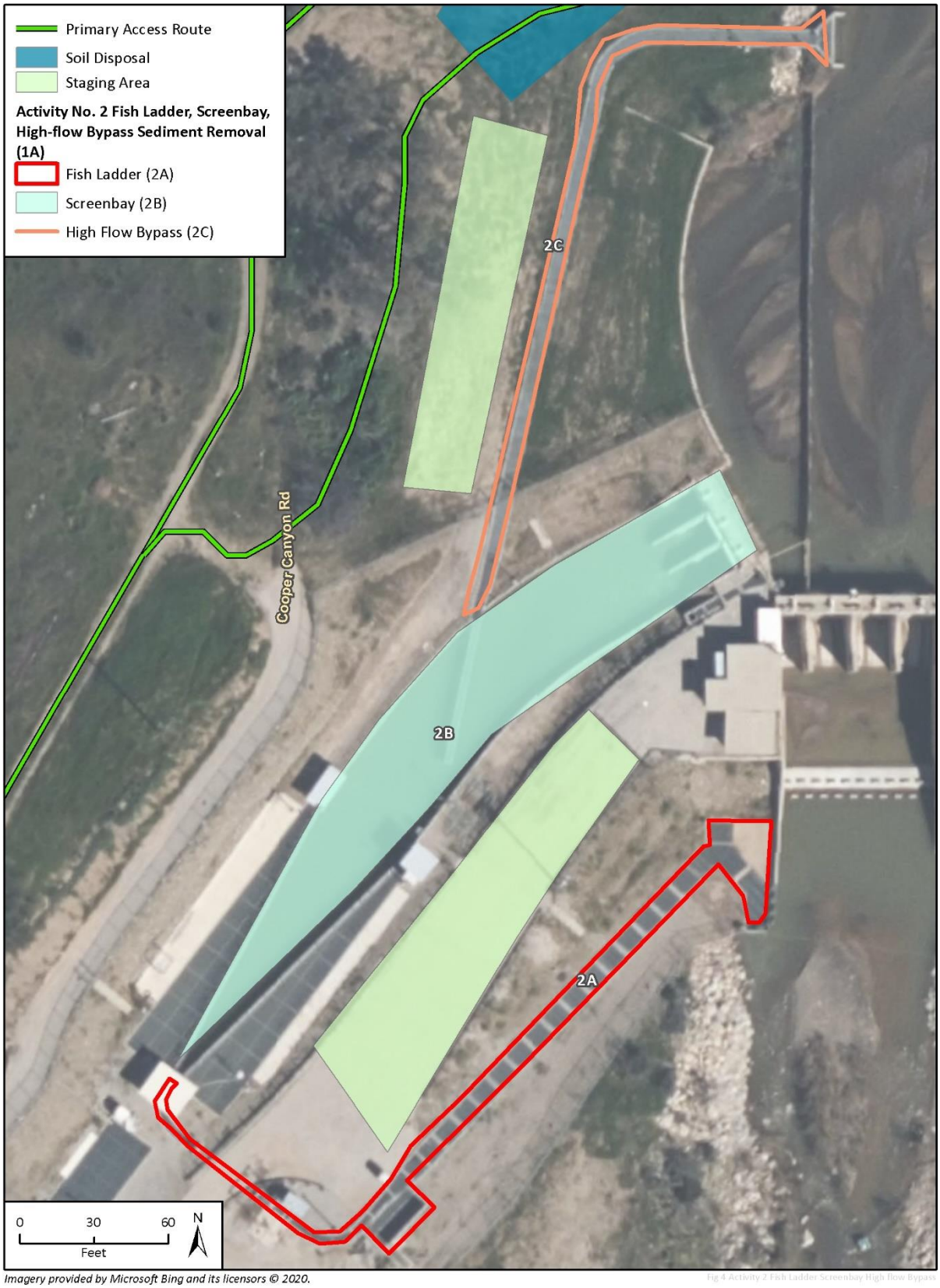

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Fig 4 Activity 2 Fish Ladder Screenbay High flow Bypass

whether maintenance and repair activities are critical to maintain diversion and fish passage operations. If Casitas determines maintenance and repair of Facility components (e.g., removal of accumulated debris in the fishway) is critical during the fish passage season, the portion of the facilities requiring repair or maintenance will be temporarily shut down. The necessary repairs or maintenance on the facility will be conducted as soon as possible and the structure(s) will be put back in service once repairs are made. Maintenance of the fish ladder, screenbay, and high-flow bypass will not result in permanent impacts or alterations to the design of these facilities.

Maintenance and repair which is determined non-critical to address during the fish passage season will be addressed during the dry season prior to the next passage season. In some years between June and October (typical dry period), limited baseflow in the Ventura River may persist, and no dry period will materialize. If this condition occurs, maintenance and repair activities will be addressed outside of fish passage season when there is little or no flow. It is essential to address maintenance and repair issues outside of the fish passage season (e.g., debris and sediment accumulation) because they have potential to compound into larger issues during the subsequent passage season, if not addressed.

Access to the fish ladder, screenbay, and high-flow bypass is from the north end of Rice Road located east of the forebay, from the northern access road at the upper limit of the forebay, and from the south along the canal road. Staging of heavy equipment occurs west of the forebay adjacent to the high-flow bypass, which is unpaved (Figure 2). It is anticipated the maintenance and repair activities would require 1 to 2 weeks to complete annually; and heavy equipment will be used for up to 1 week.

Removal of Small Debris

Small debris will be removed by hand via the access grate above the fish ladder, screenbay, and high-flow bypass. Removal of small debris will occur throughout the year provided that it can be safely accomplished without shutting down the facilities. It is possible that removal of small debris may require a partial shutdown of facilities during wet conditions, in which case, the work would only be conducted if necessary for the ability to maintain operations of the diversion and fish passage.

Removal of Large Debris and Sediment

Removal of large debris (logs, large branches) and sediment will occur during dry periods when the fishway is not in operation, unless the work is necessary to maintain operations of the diversion and fish passage. Prior to removal of large debris and sediment, the Facility (canal or headworks) gates are closed to initiate a full shut down of the Facility and to allow flows to recede such that maintenance equipment is not operated in flowing water. After the gates are closed, flow is redirected through the spillway and the remaining water within the fish ladder, screenbay, and high-flow bypass is allowed to gravity flow out of the Facility via the canal or fish ladder. A bank survey for federal listed species (e.g. SC steelhead and California red-legged frog) will be conducted as the water recedes. If no listed species are observed in the Facility work will proceed.

An excavator will be staged adjacent to the access grates above the fish ladder, screenbay, and high-flow bypass, and will remove debris as needed by reaching the bucket into the Facility. Once flowing water has been re-directed through the spillway and no water is present in the fishway, it may be necessary to lower a small loader into the screenbay to remove, push, pile, or load debris. The excavated material will be loaded into dump trucks and removed to a disposal/storage site on Casitas property outside the river channel.

It's possible for water to pool within the lower portion of the fish ladder (i.e., entrance box and bottom 5-7 steps of the ladder). If this portion of the fishway needed critical repair, block nets will be used to encourage fish and frogs to leave the Facility via the fish ladder, and prevent individuals from re-entering the Facility while the fish ladder entrance gates are closed. Any remaining water would be lowered only enough to conduct repairs by pumping water out of the fish ladder via two doubly screened pumps (5-10 horsepower) with 3 millimeter (mm) mesh to prevent impingement. This 'residual water' pump system would be operational for up to 2 days depending on extent of repairs. The water would be directed to the canal which flows to Lake Casitas. Visual monitoring for listed species would be performed periodically while repair and maintenance activities are performed.

2.3.3 Activity No. 3 Rock Weir and Measurement Weir

Permit History

The construction of the rock weirs and measurement weir modification occurred as part of the permitted Robles Diversion Fish Passage Project in 2003/04. Due to the lack of funding, four rock weirs were installed as an interim project in consultation with CDFW and NMFS. Ongoing fish passage monitoring conducted by Casitas at the diversion has detected 11 SC steelhead sized adults, with the last detection occurring in 2011, prior to the recent drought. In addition, Casitas has documented approximately 1,300 juvenile and resident-sized *O. mykiss* moving upstream and downstream through Robles from 2006-2018, one putative kelt was observed below the radial gates in 2019 and one resident-sized *O. mykiss* was detected moving downstream in 2021. Given the interim project (as defined in the 2003 BiOp) has demonstrated passage, Casitas has postponed the installing additional rock weirs due to the uncertain but long impending Matilija Dam Removal Project upstream of the Robles Facility. Removal of Matilija Dam will greatly affect the area of the rock weirs, necessitating a high flow sediment bypass and other structural changes. Casitas provided compensatory mitigation in the form of onsite restoration to compensate for permanent impacts to jurisdictional areas (Appendix A). Therefore, no additional temporary or permanent impacts to jurisdictional areas requiring compensatory mitigation will result from maintenance of the maintenance of the rock weirs.

Facility Maintenance

The proposed maintenance activity would occur during the dry season when surface water is absent. It is anticipated maintenance and repair activities associated with the weirs would require 1 to 2 weeks to complete, depending on level of activities. Staging of heavy equipment will occur in upland areas on bare ground above the ordinary high water mark and west of the channel where the weirs are located (Figure 5). Access to the weirs will be from Rice Road located east of the forebay across the Ventura River via the southern access road.

Figure 5 Activity 3 Rock Weir and Measurement Weir

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Fig5 Activity 3 Rock and Measurement Weir

The existing concrete measurement weir may need repair if damaged to accurately measure flow from Robles diversion, which is critical to operation of the water diversion and downstream BiOp-required releases (NMFS, 2003). Repair of the bubbler line which runs down the upstream face of the weir may be necessary. Maintenance associated with the measurement weir should be minimal and limited to removal of debris by hand, and will occur only during dry conditions.

Since the weirs were modified in 2006 to include larger rock and more cabling, a total of five storms have occurred generating flows in the river of 8,000 cfs or more:

- 10,000 cfs, 2/17/17;
- 8,485 cfs, 1/9/18;
- 9,100 cfs, 1/17/19;
- 12,000 cfs, 2/2/19; and
- 8,000 cfs, 2/14/19.

Additionally, 19 storms after the 2006 weir modification generated flows greater than 1,000 cfs in the Ventura River. Following the larger storm events, only minor modifications to the weir passage slots and placement of gravel on the upstream face of the weirs to fill the interstitial spaces and enhance flow through the passage slots was needed. Typically, overtopping of the cut-off wall occurs when flows exceeds 7,000 to 8,000 cfs. Therefore, the maximum flow in the spillway channel (low flow channel) where the weirs are located is 7,000 to 8,000 cfs. When flows exceed this amount, overtopping of the timber cut-off wall occurs and flow is directed to the high-flow channel to the east. Given that large storm events have occurred in the Ventura River channel since weir modification were made in 2006, and weirs have not incurred significant damage, it is not likely Casitas would need to make substantial repairs to the existing rock weirs.

The four rock weirs downstream of the measurement weir may need occasional realignment of boulders and re-cabling following large storm events to maintain fish passage slots and water elevation control. Every effort would be made to realign boulders by hand, but mechanical equipment may be required to adjust larger boulders, as necessary. Large- and medium-sized woody debris will be removed and placed downstream of the weirs with heavy equipment (e.g., excavator or backhoe). It is anticipated heavy equipment would be used for up to 4 days to make necessary adjustments to boulders and relocate large woody material.

2.3.4 Activity No. 4 Entrance Pool

Permit History

The construction of the entrance pool occurred as part of the permitted Robles Diversion Fish Passage Project in 2003/04. Water flows through the entrance box to the entrance pool, providing attraction flows to the fish ladder. The entrance pool extends approximately 130 feet below the spillway and baffled apron structure and encompasses approximately 0.19 acres (8,238 square feet) of the Ventura River low-flow channel. Casitas provided compensatory mitigation in the form of onsite restoration to compensate for permanent impacts to jurisdictional areas resulting from the construction of the entrance pool as part of the Robles Diversion Fish Passage Facility Project (Appendix A). Therefore, no additional temporary or permanent impacts to jurisdictional areas requiring compensatory mitigation will result from maintenance of the entrance pool. The entrance pool will be maintained to original design contours as shown on Figure 2 in the Mitigated Negative Declaration for the Robles Diversion Dam Fish Screen and Fishway Project (Appendix B).

Facility Maintenance

The entrance pool is designed to enable fish to make the transition from the natural river channel into the fish ladder structure. Cleaning sediment/debris and emergent vegetation out of the entrance pool is necessary to maintain the energy-dissipating hydraulic jump, allow proper fish entrance gate operation, and ensure overall uniform hydraulic flow patterns throughout the entrance pool. This maintenance activity will include the excavation of the entrance pool to an 8 to 10-foot depth, and removal of a cluster of willow (*Salix lasiolepis*) in the downstream portion of the entrance pool. The sediment/debris became trapped in the entrance pool during intense storm events.

Sediment and vegetation removed will be stockpiled outside of jurisdictional areas in designated soil disposal sites (Figure 6). Re-contouring with boulder/cobbles/sediment will occur in the bottom of the entrance pool and adjacent areas to repair erosion along existing concrete abutments and riprap. The proposed maintenance activity would occur during times when surface water is absent.

The sediment/debris and vegetation would be removed from the entrance pool with equipment including a bulldozer, excavator or other loader and supporting vehicles (e.g., one dump truck, etc.) to transport and spread the sediment/debris in designated soil disposal areas (Figure 6). It is anticipated maintenance of the pool would require up to 3 to 4 weeks to complete. Staging of heavy equipment will occur in upland areas on bare ground west and east of the channel adjacent to the entrance pool. Access to the entrance pool will be from Rice Road located east of the forebay across the Ventura River via the southern access road.

Figure 6 Activity 4 Entrance Pool

2.3.5 Activity No. 5 Concrete Structures

The Robles Diversion and Fish Passage Facility includes many concrete structures. Concrete repair may be necessary, on an as-needed basis, to preserve the structural integrity of the Facility. No changes to the existing footprint of the Facility will occur.

Concrete repairs may be made to the spillway, concrete protective rip-rap, measurement weir, and baffled apron, as needed (Figure 7) during dry conditions. In addition, concrete repairs may be made to the existing concrete-lined screenbay and extended upstream across the canal gates, and include the high-flow fish exit. Casitas staff or a contractor will clean and prepare the damaged area; build and place forms as necessary; place and finish concrete; remove forms and backfill area, as needed. All work will implement Best Management Practices for concrete repair (Section 3).

Heavy equipment will be used to remove damaged concrete and perform concrete repairs. Equipment may include a pick-up truck, flat-bed, dump truck, concrete mixer, excavator, or other similar equipment and concrete pump (if needed). It is anticipated concrete repairs would require 1 to 2 weeks to complete. Heavy equipment will be staged in upland areas on bare ground west or east of the channel adjacent to the entrance pool. Access to the spillway will be either from Rice Road located east of the forebay across the Ventura River via the southern access road; or from Cooper Canyon Road headed north toward the Facility.

Work on the concrete structures would not expand the existing footprint of the facility, and no permanent or temporary impacts to jurisdictional areas requiring compensatory mitigation are anticipated.

Figure 7 Activity 5 Concrete Structures

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2.3.6 Activity No. 6 Routine Maintenance

Timber Cut-off Wall Repair and Maintenance (6A)

The timber cut-off wall is 325 feet long and approximately 30 feet deep; rocks and boulders are placed at depth on the upstream and downstream sides and native material is placed to fill the voids. In the past, the timber wall has been damaged by extremely high river flows and fire, and it will occasionally need maintenance and repair. The maintenance/repair will include replacement of the timbers and rocks/backfill and compacting and recontouring the approach and downstream slopes. Repair of the timber cut-off wall also may require excavation to the foundation elevation, timbers in damaged section replaced, the wall straightened, and placement and re-compaction of the boulders/rocks and replacement of the native backfill within a 15,757 square foot area (0.36 acres) surrounding the base of the wall. Emergent and woody vegetation along the wall within this area will be removed during excavation to assess the extent of the damage and access the timber cut-off wall. Repair and maintenance will not be performed under the routine maintenance programmatic agreements if surface water is present.

Equipment that may be used includes an excavator, bobcat, dump trucks, front-end loader, backhoe, light-duty pickup trucks, hand operated power tools, and vibratory compactor.

The duration for the work would depend on the extent of damage and the required remedy. Casitas made significant repairs to the timber cut-off wall in November 2019 to repair damaged portions of the wall, which were burned in the Thomas Fire. It is anticipated that future repairs made to the wall would require up to 30 working days to complete. It is anticipated that repairs could be needed once every five years, although the frequency will depend on the degree of damage to the structure.

Vegetation that develops near the top of the timber cut-off wall prevents uniform overtopping of flows. In the years when repairs to the timber wall are not made, woody vegetation with a diameter of three inches or less will be cut to ground level with hand operated power tools. Maintaining low or no vegetation along the wall will help to ensure that overtopping flows are dissipated over a larger area, minimizing erosion at constricted sections within the Ventura River and reducing water elevations in forebay as designed. Cut vegetation will be disposed of outside of jurisdictional areas, offsite. Vegetation trimming will occur outside the bird nesting season, and will usually require 2 to 5 days to complete.

Access to the timber cut-off wall will be from Rice Road to through the staging area located east of the forebay (Figure 8).

Table 2 shows the extent of temporary impacts to potentially jurisdictional areas resulting from timber cut-off wall repair and vegetation maintenance activities. Vegetation removal would not involve excavation or backfill.

Figure 8 Activity 6 Routine Maintenace

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Fig 8 Activity 6 Routine Maintenance

Table 2 Anticipated Temporary Impacts to Ventura River from Activity 6A

Feature	Waters of the U.S.[1]		Waters of the State[2] (acres/linear feet)	CDFW Jurisdictional Area[2] (acres/linear feet)
	Non-wetland Waters of the U.S. (acres/linear feet)	Wetland Waters of the U.S. (acres/linear feet)		
Vegetation trimming/removal	0.36/325	–/–	0.36/325	0.36/325

[1] Calculated to OHWM or edge of wetland

[2] Calculated to top of bank or edge of riparian

Debris Fence (6B)

The timber debris fence lies upstream of the diversion headworks in the forebay (Figure 8). The racks of the fence deflect debris away from the headwork gates and toward the spillway gates. Over time the fence collects woody debris, which can require removal. This maintenance activity will involve the removal of debris from the fence, and the repair or replacement of damaged wood timbers as needed to preserve the structural integrity and functionality of the fence.

A backhoe and light trucks are usually needed to remove larger debris and support repairs to the timber debris fence. As possible, debris will be removed by hand. Removed debris will be disposed of outside of jurisdictional areas. Repair of the timbers will be completed in dry conditions. It is anticipated that most debris removal and repairs would require up to 1 to 2 weeks to complete. Repairs made to the fence would coincide with Activity 1's schedule. Therefore, access to the debris fence will be through the forebay from the entrance to the Facility off Rice Road, located east of the forebay. Removing material from the debris fence would not result in permanent or temporary impacts to the river channel, and no compensatory mitigation would be required for these activities.

Radial Gates (6C)

The radial gates are painted periodically to prevent deterioration (rusting). Painting is anticipated to occur approximately once every two to five years, and work will be completed within 1 to 2 weeks. Access to the radial gates is along the timber cut-off wall (Figure 8). This effort will occur when the spillway area is dry. Small equipment and hand tools are used to sandblast and prime the gates before they are painted. Best Management Practices will be implemented during this maintenance work to minimize deposition of debris (i.e., paint chips) and other materials into the Ventura River. A lift, light trucks, and scaffolding are utilized to complete the painting project. Replacement of seals may also be necessary, as they wear or become damaged. Seals are replaced by hand using a ladder and hand tools. Additional unplanned maintenance on the radial gates may be periodically required in order to maintain proper functionality of the gates. Painting the radial gates would not result in permanent or temporary impacts to the river channel, and no compensatory mitigation would be required for this activity.

Instrumentation (6D)

Data is collected to document that the Robles Diversion Dam and Fish Passage Facility is operated in compliance with the operations approved by NMFS (NMFS 2003). Sensors installed at the Facility allow for calculating the amount of inflow into the Robles forebay, diversion, and the flow routed through the fishway, auxiliary water supply pipeline, and the spillway (Figure 8). Information collected is provided to NMFS and CDFW on an annual basis. Levelers, bubblers, transducers, etc. will require replacement when they malfunction or become damaged.

A flow measurement structure equipped with multi-path, ultrasonic velocity and water level measurement transducers is located in the fishway, downstream of the screenbay and upstream of the fish counter. A second flow measurement structure is located in the high-flow fish bypass behind the debris fence. The Auxiliary flow pipe is also equipped with a flow measurement transducer.

Level sensors are located in the forebay between the spillway and canal gates; in the high-flow fish bypass; screenbay; fishway (upstream and downstream of the Vaki Riverwatcher fish counter); and within the fish ladder (inside the fish ladder and outside the entrance to the fish ladder at the entrance pool). Two level sensors will be installed behind the fish screens to provide additional input to support screen testing that is underway and for operational and monitoring improvements. Additionally, there is one sensor located in the canal, outside of the Ventura River.

A bubbler is located at the measurement weir, upstream of the four rock weirs. The bubbler has a conduit mounted to the upstream face of the measurement weir. The conduit is occasionally damaged during heavy storms and the hose inside the conduit may need to be replaced. The conduit can also become buried with sediment, preventing its operation. The sediment will be removed to restore operation.

During the course of operations, instruments on the measurement weir may become damaged by flows or have operation interrupted due to accumulation of sediment or debris. In most cases instrumentation can be accessed allowing for its removal, repair, and subsequent reinstallation. Due to the shape of the weir, the amount of sediment that accumulates is expected to be minor and removal would be accomplished by hand or with hand tools. If the removal cannot be accomplished using hand tools, maintenance would be deferred to a period of dry conditions. Similarly, any major repairs to the measurement weir itself, which would require heavy equipment, would be conducted under dry conditions. Repair and maintenance of instruments will typically be completed within 1 to 2 weeks, and would not expand the footprint of the measurement weir or result in alterations to the river channel. These repairs would not expand the existing footprint of the weir, and no permanent or temporary impacts to jurisdictional areas requiring compensatory mitigation are anticipated.

If maintenance requires heavy equipment, there may be a delay before the onset of dry conditions when the maintenance can be performed. During this time, some or all of the instruments may be out of service and unable to make measurements. Casitas will use other methods, such as calculations based on other measuring instruments within the facility, to estimate river flows. In addition, a staff gauge will be painted onto the measurement weir in summer 2021 and will be resistant to damage. Using these methods will ensure that river flows can continue to be estimated while the primary instruments are pending repairs.

Road Maintenance (6E)

Road maintenance and repair will occur as needed (estimated annually) on Reclamation property during dry river conditions (Figure 8). It is anticipated road maintenance will require 2 to 3 weeks to complete, annually. The southern access road begins at the entrance gate to the Facility at the terminus of North Rice Road and continues southwest across the Ventura River. This road is typically used by light trucks and passenger vehicles at flows under 15 cfs. The northern access road transverses the Ventura River upstream of the forebay. This road is generally used by contractors to complete the forebay restoration project (Activity 1), annually. The roads will be graded and shaped each year, if needed, during dry conditions. Road maintenance may involve use of heavy equipment to re-contour and re-compact access roads including an excavator, grader, bulldozer or backhoe.

Table 2 shows the extent of temporary impacts to potentially jurisdictional areas resulting from road maintenance activities.

Table 3 Anticipated Temporary Impacts to Ventura River from Activity 6E

Feature	Waters of the U.S.[1]		Waters of the State[2] (acres/linear feet)	CDFW Jurisdictional Area[2] (acres/linear feet)
	Non-wetland Waters of the U.S. (acres/linear feet)	Wetland Waters of the U.S. (acres/linear feet)		
Southern and Northern Access Roads	0.37[3]/1,000	–/–	0.37[3]/1,000	0.37[3]/1,000

[1] Calculated to OHWM or edge of wetland

[2] Calculated to top of bank or edge of riparian

[3] Calculation excludes the portion of the access road which traverses the primary placement area (previously calculated in Activity 1B impacts) and the portion of the access road which crosses over the previously permitted concrete measurement weir.

3 Best Management Practices

The environmental Best Management Practices (BMP) presented in this section have been required pursuant to previously issued permits, authorizations and consultations with state and federal resource agencies, including under section 7 of the ESA. Casitas has implemented these BMPs during past maintenance and repair projects. The BMPs may be revised or augmented pursuant to the documents issued by NMFS and USFWS for the annual maintenance and repair program. Casitas will implement BMPs as they apply to each activity. Each spring, Casitas will prepare a maintenance and repair plan for the next fiscal year (July 1 – June 30), which will include a list of repair and maintenance activities planned, schedule and timing, and associated BMPs to be implemented for each activity.

A table of BMPs to be implemented for each activity is provided in Appendix E.

BMP-1 Work Period (Activities 1-6)

Maintenance and repair activities within the Ventura River shall occur only when the river is dry, with one exception. If water is present, the Activity 2 work area would be isolated from the Ventura River channel by shutting down the Facility, and allowing water to recede only enough to conduct the repair. If needed to access a specific work area, two double-screened pumps (5-10 horsepower) with 3 millimeter (mm) mesh may be used to route the remaining pooled water from the lower portion of the fish ladder into the canal before work is initiated. No earthwork shall be conducted during rain events, or if 0.25 inches or more of rain is forecast within 12 hours of scheduled work.

BMP-2 Environmental Training (Activities 1-6)

Prior to initiation of all maintenance activities (including staging and mobilization), all workers associated with project activities shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in recognizing special status biological resources that may occur in the project area. Casitas staff will attend a WEAP training annually. This training will include information on the biology and ecology of protected species, and the measures being incorporated to avoid take (e.g., for California red-legged frog (CRLF), least Bell's vireo (LBVI), SC steelhead, southwestern willow flycatcher (SWFL), critical habitat for SWFL and SC steelhead, and other species and critical habitat protected under the ESA.

The program shall include identification of sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and measures required to avoid and minimize impacts to biological resources within the work area. A poster and a fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with performing the maintenance or repair project. All employees shall sign a form provided by the trainer documenting they have attended the WEAP and understand the information presented to them. The project supervisor shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to sensitive species and their habitat.

BMP-3 Pre-construction Wildlife Surveys (Activities 1-6)

Within one week prior to the commencement of project activities, a qualified wildlife biologist shall conduct pre-construction surveys in all areas associated with project activities (work area, staging area, and access route) with focus on special status species including San Bernardino ringneck snake, coast patch-nosed snake, coast horned lizard, two-striped garter snake, western pond turtle and arroyo chub.

A qualified biologist will conduct a survey within the project area locations and document existing conditions and search for special status species. If San Bernardino ringneck snake, coast patch-nosed snake, coast horned lizard two-striped garter snake, western pond turtle, or arroyo chub are found in harm's way, individual animals shall be relocated to similar habitat away from construction activities, at least 200 feet from restoration areas in suitable habitat for the species.

BMP-4 Steelhead Pre-construction Survey (Activity 2)

For avoidance of effects to SC steelhead, as deemed appropriate by the Casitas Fisheries Program Manager, and in accordance with the existing BiOps or other regulating documents, Casitas staff will conduct a bank survey at the Facility for SC steelhead prior to commencing repair and maintenance activities within the fish ladder, screenbay, and high-flow fish bypass (Activity 2), if flowing water is present, a full shut down is required, and it is safe to do so. The critical maintenance and/or repair will be performed to maintain diversion and fish passage operations. If SC steelhead are observed during the survey, further coordination with Reclamation, NMFS, and CDFW biological staff will be conducted to determine the appropriate course of action before proceeding with work.

BMP-5 CRLF Pre-construction Surveys (Activities 1, 3, 4, 6A and 6E)

Prior to ground disturbing activities within Ventura River, Casitas staff or their contractor(s) or representative(s) will conduct surveys to confirm there are no CRLF in the Facility. Per USFWS guidance (USFWS 2005), and unless otherwise provided for by USFWS, because site specific conditions may warrant modifications to the timing of survey periods for CRLF, modified survey protocols shall be implemented as follows, prior to the start of maintenance or repair projects in suitable habitat for CRLF:

- One nighttime presence/absence surveys prior to the start Activities 1, 3, 4 and 6A.
- Once clearance survey immediately prior to the start of Activities 1, 3, 4 and 6A.

If CRLF is detected during the project, the observer shall notify the USFWS, CDFW and Reclamation biological staff within one workday of the detection and further coordination with the agencies will be conducted to determine the appropriate course of action before proceeding with work.

BMP-6 LBVI and SWFL Pre-Construction Survey (Activities 1, 3, 4, 6A and 6E)

If project activities must begin during the breeding season (February 1 – August 31), then a pre-construction nesting bird survey for LBVI and SWFL will be conducted immediately prior to project

activities within suitable habitat for the species. The survey will be conducted by a qualified biologist who possesses a valid 10(a)(1)(A) Recovery Permit, State Memorandums of Understanding (MOUs), and experience with the target species. If LBVI or SWFL nests are found, project activities would be set back a minimum of 500 feet from nest sites or avoided until the young have fledged.

BMP-7 Cover Excavations (Activity 6A)

Any steep-walled excavations that may trap California red-legged frog which will be left open overnight in areas within or adjacent to the Ventura River shall be covered and checked for California red-legged frog before resuming activities in the excavation.

BMP-8 Nesting Birds (Activities 1-6)

If maintenance or repair activities must begin during the breeding season (February 1 – August 31), a pre-construction nesting bird survey shall be conducted no more than seven days prior to initiation of ground disturbance and vegetation removal activities. Although presence of nesting migratory birds is unlikely, special emphasis shall be placed on potential occurrences of nests of SWFL and LBVI. The nesting bird pre-construction survey shall be conducted on foot and will include the entire area of disturbance, plus a 500-foot buffer around the work area. Inaccessible areas (e.g., private lands) will be surveyed from afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined so that take is avoided, and the area demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground-disturbing activities shall occur inside this buffer until the avian biologist has confirmed breeding/ nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

BMP-9 On-site Biological Monitoring (Activities 1, 2, 3, 4, 5, 6A and 6E)

A qualified biological monitor (with all of the required collection permits) will be onsite during all project operations that involve removal of the first 12 inches of soil/substrate, water diversions, de-watering, exposed (excavated) work areas, and work within sensitive habitat areas where sensitive species may be present. After the previously specified work activities are completed that require a monitor to be onsite, the monitor will then remain onsite for the remainder of the project (as work occurs in the Ventura River) for no less than two days per week, for a minimum two-hour period per day. Dependent upon work conditions and/or prolonged project activities, Casitas may potentially arrange for a decrease in biological monitoring with Reclamation, USFWS, NMFS, and CDFW.

BMP-10 Staging Equipment (Activities 1-6)

Staging and laydown areas shall be unvegetated areas and previously disturbed sites, outside of jurisdictional areas.

BMP-11 Pollutant Management (Activities 1-6)

All vehicles and equipment shall be in good working condition and free of leaks. Stationary equipment such as motors, submersible sump pumps, generators, and welders, located within or adjacent to the river shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from any logging, construction, or other associated project-related activity shall be allowed to contaminate the soil and/or enter into or placed where it may be washed by rainfall or runoff into the Ventura River. Any of these materials, placed within or where they may enter a stream, shall be removed immediately and disposed of properly. When project-related activities are completed, any excess materials or debris shall be removed from the work area.

BMP-12 Pollution Prevention (Activities 1-6)

Prevent the discharge of silt or pollutants off of the site when working adjacent to potentially jurisdictional waters. Install BMPs (e.g., silt barriers, sand bags, straw bales) as appropriate.

BMP-13 Material Storage (Activities 1-6)

Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage. Material storage shall be at least 100 feet from flowing water that could come in contact with Ventura River. Any material/spoils from activities shall be located and stored 100 feet from potential jurisdictional areas as practicable. Construction materials and spoils shall be protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

BMP-14 Tracking Loose Material (Activities 1-6)

BMPs such as street sweeping, vacuuming, and rumble plates will be implemented to prevent the off-site tracking of loose construction and landscape materials, as appropriate.

BMP-15 Stabilize Exposed Soil (Activities 1, 4, 6A and 6E)

To limit erosion, minimize soil disturbance work in channels and basins to that which can be stabilized prior to rain events.

BMP-16 Avoid Road Base Discharge (Activities 1 and 6E)

Do not place or spill road base, fill, or sediments beyond the previously established roadbed when working adjacent to channel bottom.

BMP-17 Concrete Washout Protocol (Activity 5)

Plastic-lined sandbag concrete wash out pits stationed in uplands are required where concrete placement occurs. A vacuum system may be utilized when sandblasting or jackhammering of concrete occurs to avoid release of materials into channels or surface waters. If a vacuum system is not utilized, appropriate BMPs (i.e. visqueen plastic sheeting) to contain the work area, collect/contain concrete debris, and prevent such materials from entering the Ventura River (even in dry conditions) shall be implemented. Fluids associated with the curing, finishing, and wash-out of concrete shall not be discharged to the channel or basin. Concrete wastes (liquid, dust, solids) shall be stockpiled separately from sediment and protected by erosion control measures to prevent discharge to the Ventura River. Conduct appropriate waste management practices based on considerations of flow velocities, site conditions, suitability of erosion control materials, and construction costs.

BMP-18 Site Materials and Refuse Management (Activities 1-6)

All food-related trash shall be disposed in closed containers and removed from the project area each day during the construction period. Construction personnel shall not feed or otherwise attract wildlife to the construction area. At project completion, all project-generated debris, vehicles, building materials, and rubbish shall be removed from the impact area.

BMP-19 Re-fueling and Maintenance (Activities 1-6)

All re-fueling, cleaning, or maintenance of equipment will occur at least 100-feet from the Ventura River.

BMP-20 Responding to Spilled Materials (Activities 1-6)

A Spill Prevention Plan will be prepared and implemented throughout the project. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned immediately, and any contaminated materials properly disposed. For all spills, the project foreman or other designated liaison will notify Casitas immediately.

BMP-21 Best Management Practice to Prevent Erosion (Activities 1-6)

Spoil shall be spread in the designated disturbed area outside of jurisdictional areas (with the exception of sediment to be placed in the primary placement area, as discussed for Activity 1B). Spoil shall be spread to avoid or minimize risk of erosion.

BMP-22 Speed Limits (Activities 1-6)

Project-related vehicles will observe a daytime speed limit of 15 miles per hour throughout the impact areas. Night work will be avoided to the maximum extent possible; however, if night work must occur (e.g., Activity 2), the speed limit for transport and spreading material shall be reduced to 10 miles per hour. Off-road traffic outside of designated impact areas is prohibited.

BMP-23 Noxious Weeds and Invasive Species (Activities 1-6)

To avoid the introduction or spread of noxious weeds and invasive biota into areas not infested, Casitas staff or its contractors, with the assistance of the biological monitor, will implement the following measures:

a. Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations;
b. Conduct a follow-up inventory of the construction area to verify construction activities have not resulted in the introduction of new noxious weed infestations; and
c. If new noxious weed infestations are located during the follow-up inventory, the appropriate resource agency shall be contacted to determine the appropriate species-specific treatment methods for removal and the noxious vegetation shall be removed.
d. Implement measures as appropriate from Reclamation Technical Memorandum No. 86-68220-07-05. Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species. 2012 Edition

BMP-24 Noxious Vegetation Removal (Activities 1-6)

Any noxious vegetation identified by Casitas staff or biological monitor shall be removed from the work area, soil disposal areas, upland areas, and around the perimeter of the concrete-lined portions of the Facility. Noxious vegetation shall be disposed of in a manner and at a location to prevent its re-establishment. Noxious species will be removed by hand or by hand-operated power tools, rather than by chemical means. Casitas staff or contractors will perform chipping of giant reed (*Arundo donax*) and disperse chipped material in designated locations where materials would not wash downstream or be allowed to propagate. All cut/removed noxious vegetation will be taken to a dump as a destruction load.

4 Annual Monitoring and Reporting Program

The annual implementation of the Annual Maintenance and Repair program with the adopted environmental BMPs and long-term permits is shown on Figure 9. Each spring, Casitas will prepare a maintenance and repair plan for the next fiscal year (July 1 – June 30). The plan may be updated during the year as field conditions change. Under the proposed action, Casitas will identify the proposed maintenance and repair work for the year, BMPs to implement with the planned maintenance work, including any seasonal or geographic restrictions affecting the timing, methods, and limits of the planned work. It will be necessary for Casitas biologists to conduct site visits to certain locations, and to utilize a qualified specialized biologist in some instances. Using the information from Casitas staff (and a qualified biologist, if necessary), the annual maintenance and repair plan will be completed. A list of work planned for the Robles Diversion and Fish Passage Facility will be submitted to the USACE, CDFW, LARWQCB, USFWS, NMFS and Reclamation at that time.

As mentioned in Section 2.4.1, with regard to excavation of sediment from the forebay, Casitas will conduct a photogrammetric aerial survey in April/May each year, following the rain season and prior to annual excavation of the forebay. This post-rain season survey will be used in conjunction with the annual fill design plan to determine how much sediment can be placed downstream each year. The quantities of sediment to be placed downstream of the timber cut-off wall each year, and results of the photometric aerial survey, will be presented in the annual maintenance and repair plan.

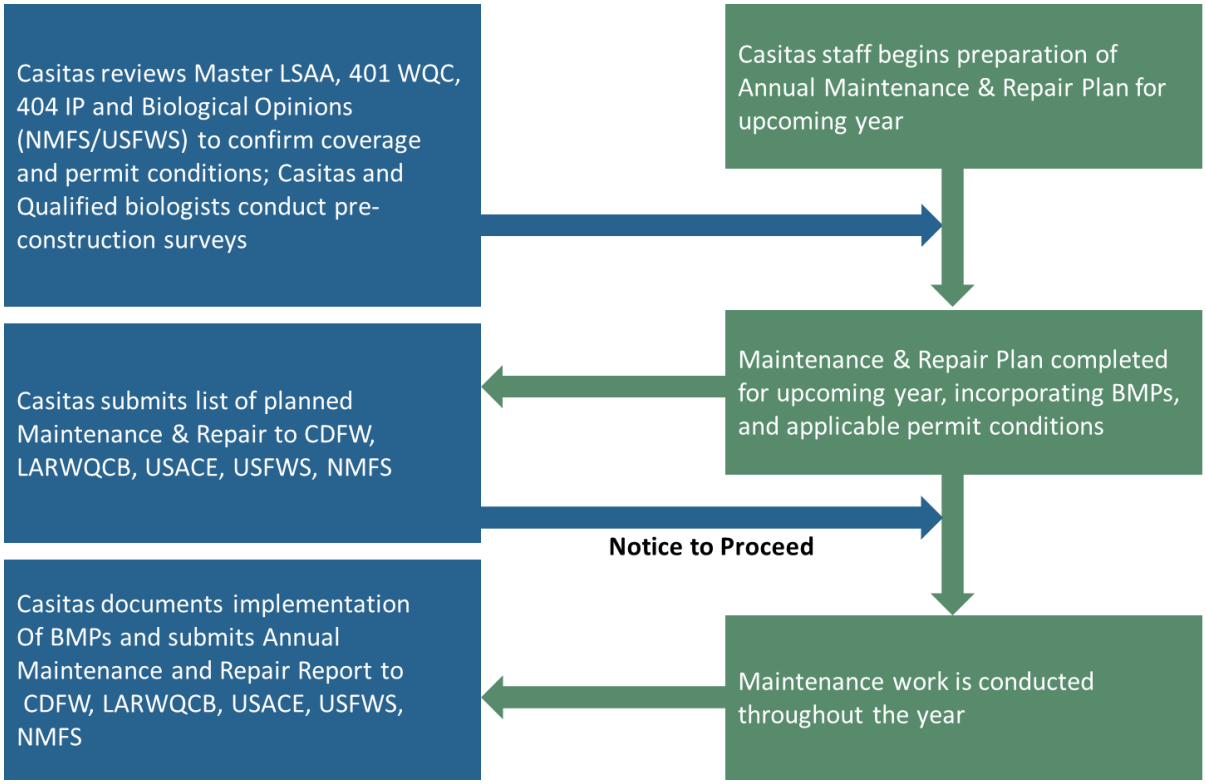
Casitas expects all regulatory agencies to issue a Notice to Proceed (NTP) for permitted activities within 30 days of receiving the list of planned maintenance and repair activities. If Casitas does not receive a response within 30 days, it shall be assumed the NTP is issued and work can begin.

Casitas will coordinate the implementation of the environmental BMPs (Section 3) and permit conditions during the course of the year, as described above. At the end of the year, an annual report documenting all work performed and the successful use of the BMPs will be submitted to USACE, CDFW, LARWQCB, USFWS,NMFS, and Reclamation for their records. Table 4 provides critical milestones for the proposed program. Section 5 includes a template for year-end reporting to the agencies.

Table 4 Annual Repair and Maintenance Program Milestones

Annual R&M Program Milestones	Timeframe
Pre-restoration/Post Winter Survey (Forebay)	April/May
Annual Maintenance and Repair Plan submitted to the resource agencies	May 30
Meeting to discuss Plan with Agencies/NTP	June
Perform Maintenance and Repair Work	July through November (dry conditions)
Post-Restoration Survey (Forebay)	October
Annual Monitoring Report submitted to resource agencies	May 30

Figure 9 Annual Monitoring and Reporting Flow Diagram



5 Annual Reporting

On an annual basis, Casitas will provide the regulatory agencies with information regarding Casitas' routine maintenance and repair activities for the previous and current year. The information will be submitted in spreadsheet format under a cover letter signed and dated by the General Manager by May 30, and will include the following:

5.1 Maintenance Activity

- Activity number
- Description of activity
- BMPs implemented
- Start and end dates of the maintenance activity
- If the activity requires the removal of sediment, the starting and ending elevations and the cubic yards of sediment removed will be provided.
- If vegetation is removed, Casitas will describe the type of vegetation (i.e. native or invasive) and the method of removal and site of disposal.
- For vegetation removal in Ventura River, the linear feet of removal will be provided.
- Comments regarding condition of Facility will be noted as needed.

5.2 Forebay Sediment Removal and Relocation

The Annual Report will also include the results of the photometric aerial survey to be conducted in April/May each year, and a discussion including the following components:

- Proposed Sediment Removal and Relocation Activity (to occur in August/September each year)
- Discussion of Previous Rain Events
  - Specify if over-topping of timber cut-off wall occurred (i.e. when, and the duration of over-topping)
  - Magnitude and duration of storm events post-placement of sediment through April 30.
- Adaptive Management Strategy
  - A summary of the proposed approach for sediment removal in August/September (including quantities of sediment to be removed and relocated based on approved 2019 fill design.

Appendix A

Robles Diversion Fish Passage Facility Permits and Agreements (2001)

State of California - The Resources Agency

GRAY DAVIS, *Governor*

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201

ACT INFO
☐ ☒ GM JJ
☐ ☐ ADMIN
☐ ☐ ENGR
☐ ☐ O & M
☐ ☐ PARK Bd
☐ ☒ FILE

July 11, 2003

RECEIVED
JUL 14 2003
CASITAS
MUNICIPAL WATER DISTRICT

Flex your POWER

Mr. John Johnson
Casitas Municipal Water District
1055 Ventura Avenue
Oak View, CA 93022

Dear John Johnson:

We are sending this letter to clarify the Department of Fish and Game's issuance of a Streambed Alteration Agreement for the Robles Diversion Fish Passage Facility. A question arose as to why the Agreement proposes to cover the construction of the project and a stipulated period of operations and maintenance following construction. We believe that it is only prudent to issue separate Streambed Alteration Agreements for construction/initial operation and then for the long-term operations and maintenance thereafter. This is due to the potential for modifications to arise during construction or in the immediate post-construction period which could affect the operation and maintenance. Allowing the facility to be completed and operated for a limited period under our initial agreement gives the project proponent time to identify and fine tune the operations and maintenance procedure without having to be locked into an agreement that is not practicable. We are prepared to issue the initial Agreement for up to 24 months from the completion of construction, and will expedite execution of that document to assist Casitas in moving forward with the bidding process.

As you know, the Department, as a member of the Technical Advisory Group, informally participated in the formal Section 7 consultation between the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the Bureau of Reclamation (BOR) for this project. The Department agrees with, and fully supports, the Biological Opinion issued in March 31, 2003. We believe that the interim water releases that will occur during and for a limited time following the construction phase, as well as the guidance in the operation and maintenance criteria identified in the Biological Opinion will minimize the take of federally endangered steelhead. The Department intends to use the Biological Opinion, and the incidental take permit as the basis for the subsequent Streambed Alteration Agreement that will be issued for the long-term operations and maintenance of the Robles Diversion and Fish Passage Facility, and additional factors would be based on data obtained during the first two years and input from the Robles Diversion and Fish Passage Facility Management Committee.

If you have any further questions or concerns about this issue, please call Ms. Mary Larson, Senior Biologist Specialist, (562) 342-7186.

Sincerely,

C. F. Raysbrook
Regional Manager
South Coast Region

cc: Department of Fish and Game
Mary Larson, Los Alamitos
Martin Potter, Ojai
Betty Courtney, Newhall
CFR-Chron; HCP-Chron

National Oceanic and Atmospheric Administration-Fisheries
Jim Lecky

U.S. Bureau of Recamation
David Young

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STATE OF CALIFORNIA-THE RESOURCES AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, California 92123
(858) 467-4201
FAX (858) 467-4235

Flex your POWER

August 04, 2003

Casistas Municipal Water District
Attn: John Johnson
1055 Ventura Avenue
Oak View, CA 93022

Dear Mr. Johnson:

Enclosed is Streambed Alteration Agreement **R5-2002-0055** that authorizes work on the Robles Diversion Dam Fish Screen and Fishway project impacting Ventura River in Ventura County. This action is authorized under Section 1600 of the Fish and Game Code and has been approved by the California Department of Fish and Game. Pursuant to the requirements of the California Environmental Quality Act (CEQA), the Department filed a Notice of Determination (NOD) on the project on 8/4/03. Under CEQA regulations, the project has a 30-day statute of limitations on court challenges of the Department's approval under CEQA.

The Department believes that the project fully meets the requirements of the Fish and Game Code and CEQA. However, if court challenges on the NOD are received during the 30-day period, then an additional review or even modification of the project may be required. If no comments are received during the 30-day period, then any subsequent comments need not be responded to. This information is provided to you so that if you choose to undertake the project prior to the close of the 30-day period, you do so with the knowledge that additional actions may be required based on the results of any court challenges that are filed during that period.

Please contact Martin Potter at (805) 640-3677 if you have any questions regarding the Streambed Alteration Agreement

Sincerely,

for C.F. Raysbrook
Regional Manager

Enclosure
cc: Martin Potter

ACT	INFO	
☐	☑	GM
☐	☐	ADMIN
☐	☐	ENGR
☐	☐	O & M
☐	☐	PARK
☐	☐	
☐	☐	FILE

RECEIVED
AUG 07 2003
CASITAS
MUNICIPAL WATER DISTRICT

CALIFORNIA DEPARTMENT OF FISH AND GAME
4949 Viewridge Avenue
San Diego, CA 92123

June 27, 2003

Notification No. R5-2002-0055.

AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and the Casitas Municipal Water District, State of California, hereinafter called the Operator, is as follows:

WHEREAS, pursuant to Section 1601 of the California Fish and Game Code, the Operator, on the 8th day of February, 2002, notified the Department they intend to divert or obstruct the natural flow of, or change the bed, channel, or bank of, or use material from the streambed of the following water: Ventura River , Ventura County, California.

WHEREAS, the Department (represented by Martin Potter, Betty Courtney, and Maurice Cardenas) has made an inspection of the subject area on the 15th day of May, 2003, and has determined that such operations may substantially adversely affect existing fish and wildlife resources including: fishes (**steelhead**), amphibians (pacific tree frog, western toad, pacific chorus frog), reptiles (fence lizard, king snake, gopher, and garter snakes), birds (house finch, sparrow, jay, **swallows**, yellowthroat, dove), raptors, mammals (coyote, raccoon, woodrat), native plants (willows, sycamores, coast live oaks) non-native plants (giant cane) and other aquatic and wildlife resources in the area.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife resources during the Operator's work. The Operator hereby agrees to accept the following measures/conditions as part of the proposed work.

If the Operator's work changes from that stated in the notification specified above, this Agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this Agreement and with other pertinent code sections, including but not limited to Fish and Game Code Sections 5650, 5652, 5901, 5931, 5937, and 5948, may result in prosecution.

Nothing in this Agreement authorizes the Operator to trespass on any land or property, nor does it relieve the Operator of responsibility for compliance with applicable federal, state, or local laws or ordinances. A consummated Agreement does not constitute Department of Fish and Game endorsement of the proposed operation, or assure the Department's concurrence with permits required from other agencies.

11/15/04 JJ 7-24-03 MP

This Agreement becomes **effective the date of the Department's signature** and the construction portion **terminates on** ~~**10/15/2004**~~. This Agreement shall remain in effect to satisfy the terms/conditions of this Agreement. Any provisions of the agreement may be amended at any time provided such amendment is agreed to in writing by both parties. Mutually approved amendments become part of the original agreement and are subject to all previously negotiated provisions.

STREAMBED ALTERATION CONDITIONS FOR NOTIFICATION NUMBER: R5-2002-0055

1. The following provisions constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that the Operator is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement, shall be subject to separate notification pursuant to Fish and Game Code Sections 1600 et seq.

2. The Operator proposes to alter the streambed to install a structure to allow the passage of fish around the Robles Diversion Facility and Robles Diversion Dam. The primary project features include a fish screen, flow control structure, flow measurement section, fish guidance device, fishway, auxiliary water supply, high and low flow fish exit channels, a baffled apron, and a series of low-head stone weirs allowing for the removal of the existing concrete road crossing downstream of the spillway

The project components are further described as follows:

Fish Screen and Diversion Structure – The fish screen structure will consist of vertical, stainless steel, wedge-wire screen panels aligned horizontally in series in a chevron configuration within the diversion flume. The fish screen assembly, approximately 120 feet long, will be installed to prevent entrainment of adult and juvenile steelhead within the water diverted to Lake Casitas. The fish screen panels will be continuously cleaned using mechanical traveling brush mechanisms. The brush cleaning system will be operated via electric motors, activated manually or automatically, at preset time intervals.

500 CFS
2
7-11-03
MP

The fish screen surface area was designed according to the Operator's historic maximum diversion rate of plus **50 cfs for the fishway** and an additional **121 cfs** for the auxiliary water supply pipeline, for a combined total of **671 cfs**. In order to account for inefficiency in the fish screen system (*e.g.,* potentially non-uniform flow, debris, *etc.*), the system was over-designed for a maximum capacity of 726 cfs. Given the proper hydrologic and climatic conditions, The Operator may divert more than 500 cfs, up to either the fish screen limit or the diversion canal limit, whichever is less. The fish screen capacity will be determined during operation of the system. In practice, it is anticipated that The Operator will not divert more than 550 cfs. The design will comply with the criteria of the Department and the National Marine Fisheries Service (NMFS). The approach velocity will not exceed 0.4 feet per second, and the sweeping velocity will be at least two times greater.

Adjustable, perforated plate baffle assemblies will be installed behind the fish screen panels to uniformly distribute approach velocities throughout the screen face. The porosity control devices will be implemented to prevent the occurrence of "hot spots" or areas where the approach velocity exceeds 0.4 feet per second.

The screen will be located between the existing headworks structure and concrete-lined diversion canal. The entire screen assembly will be installed within a new reinforced concrete flume with a width and height of 40.0 and 11.7 feet, respectively. Installation of the fish screen assembly will require excavation of 10,800 cubic yards of material, of which 5,600 cubic yards will be used as backfill and 5,200 cubic yards spoiled at The Operator's existing spoil area.

Approximately 350 lineal feet of the existing concrete-lined diversion canal, including a 74-foot-long Parshall flume, will be removed for construction of the fish screen and diversion structure. Approximately 75 cubic yards of reinforced concrete from demolishing the Parshall flume will be disposed at a facility appropriately licensed to accept the material.

Approximately 950 cubic yards of new reinforced concrete will be placed to construct the new flume.

Flow Control Structure – The flow control structure will consist of a 20-foot wide rectangular flume section containing a single-leaf, overshot gate. The "overshot" gate will be electronically actuated to maintain a design forebay water surface elevation, and to provide the desired rate of diversion. The overshot gate will function as an adjustable weir. The gate will be operated manually or automatically according to a predetermined control logic subroutine.

When the gate is fully raised, the diversion process will be discontinued. Under normal operation, the radial gates at the headworks structure will be fully opened, and diversion control will be provided by the flow control structure.

Under current operation, if The Operator is not diverting water to Lake Casitas, the spillway gates are fully raised. The proposed project requires The Operator to modify its current operation of the spillway gates and to use them to create a forebay pool, during the entire diversion season. In order to avoid trapping steelhead in the forebay pool at the end of the season, the low-flow fish exit channel gate will be raised to release water and fish. The low-flow fish exit will remain open during the summer and fall when The Operator is not diverting water. During brief periods of high runoff, the spillway gates will open as necessary to maintain the designated water surface elevation in the forebay.

Construction of the flow control structure will require excavation of 3,000 cubic yards of material, of which 1,600 cubic yards will be used as backfill and 1,400 cubic yards will be spoiled at The Operator's existing spoil area. Approximately 250 cubic yards of new reinforced concrete will be placed to construct the new flume.

Flow Measurement Structure – A section of the canal downstream of the flow control structure will be equipped with multi-path, ultrasonic velocity and water level measurement transducers. The measured data will be relayed to a central programmable logic controller (PLC) for flow monitoring and flow control/gate actuation purposes. The structure instrumentation will document and record the amount of water diverted from the Ventura River to Lake Casitas.

Fish Guidance Device – The fish guidance device will be located within the diversion flume downstream of the headworks structure. The device will be aligned at approximately 25 degrees to the flume centerline, and will span almost its entire length. The fish guidance device consists of a series of slotted panels constructed of evenly spaced, vertically aligned, profiled louver vanes.

The primary objective of the guidance device is to direct adult upstream migrants toward the entrance of the high-flow exit channel. The project feature will ensure that upstream-migrants do not exit through the existing headworks structure, risk being captured within transverse velocities and swept downstream through the spillway structure. The high-flow exit channel is aligned to relocate the point of exit in the river or forebay approximately 200 feet upstream of the spillway structure where velocities are much less. The downstream end of the fish guidance device will include a covered slot, or fyke, enabling downstream migrants to negotiate past the fish guidance device while preventing upstream migrants from passing through. The fish guidance device will be configured to accommodate the safe passage of downstream migrating adult and juvenile steelhead.

Fishway – The fishway will be a vertical slot type, designed to function at flows of 10 to 50 cfs. It will facilitate upstream passage of adult steelhead around Robles Diversion Dam. The fishway will function for upstream migrating steelhead as well as downstream migrating juvenile and adult steelhead. Flow into the fishway will be self-regulating according to forebay and tailwater surface fluctuation. The entrance into the fishway will be located adjacent to the existing spillway abutment and immediately downstream of the spillway structure.

The fishway design flow is 1,500 cfs. The attraction flows will come from the combination of the fishway (50 cfs) and the auxiliary supply pipeline (121 cfs), as outlined for stormflow supplementation operations criteria in the Biological Opinion. These flows will be maintained during the migration period. The control slide gate will be adjusted automatically according to measured flow in the Ventura River and the pipeline to maintain the proper flow relationship.

The fishway will be approximately 360 feet long and consist of a sloped, rectangular flume partitioned by vertical slot baffles that are located at equal increments, creating a step-like arrangement of resting pools. The flume will be 8.0 feet wide with 16.0-foot high walls. The structure will be constructed of reinforced concrete, and entirely covered with galvanized steel grating for operational access, support and debris fallout protection. The fishway entrance will contain five vertical slots aligned perpendicular, 30 degrees to, and parallel with the streamflow. The slots can be manipulated to generate optimum fish attraction and will be equipped with stoplog channels to allow for closure during periods when the ladder is non-operational. The fishway exit will interface the fish screen via a rectangular channel and full-height vertical slot.

Construction of the fishway will require excavation of approximately 7,000 cubic yards of material, of which 5,000 cubic yards will be used as backfill and 2,000 cubic yards placed at The Operator's existing spoil area. Approximately 700 cubic yards of reinforced concrete will be required for construction of the fishway.

An entrance pool will be located at the fishway entrance to aid migrating fish into the fishway. One thousand cubic yards of material will be excavated to create the pool, all of which will be placed at the above-mentioned facility.

Auxiliary Water Supply Pipeline – The auxiliary water supply pipeline will introduce supplemental flow into the fishway at the entrance pool to enhance fish "attraction." As noted previously, the fish passage design flow is 1,500 cfs. The combination of the fishway (50 cfs) and the auxiliary supply pipeline (121 cfs) will provide the necessary downstream release capacity to meet the stormflow supplementation operations criteria stated in the Biological Opinion. The auxiliary supply flow will be conveyed through an HDPE pipeline and introduced through the sidewall of the initial entrance pool of the fishway. To avoid the capture and entrainment of migrating fish at the pipeline inlet, the auxiliary water will be diverted downstream of the fish screen. Accordingly, the fish screen will be designed to accommodate both The Operator's historic maximum diversion rate of 500 cfs plus the additional auxiliary water supply flow of ~~100~~ 121 cfs.

The auxiliary water supply will consist of an inlet control slide gate, a high-density polyethylene pipeline, a flowmeter, and an outlet diffuser structure. The diffuser will placidly introduce the supplemental flow into the entrance pool to avoid flows that could be injurious or confusing to fish. The inlet will be located downstream of the fish screen to avoid the risk of entrainment, and upstream of the proposed flow control structure to maintain submergence under all diversion conditions. The pipeline will be installed adjacent to the fishway. The 325-

foot HDPE pipeline and concrete diffuser structure will utilize the open trench excavated for the fishway, therefore no additional excavation will be required.

Fish Exit Channels – Two fish exit channels are included in the proposed project. The high-flow exit channel will function as the primary migration route throughout the diversion season. The high-flow exit channel is included, as previously mentioned, to prevent "fall-back" through the spillway structure by relocating the point of exit further upstream where conditions will be more favorable. The high-flow exit channel will operate at a flow rate of 40 cfs to 50 cfs. A low-flow exit channel is also included to circumvent the ambiguity of assigning a specific cut-off point at which the fish passage facilities are to be taken off-line. The purpose of the low-flow exit channel is two-fold. The channel will allow the forebay to self-drain at the end of the diversion season, thereby eliminating the forebay, which creates an attraction nuisance. The low-flow channel will also provide a means for fish passage during lower flows (less than cfs).

The low-flow channel will be opened at the end of the diversion season to drain the forebay. It will remain open until The Operator decides to begin diverting during the following rainy season, allowing any fish and water to bypass the system. Historically, The Operator allows the first few storms to move through the Robles Facility without diverting any water. These storms flush debris out of the system and act to recharge the alluvial groundwater basin. At the beginning of the diversion season, the low-flow fish exit will be closed to allow the forebay to fill in preparation for diversions. Once the forebay is full, the headworks of the diversion structure can be opened to provide a fish exit.

The high-flow exit channel will transition into an exit structure with a 54" slide gate, electric actuator, and steel trash rack, terminating at the Ventura River approximately 200 feet upstream of the spillway structure. The high-flow exit channel, including the exit structure, will be approximately 330 feet long. The high-flow exit channel will consist of a 5-foot wide by 12-foot deep rectangular reinforced concrete flume that interfaces with the fish screen structure just downstream of the guidance device. The low-flow exit channel inlet will be located between the existing headworks and spillway structures and will tie into the diversion flume downstream of the headworks structure. The low-flow exit channel will consist of a 3-foot wide by 17-foot high by 40-foot long concrete channel with a 60-inch slide gate and electric actuator. The channel walls will be constructed to existing grade and covered with galvanized steel grating.

Construction of the fish exit channels will require excavation of 5,000 cubic yards of material, of which 4,000 cubic yards will be used as backfill and 1,000 cubic yards placed at the above-mentioned facility. Approximately 600 cubic yards of reinforced concrete will be required for construction of the fish exit channels.

Streambed Modifications – A baffled apron structure and a series of low-head stone weirs will be included in the project to provide effective fish passage to the fishway entrance while maintaining a stable riverbed. The construction zone for the proposed streambed modifications is immediately downstream of the Robles Diversion spillway. This area is likely considered part of the designated critical habitat for steelhead in the lower Ventura River.

The baffled apron structure will be constructed immediately downstream of the existing spillway apron. The baffled apron will be a reinforced concrete sill with baffle blocks on a sloping concrete slab. The baffle blocks will be distributed over the sloping concrete slab in accordance with the criteria of the U.S. Bureau of Reclamation (USBR) to dissipate energy and limit the extent of turbulent flow in to the entrance pool. The USBR's criteria have been

widely applied for energy dissipation at hydraulic structures. This will function to minimize competing attraction flows from the spillway and obscuring the fishway entrance by flows from the spillway. The sill and baffled apron structure will dissipate excess energy by creating a hydraulic jump within the existing spillway structure throughout the design flow range (0 cfs to 1,500 cfs). The structure will tie into the downstream end of the existing spillway apron with an abrupt invert offset, or sill, and will descend into the entrance pool at the base of the fishway at a 2:1 slope. The apron will be embedded approximately 10 feet into the entrance pool to control the extent of scour.

The channel below the spillway is straight, approximately 40 to 60 feet wide with banks at a 2:1 slope. The streambed and bank substrate consists of large cobble and boulders 1 to 2 feet in diameter. The top of the banks are covered with a relatively young stand of three to five-year-old willows.

Approximately 450 feet downstream from the spillway structure, a concrete low flow measuring weir/roadway is constructed across the spillway channel. The crossing currently functions as a grade stabilization structure, generating a drop of approximately 5 feet in the water surface profile and obstructing steelhead migration at low flows. To correct this, a series of fifteen (15) low-head stone weirs will be installed within the channel at uniformly spaced increments throughout a reach of approximately 800 feet downstream of the existing spillway structure. The series of weirs is designed to produce a step-pool arrangement conducive to upstream fish passage through the spillway channel up to the fishway entrance. In addition, the system will stabilize the streambed, provide the necessary submergence of the fishway entrance, and help maintain a consistent low-flow channel.

The weirs are designed to be approximately 40 feet wide in an arc with the low point in the center, and will be keyed into the embankments a minimum of 4 to 6 feet. Native stone (*i.e.*, cobbles and boulders) will be embedded in a grouted stone footing to a depth of 1/3 of the stone's diameter. Boulders will be anchored to and embedded into the weir footings to prevent undermining the structural support of the weirs, and to prevent erosion of the banks. The center of the low-head stone weirs will be approximately 1 foot lower than the outer edges, thus concentrating the flow towards the center and creating a consistent low flow channel, and reducing the potential for bank scour. Step-pools will exist on the downstream side of each weir. The low-head stone weirs will have a maximum height of 18 inches from the bottom of the downstream pool to the top of the weir. When water is present, this should result in passable conditions for both adult and juvenile fish. The streambed downstream of the weirs will be armored with native material (*i.e.*, cobbles and boulders) to prevent the development of excessively large scour holes.

The existing concrete road crossing will be removed and replaced with grouted rock constructed at the grade of the new riverbed at the location of the existing road crossing. The new road crossing will have the same dimensions as the existing road crossing (12 feet wide), but will be at the new riverbed elevation through the entire width of the channel. The road on either side of the channel will be cut into the bank to eliminate the need for any elevation increase within the channel. The low-flow crossing will be placed immediately upstream of a low-head stone weir (Figure 2). This will ensure that the crossing will not become a fish passage barrier. This crossing will only be usable at flows under 15 cfs, when steelhead are likely to be absent from this reach.

A 30-foot area along the top of both banks will be cleared and graded to provide access for modifying the gradient of the channel and construction of the weirs. This will result in the temporary removal or disturbance of riparian vegetation during construction. The

impacted area is approximately 24,000 square feet or 0.55 acres.

Installation of the low-head stone weirs will impact approximately 1.7 acres of the streambed. Approximately 15,000 cubic yards of material will be excavated, of which 11,000 will be spoil. Approximately 4,000 yards of graded and processed material will be screened from the spoil and will be used to construct the weirs and armor the pool inverts. Approximately 1,000 yards of lean concrete (*i.e.*, concrete with reduced Portland cement content) will be used to anchor the stone weirs into the embankments and streambed.

Maintenance of the stone weirs should be minimal and limited to debris removal, and will occur only during dry conditions when the channel is dewatered. Since the gradation and boulder size is large in relation to conventional design standards, scour of the restoration area should be nominal. Inspections will be conducted early in the service life of the system and on an ongoing basis immediately following significant flood events. The inspections will involve identifying undercutting or flanking around the weirs and repairing, as necessary. Significant movement of the boulders or armoring material will be restored following the guidance of NMFS and USFWS. If removal or disturbance of the riparian vegetation is required, appropriate restoration will be conducted.

The successful passage of fish requires using the physical structures described above. Regardless of flow within the Ventura River, a forebay must be maintained upstream of the existing spillway structure for the fish passage facilities to function properly.

Earthwork for the above-mentioned facilities will involve the use of hydraulic excavators and loaders, bulldozers, and off-road earth-hauling trucks. All construction equipment will be well maintained to ensure that exhaust is minimized. All equipment, while not in use, will be stored at two staging areas, one on each side of the river (Figure 2). The main staging area will be located southwest of the Robles Diversion Dam, between the existing access road and the Robles Diversion Canal on a large flat approximately 1.4 acres in size. An additional staging area, of approximately 0.75 acres in size, will be located east of the spillway channel.

The concrete supply will probably be accomplished with placements ranging from approximately 50 to 150 cubic yards per day. The existing concrete canal lining will be broken, crushed, and placed with the excavation spoil. Approximately 75 cubic yards of reinforced concrete from demolishing the Parshall flume will be disposed at a facility appropriately licensed to accept the material. All excess excavated material for the entire project will be spoiled at The Operator's existing spoil area on the right bank approximately 500 feet upstream from the Robles Diversion Facilities. This spoil basin is located completely outside the high flow channel, and separated from the river channel by a raised berm. The spoil material will be used by The Operator at a later time for construction of road basins and/or slope and embankment maintenance, and will not affect the capacity of the existing spoil area. A qualified archeologist will be present during all necessary excavations to ensure that no cultural resources will be damaged.

Work within or adjacent to the waterway includes the fish exit structure on the right bank approximately 200 feet upstream of the existing spillway structure, excavation for construction of the fish ladder entrance on the right bank just downstream of the spillway structure, incorporation of the baffled apron into the existing spillway structure, and modification of approximately 800 feet of the existing spillway channel via incorporation of low-head stone weirs and the low-flow crossing. Work within the forebay or spillway channel, downstream of the existing spillway structure, will be performed during periods of no flow. This will ensure the absence of steelhead, that water quality is maintained, and erosion minimized.

3. The agreed work includes activities associated with No. 2 above. The project area is located in **Ventura** County (Thomas Guide Page 441, C4). Specific work areas and mitigation measures are described on/in the plans and documents submitted by the Operator and shall be implemented as proposed, unless directed differently by this agreement. Contact Neil Cole at **Phone: (805) 649-2251, ext. 107** for additional information.

4. **COPIES OF THIS** AGREEMENT AND ALL REQUIRED PERMITS AND SUPPORTING DOCUMENTS, **PROVIDED WITH NOTIFICATION OR REQUIRED BY THIS AGREEMENT SHALL BE READILY AVAILABLE AT WORK SITES AT ALL TIMES DURING PERIODS OF ACTIVE WORK.**

5. The Operator shall request an extension of this agreement prior to its termination. Extensions may be granted for up to 12 months from the date of termination of the agreement and are subject to Departmental approval. The extension request and fees shall be submitted to the Department's Region 5 Office at the above address. If the Operator fails to request the extension prior to the agreement's termination, then the Operator shall submit a new notification with fees and required information to the Department. Any activities conducted under an expired agreement are a violation of Fish and Game Code Section 1600 et. seq.

6. The Operator certifies by signing this agreement that the project site has been surveyed and shall not impact any rare, threatened or endangered species; or the Operator certifies that such a survey is not required for the proposed project. If rare, threatened or endangered species occur within the proposed work area, or could be impacted by the work proposed, the Operator shall consult with the Department and obtain any required State and/or Federal permits.

<<WORK AREAS AND VEGETATION REMOVAL>>

7. Disturbance or removal of vegetation shall not exceed the limits approved by the Department. The disturbed portions of any stream channel or lake margin, within the high water mark of the stream or lake, shall be restored to their original condition under the direction of the Department.

8. Restoration shall include the revegetation of stripped or exposed work and/or mitigation areas with vegetation native to the area.

9. The work area shall be flagged to identify its limits within the stream. Vegetation shall not be removed or intentionally damaged beyond these limits.

10. In **areas of temporary disturbance**, where vegetation must be removed, native trees and shrubs, with DBHs of 3 inches or less, shall be cut to ground level with hand operated power tools rather than by grading.

11. Vegetation removed from the stream shall not be stockpiled in the stream bed or on its bank. The sites selected on which to push this material out of the stream should be selected

in compliance with the other provisions of this Agreement. Where possible brush piles shall be left outside the channel in upland areas to provide wildlife habitat.

12. A complete inventory of plants, by species and Diameter at Breast Height (DBH), which will be removed shall be submitted to the Department within 30 days of signing this Agreement.

13. No equipment shall be operated within the dripline of oaks. Protective fencing shall be placed around the dripline of oaks to prevent compaction of the root zone.

14. Any oaks, CA black walnuts and sycamores which are damaged/removed during construction operations shall be replaced in kind at a 10:1 ratio. Willows shall be replaced at a ratio of 5:1.

15. Any oaks which must be **removed** shall be replaced in kind. The replacement ratios* (using rooted plants in liners or direct planting of acorns) for plants which are to be removed shall be as follows: plants less than 5 inches DBH shall be replaced at 3:1; plants from 5 to 12 inches shall be replaced at 5:1; trees from 12 to 24 inches shall be replaced at 10:1; trees from 24 to 36 inches shall be replaced at 15:1; all oaks greater than 36 inches shall be replanted at a ratio of 20:1. **The replacement ratio for damaged trees shall be 2:1 for plants with DBH less than 12 inches. The replacement ratio for damaged trees shall be 5:1 for plants with DBH greater than 12 inches.** (The Department recommends that the Operator using rooted plants in liners, acorns, or one gallon containers for restoration to increase the likelihood of survival of plantings).

<<EQUIPMENT AND ACCESS>>

16. Staging/storage areas for equipment and materials shall be located outside of the stream/lake.

17. Only rubber tired equipment shall be driven within the channel. The equipment shall be clean and free of any weed seeds.

18. If a batch plant is used on-site for the mixing of concrete, a berm or other form of containment dike shall be constructed around the plant to prevent concrete from entering the streambed. The batch plant shall be placed in a location so as not to disturb nesting birds. The Operator shall implement a dust control program at the patch plant. The Department shall approve the location of the batch plant.

19. This work is only authorized when the vehicle is completely clean of petroleum residue and water levels are below the gear boxes of the equipment in use or lubricants and fuels are sealed such that inundation by water shall not result in leaks.

20. Access to the work site shall be via existing roads and access ramps. If no ramps are available in the immediate area, the Operator may construct a ramp in the footprint of the project. Any ramp shall be removed upon completion of the project.

<<FILL AND SPOIL>>

21. Fill length, width, and height dimensions shall not exceed those of the original installation or the original naturally occurring topography, contour, and elevation. Fill shall be limited to the minimal amount necessary to accomplish the agreed activities.

22. The Operator shall only use unconcreted rock rip-rap. for bank stabilization. JJM 7-21-03

23. To facilitate restoration, the Operator shall salvage native topsoil (the top 6 to 12 inch deep layer containing organic material) from the worksite prior to construction. Following construction, salvaged topsoil shall be returned to the work area/placed in the restoration site.

24. The Department recommends the following methods for salvaging, stockpiling, and replacing topsoil: Salvaged topsoil material should be stockpiled in a location where it is unlikely to be disturbed during construction in piles which do not exceed 8 feet in height (3 feet if stored more than one year); The soil should be maintained in a weed-free condition during storage; Following completion of construction, the topsoil should be tested to determine if it is suitable for restoration, and amended if necessary to encourage growth; Graded slopes should be maintained in a weed free state prior to revegetation; Construction areas should be prepared in a manner so as to prevent soil compaction in the upper 1-2 feet; A minimum 4 inch deep layer of topsoil should be distributed in the area to be revegetated; and the area should be rolled with a sheepsfoot roller to bind the soil layers.

25. Spoil storage sites shall not be located within a stream/lake, where spoil can be washed back into a stream/lake, or where it will cover aquatic or riparian vegetation.

<<STRUCTURES>>

26. Rock rip-rap may be placed in areas where other methods of bank protection are not possible. Voids between the rock shall be filled with soil to allow vegetation to grow. Revegetation shall be required within the rip-rap (see the mitigation section).

27. Any temporary dam or other artificial obstruction shall only be built from materials such as clean gravel which will cause little or no siltation, and shall be approved by the Department prior to construction.

<<CLEAN UP>>

28. Structures and associated materials not designed to withstand high water flows shall be moved to areas above high water before such flows occur.

29. Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

30. Areas of disturbed soils with slopes toward a stream or lake shall be stabilized to reduce erosion potential. Planting, seeding and mulching is conditionally acceptable. Where

suitable vegetation cannot reasonably be expected to become established, non-erodible materials, such as coconut fiber matting, shall be used for such stabilization. Any installation of non-erodible materials not described in the original project description shall be coordinated with the Department. Coordination may include the negotiation of additional Agreement provisions for this activity.

<<POLLUTION, SEDIMENTATION, AND LITTER>>

31. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, **cement or concrete or washings thereof**, oil or petroleum products or other organic or earthen material of whatever nature shall be allowed to enter into or placed where it may be washed by rainfall or runoff into, waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.

32. The Operator shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the operator to insure compliance.

33. Any equipment or vehicles driven and/or operated within or adjacent to the stream/lake shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

34. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream/lake shall be positioned over drip pans.

35. No equipment maintenance shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas under any flow.

36. The clean-up of all spills shall begin immediately. The Department shall be notified immediately by the Operator of any spills and shall be consulted regarding clean-up procedures.

37. Precautions to minimize turbidity/siltation shall be taken into account during project planning and shall be installed **prior** to construction. This may require that the work site be isolated and that water be diverted around the work area by means of a barrier, temporary culvert, new channel, or other means approved by the Department. Precautions may also include placement of silt fencing, straw bales, sand bags, and/or the construction of silt catchment basins, so that silt or other deleterious materials are not allowed to pass to downstream reaches. The method used to prevent siltation shall be monitored and cleaned/repaired weekly. The placement of any structure or materials in the stream for this purpose, not included in the original project description, or Department approved water pollution/water diversion plan shall be coordinated with the Department. Coordination shall include the negotiation of additional Agreement provisions.

38. When work in a flowing stream is unavoidable, the entire stream flow shall be diverted around the work area by a barrier, temporary culvert, new channel, or other means approved by the Department. Location of the upstream and downstream diversion points shall be approved by the Department. Construction of the barrier and/or the new channel shall normally begin in the downstream area and continue in an upstream direction, and the flow shall be diverted only when construction of the diversion is completed. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area. **Diversion berms shall be constructed of onsite alluvium of low silt content, inflatable dams, sand bags, or other approved materials.** Channel banks or barriers shall not be made of earth or other substances subject to erosion unless first enclosed by sheet piling, rock rip-rap, or other protective material. The enclosure and the supportive material shall be removed when the work is completed and removal shall normally proceed from downstream in an upstream direction. The Operator shall obtain all written approvals from the Department prior to initiation of construction activities.

39. If stream flows persist down stream of the Robles Diversion in the area of the low flow crossing, the Operator shall first consider potentially delaying the construction activities that require multiple crossing and/or crossings by vehicles hauling wet cement OR the Operator shall develop a diversion plan to minimize potential impacts to downstream resources. The diversion shall be installed upstream approximately 40 feet and downstream approximately 100 feet of the low flow crossing.

40. If stream flow persists at the projected in-channel construction start date, USBR, the Operator, and their contractor will first consider potentially delaying the in-channel work start date. The Operator will discuss this option with NMFS and THE DEPARTMENT to determine if this is an appropriate action to minimize or avoid potential adverse impacts on steelhead. If the contractor cannot avoid performing construction activities while there is water present in the river, the following minimization measures will be taken.

- A temporary diversion structure will be installed upstream of the work site prior to initiation of construction activities in the river channel.
- A coffer dam will be installed using native materials that accumulate in the diversion forebay and will require heavy equipment to construct.
- The isolation area will extend from just upstream of the high-flow fish exit downstream approximately 1,000 feet.
- The Casitas fisheries biologist and the construction contractor will determine the specific site. The height of the coffer dam will be determined by the contractor at the start of the in-channel construction work.
- The size of the area to be dewatered and the location of the coffer dam will depend on the configuration of the sediment in the forebay after the winter rains.
- Water will be passed around the construction zone and re-join the existing river channel downstream of the work site.
- The length and height of the dam and the size of the construction zone will be minimized to the maximum extent practicable while still maintaining functionality.

41. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches. Flows to downstream reaches shall be provided during all times that the natural flow would have supported aquatic life. Said flows shall be sufficient quality and quantity, and of appropriate temperature to support fish and other aquatic life both above and below the diversion. Normal flows shall be restored to the affected stream immediately upon completion of work at that location.

42. Silty/turbid water from dewatering or other activities shall not be discharged into the stream. Such water shall be settled, filtered, or otherwise treated prior to discharge. The Operator's ability to minimize turbidity/siltation shall be the subject of pre-construction planning and feature implementation.

43. Upon Department determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective Department approved control devices are installed, or abatement procedures are initiated.

44. Prior to commencing construction requiring diversion JJ 7-21-03 MP the Operator shall submit to the Department for review and approval, the proposed water diversion/water pollution control plan for this project. The plan shall be consistent with the terms and conditions of this Agreement and the requirements of the U.S. Army Corps of Engineers and Regional Water Quality Control Board. Any terms and conditions in the final Agency approved water diversion/water pollution plan which are more restrictive than in this agreement shall be a part of this Agreement and shall be enforceable by the Department. Any changes in the original project description or Department approved water pollution/water diversion plan shall be coordinated with the Department. Coordination shall include the negotiation of additional Agreement provisions.

45. Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

46. Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter a lake or flowing stream or placed in locations that may be subjected to high storm flows.

47. If an off-stream siltation pond/s is/are used to control sediment, pond/s shall be constructed in a location, or shall be designed, such that potential spills into the stream/lake during periods of high water levels/flow are precluded.

48. If silt catchment basin/s is/are used, the basin/s shall be constructed across the stream immediately downstream of the project site. Catchment basins shall be constructed of materials which are free from mud and silt. Upon completion of the project, all basin materials along with the trapped sediments shall be removed from the stream in such a manner that said removal shall not introduce sediment to the stream.

49. Silt settling basins shall be located away from the stream or lake to prevent discolored, silt-bearing water from reaching the stream or lake during any flow regime.

50. Should a silt catchment basin be required, the following operational methods shall be employed:

a. A silt catchment basin or basins (number and location to be determined by the Department) shall be constructed across the stream immediately below the project site. This catchment basin(s) shall be constructed of silt-free gravel or other materials approved by the Department.

b. Upon completion of the project and after all flowing water in the area is clear of turbidity, the gravel along with the trapped sediment shall be removed from the stream.

51. The work area shall be secured from trespass when (as determined by the Department) fish or wildlife resources are vulnerable to damage from unsupervised public access.

<<FISH PASSAGE>>

52. When any dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code section 5937.

53. Pump intakes placed in stream/lake water shall be fitted with (1/8) inch or smaller mesh screens for January 1, through March 30, and (1/4) inch or small mesh screens thereafter.

54. Prior to passing water around the in-channel construction zone, the Casitas fisheries biologist shall make visual observations to determine if there are any fish inhabiting the river channel. If steelhead are observed in the in-channel construction zone, then a fish rescue shall be initiated. The Casitas fisheries biologist shall contact USBR, NMFS and the Department to notify them of the need to initiate a fish rescue. Before any fish rescue activities begin, the reach would be isolated by installing nets across the flowing channel upstream of the coffer dam site and at the downstream end of the construction zone. It is anticipated that fish would initially be captured using seines and/or fyke nets. This effort would be followed by the use of backpack electroshockers to capture any remaining fish. Trapped fish would be released into a perennial portion of the river upstream of the temporary diversion dam or into North Fork Matilija Creek. The release site(s) would be approved by NMFS and Department biologists.

55. The Operator shall report all fish mortality immediately to the Departments Fisheries Biologist, Maurice Cardenas at (805) 640-1852.

<<RESTORATION/MITIGATION>>

56. To provide protection from erosion, the Operator shall plant willow cuttings (obtained from nearby plants) on 6-8 ft centers, on the restored slope. These shall be planted during the willows dormant season, and shall be augered/dug into the groundwater or wetted soil.

57. MITIGATION FOR AREAS OF TEMPORARY DISTURBANCE--No more than 1 acre of habitat within the banks, bed, and channel of the stream and/or riparian habitat shall be temporarily disturbed/impacted due to the proposed operations. Restoration shall include the revegetation of stripped or exposed work areas within the banks, bed, and channel of the stream (including construction areas, access roads, etc.) with native vegetation local to the area at a ratio of 1:1.

58. MITIGATION FOR AREAS OF PERMANENT DISTURBANCE--no more than 1 acre of habitat within the banks, bed, and channel of the stream and/or riparian habitat shall be permanently lost due to the proposed operations. Restoration shall include the restoration of a degraded, stripped, or exposed area(s) with native riparian and transitional vegetation, local to the drainage, at a ratio of 3:1. The location and type of restoration shall be approved by the Department prior to ~~execution of this agreement.~~ permanent disturbance. JJ 7-21-03 MP

59. No restoration/mitigation shall occur in fuel modification zones, future project areas or areas of maintenance.

60. A 30 foot wide buffer of native vegetation shall extend along the mitigation area and all riparian and wetland drainages. The buffer shall serve to minimize the amount of light, noise, and other human generated impacts to the wildlife corridor. Native vegetation shall be used to create wildlife movement corridors between mitigation areas and areas designated as open space or construction/human habitation areas. JJ -7-21-03 MP

61. If native trees have been removed from the stream's banks, they shall be replaced in-kind, and maintained until established, under the direction of a Department representative.

62. In order to determine if the revegetation techniques used have been successful, any plant species required that are listed below shall achieve the minimum growth at the end of three and five years. If the minimum growth is not achieved, then the Operator shall be responsible for taking the appropriate corrective measures as determined by Department representatives. The Operator shall be responsible for any cost incurred during the revegetation or in subsequent corrective measures.

SPECIES	SIZE AT PLANTING (GALLONS)	PLANTING CENTERS	HEIGHT 3 years	5 years
Arroyo Willow	1 gallon	8 ft	10 ft	15 ft
Black Willow	1 gallon	8 ft	12 ft	18 ft
Sandbar Willow	1 gallon	5 ft	4 ft	6 ft
Red Willow	1 gallon	8 ft	9 ft	15 ft
Sycamore	1 gallon	20 ft	5 ft	9 ft
Calif. laurel	1 gallon	20 ft	N/D	N/D
Black Walnut	1 gallon	20 ft	7 ft	12 ft

Cottonwood	1 gallon	*	7 ft	12 ft
White Alder	1 gallon	*	6 ft	11 ft

* = Depending if used as supplemental species (40 ft O.C.) or if dominant species (15 ft O.C.)

OAKS				
Coast live	1 gallon	20 ft	3 ft	6 ft
Canyon live	1 gallon	20 ft	3 ft	6 ft
Scrub	1 gallon	20 ft	2 ft	4 ft
All Shrub species	1 gallon			

63. Planting, maintenance, monitoring and reporting activities shall be overseen by a specialist familiar with restoration of native plants.

64. All plants shall be planted in randomly spaced, naturally clumped patterns. The average planting densities shall meet the criteria specified above.

65. All planting shall have a minimum of 80% survival, by species, the first year and 100% survival thereafter and/or shall attain 75% cover after 3 years and 90% cover after 5 years for the life of the project. If the survival and cover requirements have not been met, the Operator is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for 5 years after planting.

66. An annual report shall be submitted to the Department by Jan. 1 of each year for 5 years after planting. This report shall include the survival, % cover, and height by species of both trees and shrubs. The number by species of plants replaced, an overview of the revegetation and exotic plant control efforts, and the method used to assess these parameters shall also be included. Photos from designated photo stations shall be included.

67. Prior to initiation of construction activities, a plant palette and planting plan, prepared by a biologist familiar with restoration of native plants, shall be submitted to the Department .

This plan shall include plantings of both overstory and understory vegetation and shall be consistent with the Recommended List of Native Plants for Landscaping in the Santa Monica Mountains as prepared by the California Native Plant Society.

The plan shall also include a description of the proposed numbers, container sizes, and planting location, by species, the proposed monitoring activities* (locations, techniques, scheduling, etc.), maintenance operations with particular emphasis on watering methods and schedules; the removal of invasive plant species, area treated, techniques to be used, and schedule and success criteria for controlling invasive plants; and any/all other references to revegetation and restoration activities specified by this Agreement. All procedures shall be approved by the Department in writing.

* The primary monitoring surveys to determine the success of restoration efforts (survival, cover and growth of plants) shall be conducted in May and September.

68. All planting should be done after the first wetting rains between October 1 and February 1 to take advantage of the winter rainy season, dormancy of foliage, and rooting period to ensure optimum survival of plantings. Should the Operator be required to plant during other times of the year, chances of survival are diminished. To compensate for decreased survival rates, the Operator shall be required to augment the specified planting density by 25% to account for the likelihood of increased mortality of plantings. Any restoration/planting shall be completed by 10/15/05.

69. The Operator shall provide irrigation when natural moisture conditions are inadequate to ensure survival of plants. Irrigation shall be provided for a period of at least two years from planting. Irrigation shall be phased out during the fall/winter of second year unless unusually severe conditions threaten survival of plantings. All plants must survive and grow for at least three years without supplemental water for the restoration phase of the project to be eligible for acceptance by the Department.

70. Coarse mulch shall be placed around plantings to minimize water loss and discourage weed growth. Mulch shall be 3 to 4 inches deep and shall be placed in a minimum area 1.5 times the diameter of the dripline of the plant or 2 feet in diameter, whichever is greater. The mulched area shall be maintained throughout the course of restoration, unless otherwise authorized in writing by the Department. Mulch shall not be placed directly against the main stem of the plants.

71. Plant material for revegetation shall be derived from cuttings, materials salvaged from disturbed areas, and/or seeds obtained from randomly selected native trees and shrubs occurring locally within the same drainage.

72. Any replacement tree/shrub stock, which cannot be grown from cuttings or seeds, shall be obtained from a native plant nursery, be ant free and shall not be inoculated to prevent heart rot. The Operator shall provide a list of all materials which must be obtained from other than onsite sources.

<<REMOVING NON-NATIVE VEGETATION>>

73. The Operator shall remove any non-native vegetation (tree tobacco, castor bean, giant cane, etc.) from the work area and shall dispose of it in a manner and a location which prevents its reestablishment. Removal shall be done at least twice annually during the spring/summer season, as needed, through the term of restoration.

Giant cane (*Arundo*), if present, shall be cut to a height of 6 inches or less, and the stumps painted with an herbicide approved for aquatic use within 5 minutes of cutting. Herbicides shall be applied at least three times during the period from May 1 to October 1 to eradicate these plants. Where proposed methods for removing giant cane

deviate from this procedure, the Operator shall present the alternate methods, in writing, to the Department for review and approval, prior to construction.

74. Whenever possible, invasive species shall be removed by hand or by hand-operated power tools rather than by chemical means. Where control of non-native vegetation is required within the bed bank, or channel of the stream, the use of herbicides is necessary, and there is a possibility that the herbicides could come into contact with water, the Operator shall employ only those herbicides, such as Rodeo (Glyphosate), which are approved for aquatic use. If surfactants are required, they shall be restricted to non-ionic chemicals, such as Agri-Dex, which are approved for aquatic use.

75. No herbicides shall be used on native vegetation unless specifically authorized, in writing, by the Department.

<<PERMITTING AND SAFEGUARDS>>

76. The Operator shall provide a performance bond to cover the full cost of restoration (including any/all planting and seeding, soil testing and amendments, monitoring, maintenance, reporting activities, etc. specified in the subject agreement. This performance bond shall meet the following conditions.

a. The performance bond surety shall be an "admitted" carrier and all transactions shall be governed by the Bond and Undertaking Law (CCP Para.995.010 - 996.510).

b. The performance bond shall stipulate that in the event of a default, the Department/Corps shall be entitled to relief in the form of cash only.

c. Should any legal action be necessary to enforce or interpret the terms of the performance bond, the Department/Corps, as the prevailing party/parties shall be entitled to collect reasonable attorney's fees from the losing party.

d. The performance bond may be subject to partial reduction upon completion and acceptance of certain work by the Department/Corps. 8-1-03 WGT

<<PROTECTION FOR WILDLIFE AND AQUATIC SPECIES>>

77. The Operator shall not allow any vegetation removal within the site from February 1st to August 15th, the recognized breeding, nesting and fledging season for most bird species. If vegetation has to be removed within these dates, a qualified biologist shall conduct bird surveys for nesting birds.

The Department emphasizes migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50C.F.R. §10.13). This Agreement therefore does not allow the Operator, any employees, or agents to destroy or disturb any active bird nest (§3503 Fish and Game Code) or any raptor nest (§3503.5) at any time of the year.

78. Prior to any construction during the raptor nesting season, January 31st to September 1st, a qualified biologist shall conduct a site survey for active nests two weeks prior to an

STREAMBED ALTERATION CONDITIONS FOR NOTIFICATION NUMBER: R5-2002-0055

scheduled development. If an active nest is located, then no construction work shall be conducted within a 500 foot radius from the nest until the young have fledged and are independent of the adults.

79. Swallows were observed nesting within the existing structure during the Department's site visit. The Operator therefore shall conduct surveys for occupied swallow nests at least until September 15. The Operator shall conduct Swallow surveys beginning July 1, if a nest is vacated; the nest shall be removed and shall not be allowed to be reconstructed. All partial nests shall be removed. Work shall not be conducted within 300 feet of an active nest. Once all nests are vacated and removed from the work area, work may proceed upon confirmation by the Department. Beginning February 1 of each prospective year, the Operator shall monitor for swallow nest construction and remove each nest prior to its completion. If a nest is completed, no work shall be constructed within 300 feet of the nest site until the young have fledged and are no longer dependent on the nest.

80. If least Bell's vireo (LBV), southwestern willow flycatcher, or other threatened or endangered species are found within 500 feet of the work area, the Operator shall contact the Department immediately of the sighting and shall request an onsite inspection by Department representatives (to be done at the discretion of the Department) to determine if work shall begin/proceed. If work is in progress when sightings are made, the Operator shall cease all work within 500 feet of the area in which the sighting(s) occurred and shall contact the Department immediately, to determine if work shall recommence.

81. A biological monitor shall ~~be on site during operations and shall~~ survey for species prior to construction. If any species are found in the path of construction, the monitor shall relocate the species to a safe location. Exclusionary fencing shall be erected to prevent the migration into or the return of species into the work site. and monitor construction operations. MP JJ 7-21-03

82. To provide protection from erosion, the Operator shall plant willow cuttings (obtained from nearby plants) on 3 ft centers, on the slope and in the streambed of the restored area. Plantings and/or cuttings shall be irrigated, when natural moisture is insufficient to sustain growth, for an interval of two years.

<<MAINTENANCE>>

83. The Operator may remove vegetation and debris, including sediment and rocks, which directly interfere with the proper function and operation of existing devices, to include gates, culverts, bridges, weirs, pumps, and stream flow control and measuring stations, or that which must be removed to repair said devices or to replace them in their existing locations. Where vehicles are required to do this work, removal shall not extend more than 150 feet in any direction from said device. Where vehicles are not required, removal shall not extend more than 50 feet in any direction from said device. The stream bed and stream banks are not considered "devices", for purposes of this provision. JJ 8-1-03 WCT

84. The Operator may grade and fill existing levee roads as necessary to assure utility. No material of any nature from this activity shall be sidecast onto the stream side of the levee except as provided for in other provisions of this Agreement.

85. The Operator may remove herbaceous vegetation, fallen trees, and branches from existing levee roads and the levee slope furthest from the stream. Minor pruning of trees and brush growing on the stream side slope of the levee, stream bed, and stream banks, is also acceptable, except that such pruning shall be limited to the removal of vegetation that interferes with vehicle access along existing roads. Material in excess of three (3) inches in diameter at breast height (DBH) shall require specific notice to and consultation with the Department.

86. The Operator may remove sand that accumulates behind dams or other flow restrictions. Only those sandy deposits from the sparsely vegetated center of the stream bed and on the banks up to the lower limit of perennial vegetation shall be removed. The width of removal shall extend to the toe of the slope of each bank. All work shall therefore be accomplished without damaging vegetation or altering the stream banks. Existing access roads and ramps shall be used where available. Temporary access ramps may be constructed if necessary. Material in excess of three (3) inches in diameter at breast height (DBH) shall require specific notice to and consultation with the Department.

87. THE Operator shall operate and maintain the project as outlined in the Biological Opinion prepared

87. The Operator within 1 years of completion of construction shall apply and obtain a streambed alteration agreement of the Operations and Maintenance of the Robles Diversion and Fish Ladder by the National Marine Fisheries Service and dated March 31, 2003, for 24 months from the completion of construction. At the end of two years, the Department and the Operator shall negotiate a separate streambed alteration agreement (SAA) for operation and maintenance (O&M) of the project. Operations of the project would continue under the Biological Opinion dated March 31, 2003 until the O&M is signed by the Department, SAA JJ 7-21-03 MP

<<ADMINISTRATIVE-MISC. >>

88. All provisions of this Agreement remain in force throughout the term of the Agreement. Any provisions of the Agreement may be amended or the Agreement may be terminated at any time provided such amendment and/or termination is agreed to in writing by both parties. Mutually approved amendments become part of the original Agreement and are subject to all previously negotiated provisions.

89. The Operator shall **provide a copy of this** Agreement, **to all contractors, subcontractors, and the Operator's project supervisors. COPIES OF THIS** AGREEMENT AND ALL REQUIRED PERMITS AND SUPPORTING DOCUMENTS, **SHALL BE READILY AVAILABLE AT WORK SITES AT ALL TIMES DURING PERIODS OF ACTIVE WORK** and must be presented to any Department personnel, or personnel from another agency upon demand. **ALL CONTRACTORS SHALL READ AND BECOME FAMILIAR WITH THE CONTENTS OF THIS AGREEMENT.**

90. A pre-construction meeting/briefing shall be held involving all the contractors and subcontractors, concerning the conditions in this Agreement.

91. The Operator **shall** notify the Department, **in writing, at least five (5) days prior to initiation of construction (project) activities and at least five (5) days prior to completion of construction (project) activities.** Notification shall be sent to the Department at 4949 Viewridge Avenue, San Diego 92123, Attn: ES. FAX Number (858) 467-4299, Reference # R5-2002-0055.

92. The Operator herein grants to Department employees and/or their consultants (accompanied by a Department employee) the right to enter the project site at any time, to ensure compliance with the terms and conditions of this Agreement and/or to determine the impacts of the project on wildlife and aquatic resources and/or their habitats.

93. The Department reserves the right to cancel this Agreement, after giving notice to the Operator, if the Department determines that the Operator has breached any of the terms or conditions of the Agreement.

94. The Department reserves the right to suspend or cancel this Agreement for other reasons, including but not limited to, the following:

a. The Department determines that the information provided by the Operator in support of this Agreement/Notification is incomplete or inaccurate;

b. The Department obtains new information that was not known to it in preparing the terms and conditions of this Agreement;

c. The condition of, or affecting fish and wildlife resources change; and

d. The Department determines that project activities have resulted in a substantial adverse effect on the environment.

95. Before any suspension or cancellation of the Agreement, the Department will notify the operator in writing of the circumstances which the Department believes warrant suspension or cancellation. The Operator will have seven (7) working days from the date of receipt of the notification to respond in writing to the circumstances described in the Department's notification. During the seven (7) day response period, the Operator shall immediately cease any project activities which the Department specified in its notification as resulting in a substantial adverse effect on the environment and which will continue to substantially adversely affect the environment during the response period. The Operator may continue the specified activities if the Department and the Operator agree on a method to adequately mitigate or eliminate the substantial adverse effect.

STREAMBED ALTERATION CONDITIONS FOR NOTIFICATION NUMBER: R5-2002-0155

CONCURRENCE 11/15/04 JJ 7-21-03 MP

This Agreement becomes effective on the Departments signature and the construction portion terminates on 10/15/2004. This Agreement shall remain in effect until ~~10/15/2005~~ 10/15/2008 to satisfy the mitigation/restoration terms/conditions of this Agreement. 8-1-03 WLT JJ

This agreement was prepared by Martin Potter and Mary Larson.

(Operator's name)

John J Johnson 7-21-03
Name (signature) Date

John T. Johnson
Name (printed)

General Manager
Title

California Department of Fish and Game

for C. F. Raysbrook 8/1/03
C. F. Raysbrook Date
Regional Manager
South Coast Region

R5-2002-0056

CONCURRENCE 11/15/04 JJ 7-21-03 MP

This Agreement becomes effective on the Departments signature and the construction portion terminates on ~~10/15/2004~~. This Agreement shall remain in effect until 10/15/2005 to satisfy the mitigation/maintenance terms/conditions of this Agreement.
This agreement was prepared by Martin Potter and Mary Larson.

(Operator's name)

John J. Johnson 7-21-03
Name (signature) Date

John J. Johnson
Name (printed)

General Manager
Title

California Department of Fish and Game

for C. F. Raysbrook 8/4/03
C. F. Raysbrook Date
Regional Manager
South Coast Region

R5-2002-0055

Winston H. Hickox
Secretary for Environmental Protection

California Regional Water Quality Control Board

Los Angeles Region

Over 50 Years Serving Coastal Los Angeles and Ventura Counties
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Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.swrcb.ca.gov/rwqcb4

Gray Davis
Governor

John J. Johnson, General Manger
Casitas Municipal Water District
1055 Ventura Avenue
P.O. Box 37
Oak View, CA 93022

CONDITIONAL CERTIFICATION FOR PROPOSED ROBLES DIVERSION FISH PASSAGE PROJECT (CORPS' PROJECT NO. 2003-00260-JWM), VENTURA RIVER, UNINCORPORATED AREA NEAR MEINERS OAKS, VENTURA COUNTY (FILE NO. 00-067)

Dear Mr. Johnson:

Regional Board staff has reviewed your request on behalf of the Casitas Municipal Water District (the Applicant) for a Clean Water Act Section 401 Water Quality Certification for the above-referenced project. Your application was deemed complete on June 23, 2003.

I hereby certify that any discharge from the Robles Diversion Fish Passage Project, as proposed and described in Attachment A, if performed in accordance with all applicable water quality objectives, prohibitions, and policies set forth in the *Water Quality Control Plan, Los Angeles Region* (1994), and in accordance with the conditions specified in Attachment B, will comply with the applicable water quality standards and other appropriate requirements, including the provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act.

The Applicant shall be liable civilly for any violations of this certification in accordance with the California Water Code. This certification does not eliminate the Applicant's responsibility to comply with any other applicable laws, requirements and/or permits.

Should you have questions concerning this certification action, please contact Valerie Carrillo, Section 401 Program, at (213) 576-6759.

Dennis A. Dickerson
Executive Officer

July 23, 2003
Date

DISTRIBUTION LIST

Oscar Balaguer
State Water Resources Control Board
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P.O. Box 944213
Sacramento, CA 94244-2130

Betty Courtney
California Department of Fish and Game
Streambed Alteration Team
4949 View Ridge Avenue
San Diego, CA 92123

John Markham
U.S. Army Corps of Engineers
Regulatory Branch, Ventura Field Office
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Ventura, CA 93001

Aaron Setran (WTR-8)
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
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Director of Water Division (WTR-1)
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Ventura, CA 93003

Vicki Clark, Staff Attorney
Environmental Defense Center
906 Garden Street
Santa Barbara, CA 93101

Jessie Altstatt
Santa Barbara Channel Keeper
120 West Mission Street
Santa Barbara, CA 93101

ATTACHMENT A

Project Information
File No. 00-067

1. Applicant:

John J. Johnson
Casitas Municipal Water District
1055 Ventura Avenue
P.O. Box 37
Oak View, CA 93022
Phone: (805) 649-2251 Fax: (805) 649-3001

2. Applicant's Agent: None

3. Project Name: Robles Diversion Fish Passage Project

4. Project Location: Unincorporated area near Meiners Oaks, County of Ventura

Township: T5N; Range: R23W; SE ¼ of Section 33
Township: T4N; Range: R23W; NE ¼ of Section 4

Latitude: 34° 28' 00", Longitude: 119° 17' 15"

5. Type of Project: Diversion Fish Passage Project

6. Project Description:

Purpose: The purpose of this project is to provide steelhead trout access to suitable spawning and rearing habitat upstream of Robles Diversion Dam.

Description: The Casitas Municipal Water District (Casitas) has proposed to modify the existing Robles Diversion Dam to construct fish passage and screening facilities. This modification will ameliorate a substantial adverse impact on southern California steelhead, which is listed as an endangered species under the Federal Endangered Species Act. The Robles Diversion Dam currently blocks access to over 6 miles of historic spawning and rearing habitat for this species.

ATTACHMENT A

Project Information
File No. 00-067

Several new components will be added to the existing facility to accommodate fish passage at this site. Construction of some of these components will require work in the Ventura River and on its banks in the diversion forebay and approximately 800 feet of the channel downstream of the existing dam.

No wetlands exist at the project site; however riparian vegetation located on the banks of the Ventura River within the project site will be disturbed. Mitigation will be provided for in the form of re-vegetating the streambanks where existing riparian vegetation has been destroyed. As part of the design phase of the project, Casitas has already minimized the need for disturbance of existing habitat to the maximum extent practicable.

The project will consist of the following components:

- Installation of a fish screen and diversion structure within Robles Diversion Facilities to avoid entrainment;
- Installation of a flow control structure;
- Installation of a flow measurement structure;
- Installation of a fish guidance device in the diversion canal;
- Construction of a fishway at Robles Diversion Dam;
- Installation of an auxiliary water supply pipeline exit channel;
- Installation of fish exit channel;
- Modification of streambed downstream of spillway to add a baffled apron structure and 15 low-head stone weirs; and
- Installation of fish monitoring facilities.

Construction:
Construction activities will commence in August 2003 and will be completed by December 2004. In-channel work to install the high-flow fish exit, low-flow fish exit, and fishway will occur during the 2003 low-flow season. Construction of the low-head weirs, will occur during the 2004 low-flow season. The bulk of the disturbance would occur during Summer 2004. Revegetation will occur once the in-channel work is completed.

7. Federal Agency/Permit: U.S. Army Corps of Engineers
NWP No. 27 (Permit No. 2003-00260-JWM)

ATTACHMENT A

Project Information
File No. 00-067

8. Other Required Regulatory Approvals:	California Department of Fish and Game Streambed Alteration Agreement National Marine Fisheries Service Section 7 Consultation
9. California Environmental Quality Act (CEQA) Compliance:	The Casitas Municipal Water District of the City of Casitas approved the project's Mitigated Negative Declaration on January 17, 2001.
10. Receiving Water:	Ventura River (Hydrologic Unit No. 402.20)
11. Designated Beneficial Uses:	MUN, IND, PROC, AGR, GWR, FRSH, REC-1, REC-2, WARM, COLD, WILD, RARE, MIGR, SPWN, and WET
12. Impacted Waters of the United States:	Non-wetland waters (vegetated streambed): Fishway – 0.03 permanent and 0.76 temporary acres Downstream (weirs and jump pool) – 0.60 permanent and 2.00 temporary acres Total - 0.63 permanent and 2.76 temporary acres
13. Dredge Volume:	None
14. Related Projects Implemented/to be Implemented by the Applicant:	The Applicant has not identified any related projects carried out in the last 5 years or planned for implementation in the next 5 years.

ATTACHMENT A

Project Information
File No. 00-067

15. Avoidance/ Minimization Activities:

The Applicant has proposed to implement several Best Management Practices, including, but not limited to, the following:

- Prior to initiation of construction, the limits of the impact areas shall be delineated by placement of temporary construction fencing or stakes and signage in order to avoid any impacts outside of the project area;

- Siltation and turbidity control measures shall be utilized (e.g., silt fences, hay bales, jute netting, or other appropriate means) in all areas where disturbed soils may potentially wash into waters via rainfall or runoff. Such measures shall remain in place until the project is complete and exposed soils are stabilized; and

- No debris, soil, silt, sand, rubbish, cement or washings thereof, or petroleum products or washings thereof, are allowed to enter into or are placed where it may be washed by rainfall or runoff into the waterway. When project operations are completed, all excess construction materials, debris, or other excess associated project materials, shall be removed to an appropriate off-site location.

16. Proposed Compensatory Mitigation:

The Applicant has proposed the revegetation of the areas disturbed by construction activities associated with the proposed project. The total area proposed for the mitigation, including the upland riparian transition zone is 0.76 acres and 3.52 acres for the Downstream Section. Total mitigation proposed would be 4.28 acres on-site. Also proposed are invasive and exotic vegetation management in order to promote native colonization and coverage area.

ATTACHMENT B

Conditions of Certification
File No. 00-067

STANDARD CONDITIONS

Pursuant to §3860 of Title 23 of the California Code of Regulations (23 CCR), the following three standard conditions shall apply to this project:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to §13330 of the California Water Code and Article 6 (commencing with 23 CCR §3867).

2. This certification action is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR Subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. Certification is conditioned upon total payment of any fee required pursuant to 23 CCR Chapter 28 and owed by the Applicant.

ADDITIONAL CONDITIONS

Pursuant to 23 CCR §3859(a), the Applicant shall comply with the following additional conditions:

1. The Applicant shall submit to this Regional Board copies of any other final permits and agreements required for this project, including, but not limited to, the U.S. Army Corps of Engineers' Section 404 Permit and the California Department of Fish and Game's Streambed Alteration Agreement. **These documents shall be submitted prior to any discharge to waters of the state.**

2. Fueling, lubrication, maintenance, operation, and storage of vehicles and equipment shall not result in a discharge or a threatened discharge to waters of the state. At no time shall the Applicant use any vehicle or equipment which leaks any substance that may impact water quality. Staging and storage areas for vehicles and equipment shall be located outside of waters of the state.

3. No construction material, spoils, debris, or any other substances associated with this project that may adversely impact water quality standards, shall be located in a manner which may result in a discharge or a threatened discharge to waters of the state.

4. The Applicant shall not conduct any construction activities within waters of the state during a rainfall event. The Applicant shall maintain **a five-day (5-day) clear weather forecast** before conducting any operations within waters of the state.

5. No activities shall involve wet excavations (i.e., no excavations shall occur below the seasonal high water table). A minimum **5-foot** buffer zone shall be maintained above the existing groundwater level. If construction or groundwater dewatering is proposed or anticipated, the Applicant shall file a **Report of Waste Discharge** to this Regional Board and obtain any necessary NPDES permits/Waste Discharge Requirements prior to discharging waste. Sufficient time should be allowed to obtain any such permits (generally 180 days). If groundwater is encountered without the benefit of appropriate permits, the Applicant shall cease all activities in the areas where groundwater is present, file a Report of Waste Discharge to this Regional Board, and obtain any necessary permits prior to discharging waste.

6. All surface waters, including ponded waters, shall be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. If surface water diversions are anticipated, the Applicant shall develop and submit a **Surface Water Diversion Plan** to this Regional Board. The plan shall include the proposed method and duration of diversion activities, erosion and sediment controls, and a map or drawing indicating the locations of diversion and discharge points. The plan shall be submitted prior to any surface water diversions. If surface flows are present, then upstream and downstream monitoring for pH, temperature, dissolved oxygen, turbidity, and total suspended solids shall be implemented. These constituents shall be monitored on a **daily** basis during the first week of diversion activities, and then on a **weekly** basis, thereafter, until the in-stream work is complete. Results of the analyses shall be submitted to this Regional Board by the **15th** day of each subsequent sampling month. A map or drawing indicating the locations of sampling points shall be included with each submittal. Diversion activities shall not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any such violations may result in corrective and/or enforcement actions, including increased monitoring and sample collection.

7. The Applicant shall all restore all areas of TEMPORARY IMPACTS to waters of the United States and all other areas of temporary disturbance which could result in a discharge or a threatened discharge to waters of the state. Restoration shall include grading of disturbed areas to pre-project contours and revegetation with native species to the extent feasible. The Applicant shall implement appropriate Best Management Practices to control erosion and runoff from areas associated with this project.

8. The Applicant shall provide COMPENSATORY MITIGATION to offset the proposed temporal loss of **2.76 acres** waters of the United States by creating or restoring riparian habitat at a minimum 1:1 area replacement ratio (3.52 acres). The Applicant shall also provide compensatory mitigation for the proposed permanent impacts to **0.63 acres** of vegetation within waters of the United States by creating or restoring riparian habitat at a minimum 1:1.2 area replacement ratio (0.76 acres).

9. The Applicant shall submit to this Regional Board **Annual Monitoring Reports** documenting the success of all restoration and mitigation efforts, including, percent survival by plant species and percent cover. The reports shall include discussion of any monitoring activities and exotic plant control efforts. Representative photographs from designated stations shall be included in the reports. The reports shall be submitted by **January 1st** of each year for a period of **five (5) years** after planting.

10. All communications regarding this project and submitted to this Regional Board shall identify the Project File Number **00-067**. Submittals shall be sent to the attention of the Nonpoint Source Unit.

11. Any modifications of the proposed project may require submittal of a new Clean Water Act Section 401 Water Quality Certification application and appropriate filing fee.

12. *Enforcement:*

    (a) In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under state law. For purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

    (b) In response to a suspected violation of any condition of this certification, the State Water Resources Control Board (SWRCB) may require the holder of any permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the SWRCB deems appropriate, provided that the burden, including costs, of the reports shall be a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

    (c) In response to any violation of the conditions of this certification, the SWRCB may add to or modify the conditions of this certification as appropriate to ensure compliance.

13. This certification shall expire **five (5) years** from the date of signature. The Applicant must request a renewal of this certification 180 days prior to its termination, if the project as described has not been completed. Renewals may be subject to additional filing fees, and will require Regional Board approval.

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
VENTURA FIELD OFFICE
2151 ALESSANDRO DRIVE, SUITE 110
VENTURA, CALIFORNIA 93001

REPLY TO
ATTENTION OF:

July 25, 2003

Office of the Chief
Regulatory Branch

DEPARTMENT OF THE ARMY NATIONWIDE PERMIT AUTHORIZATION

Casitas Municipal Water District
Attention John J. Johnson
1055 Ventura Avenue
Oak View, California 93022

Dear Mr. Johnson:

This correspondence is in reply to your letter (No. 200300260-JWM) dated February 5, 2002, concerning our permit authority under Section 404 of the Clean Water Act of 1972 (33 U.S.C. 1344) over your proposal to impact 3.39 acres (2.76 acres temporary, 0.63 acre permanent) of the Ventura River associated with: 1) the demolition of a concrete weir/vehicle crossing approximately 450 linear feet downstream of the existing diversion; 2) the construction of fish passageway facilities and supporting structures, including a fishway, two fish exit channels (low and high-flow), a baffled concrete apron (immediately downstream of diversion spillway), and a series of fourteen low-head stone weirs (800 linear feet, downstream of fishway entrance), near Ojai, Ventura County, California.

The Corps of Engineers has determined that your proposed activity complies with the terms and conditions of nationwide permit NW27 as described in enclosure 1. Furthermore, you must comply with the following non-discretionary Special Conditions:

1. This Corps permit does not authorize you to take an endangered species, in particular the federally endangered Southern California Evolutionarily Significant Unit (ESU) of steelhead. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g. ESA Section 10 permit, or a Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply). The enclosed NMFS BO (file no. 151422SWR02PR6168:FR) contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The NMFS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

2. The permittee shall notify the Corps, USFWS and NMFS in writing five business days prior to initiating work in waters of the U.S., and furthermore shall submit the Certificate of Compliance included with this permit verification document to the Corps upon completion of work in waters of the U.S.
3. The permittee shall ensure that all contractors and subcontractors have read and fully understand all terms and conditions of this permit. The permittee shall ensure that a copy of this permit is maintained on-site during the entire construction period.
4. The permittee shall adhere to all the terms and conditions specified in the project's Section 401 Water Quality Certification issued by the Los Angeles Regional Water Quality Control Board on July 24, 2003.
5. Prior to initiation of construction, the limits of each of the project's impact areas shall be delineated by the placement of temporary construction fencing or stakes and signage, sufficient to prevent equipment or personnel from disturbing waters of the U.S. outside of the demarcated project area(s).
6. The permittee shall utilize siltation and turbidity control measures (e.g., silt fences, hay bales, jute netting, or other appropriate means) in all areas where disturbed soils may potentially wash into waters via rainfall or runoff. Such measures shall remain in place until the project is complete and exposed soils are stabilized.
7. The permittee shall ensure no debris, soil, silt, sand, rubbish, cement or washings thereof, or petroleum products or washings thereof, are allowed to enter into or are placed where it may be washed by rainfall or runoff into the waterway. When project operations are completed, all excess construction materials, debris, or other excess associated project materials, shall be removed to an appropriate off-site location outside of any areas subject to Corps jurisdiction.
8. The permittee shall submit a final, Corps'-approved Habitat Mitigation and Monitoring Plan within 30 days of initiating work within waters of the U.S., to be consistent with the (draft) Riparian Revegetation Plan for Proposed Diversion Operations and Fish Passage Facilities at the Robles Diversion, Ventura River, CA, (prepared by Casitas Municipal Water District, July 9, 2003). Following full mitigation implementation, the 3-year and 5-year relative native (planted and naturally-occurring) aerial coverage performance goals shall be 60% and 80%, respectively, for each strata (herbaceous layer, shrub layer, and tree canopy) within the riparian zone (0.79 acre (temp. and perm.) at the high-flow fish conduit and exit site; 2.6 acres (temp. and perm.) at the spillway baffles, fish passage structure, and downstream weirs). The relative aerial coverage eradication goal for all invasive exotics within the riparian zone (e.g., arundo, yellow star thistle, sweet fennel, castor bean, mustard, pampas grass, tamarisk, tree tobacco) shall be 25% and 10% for the 3-year and 5-year milestones, respectively. If native passive plant recruitment has not achieved 40% relative cover by the end of the second year (winter 2006) following full mitigation implementation (winter 2004), a one-time native plant/cutting installation or seeding shall commence prior to the wet season of the third year (winter 2007). No additional augmentation shall occur until the fifth year. Furthermore, if either the majority (>50%) of the plantings/cuttings do not survive their first season, or if native passive recruitment is not on a trajectory to achieve the performance goals, application of periodic artificial irrigation shall be initiated.
9. The permittee shall provide the Corps' with an annual maintenance and monitoring report beginning one year after full mitigation implementation (December 2005), and each year thereafter for a minimum of five years (December 2006, 2007, 2008, 2009). Each report shall be consistent with the Corps' Mitigation Guidelines and

Monitoring Requirements document, dated January 27, 2003. Upon review of the fifth year report, the Corps will assess whether the established native performance and exotic eradication goals have been successfully achieved. If the abovementioned goals are not achieved, the Corps could require the permittee to undertake remedial actions to ensure mitigation success, which could include additional plantings and/or an extended maintenance and monitoring period.

10. If an unforeseen, catastrophic event (e.g., flood, fire, vandalism) removes or kills the majority (>50%) of native species (planted and naturally-occurring) after the vegetation has met the final performance goals, Casitas will not be responsible for replanting damaged areas. If said event(s) precede(s) achievement of the final goals, Casitas will be responsible for replanting the area one time only, and will extend the monitoring period as appropriate following replanting.

This letter of verification is valid for a period not to exceed two years unless the nationwide permit is modified, reissued, revoked, or expires before that time. Presently, all nationwide permits are scheduled to expire on March 18, 2007. It is incumbent upon you to remain informed of changes to the nationwide permits. We will issue a public notice announcing the changes when they occur. Furthermore, if you commence or are under contract to commence this activity before the date the nationwide permit is modified or revoked, you will have twelve months from the date of the modification or revocation to complete the activity under the present terms and conditions of the nationwide permit.

A nationwide permit does not grant any property rights or exclusive privileges. Also, it does not authorize any injury to the property or rights of others or authorize interference with any existing or proposed Federal project. Furthermore, it does not obviate the need to obtain other Federal, state, or local authorizations required by law.

Thank you for participating in our regulatory program. If you have any questions, please contact John W. Markham of my staff at (805) 585-2150.

Sincerely,

ORIGINAL SIGNED BY

Bruce A. Henderson
Acting Chief, North Coast Section
Regulatory Branch

Enclosure

BH 7/25/2003
~~CASTANON~~ HENDERSON
CESPL-CO-R

JWM 7/28/03
MARKHAM
CESPL-CO-R

CF: File Copy (Yellow) -200300260-JWM
Clipboard Copy -Los Angeles

LOS ANGELES DISTRICT
U.S ARMY CORPS OF ENGINEERS

CERTIFICATION OF COMPLIANCE WITH DEPARTMENT OF THE ARMY NATIONWIDE PERMIT

Permit Number: 200300260-JWM

Name of Permittee: John Johnson, Casitas Municipal Water District

Date of Issuance: July 25, 2003

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S Army Corps of Engineers
Regulatory Branch
ATTN: CESPL-CO-R-200300260-JWM
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Please note that your permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to comply with this nationwide permit you may be subject to permit suspension, modification, or revocation procedures as contained in 33 CFR 330.5 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit condition(s).

_____ _____

Signature of Permittee Date

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

In Reply, refer to: PAS # 216.222.281

April 29, 2003

David K. Young, Environmental Specialist
U.S. Bureau of Reclamation
South-Central California Area Office
1243 North Street
Fresno, California 93721-1813

Subject: Robles Diversion Fish Screen and Ladder, Ventura River, Ventura County, California (SCC - 411, ENV - 7.00)

Dear Mr. Young:

We have reviewed your letter dated February 27, 2003, and received in our office on February 28, 2003, requesting our concurrence with your determination that the subject project is not likely to adversely affect the endangered tidewater goby (*Eucyclogobius newberryi*), least Bell's vireo (*Vireo bellii pusillus*), California least tern (*Sterna antillarum browni*), and the threatened western snowy plover (*Charadrius alexandrinus nivosus*) and California red-legged frog (*Rana aurora draytonii*). We understand that you have initiated formal consultation with the National Marine Fisheries Service (NMFS) on the federally endangered steelhead trout (*Oncorhynchus mykiss)* in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*). Included with your letter was a biological assessment for the subject project prepared for NMFS (Reclamation 2003).

The Robles Diversion Dam is located approximately 1.5 miles downstream from the confluence of Matilija Creek and North Fork Matilija Creek, which join to form the Ventura River approximately 14 miles upstream of the Pacific Ocean. The U.S. Bureau of Reclamation (Reclamation) owns the Robles Diversion Dam and associated facilities, and is proposing modifications to the existing facilities and diversion operations to benefit steelhead trout. Modifications would include the construction and operation of a fish screen and ladder. All construction activities would occur at the Robles Diversion Dam and in a dry channel.

Under the existing operations of the Robles Diversion Dam, water is released at 20 cubic feet per second (cfs). If surface flow can be maintained downstream of the Robles Diversion Dam at Santa Ana Boulevard in Oak View, then downstream releases would be reduced below the

20 cfs level. Flows at the Robles Diversion Dam in excess of 20 cfs are diverted to the Robles-Casitas canal and Lake Casitas. The proposed changes include operation of the proposed fish passage facilities and existing diversion facilities with the following operational components: 1) diversion of water at the Robles Diversion Dam to Lake Casitas via the Robles-Casitas canal; 2) post-storm release of 30 cfs from January through June; 3) release of 0 to 20 cfs from July through December (as described in the Trial Operating Criteria); 4) stormflow suppleme ntation operations (January through June) that will result in forgoing diversions under specific criteria to increase storm-associated passage opportunities to the Robles Diversion Dam; and interim operations which include a 20 cfs release from January through June.

The tidewater goby typically occurs in coastal lagoons, estuaries, and marshes with relatively low salinities (approximately ten parts per thousand), and may range upstream into fresh water up to 1.2 miles from the coast. Tidewater gobies are known to occur in the Ventura River estuary. Proposed diversion operations include increased downstream releases from stormflow supplementation and post-storm operations from January through June. Reclamation anticipates that stormflow supplementation the proposed operations would result in additional flow into the Ventura River estuary during diversion operations compared to existing operations. Diversion operations would occur during or soon after storms in the watershed, so any additions to the flow already entering the estuary during these storm periods would have a negligible effect on tidewater goby habitat. Because all construction activities would occur at the Robles Diversion Dam, and the effects of supplemental flows would be negligible, we concur that the project is not likely to adversely affect the tidewater goby, which is found 14 miles downstream.

The least Bell's vireo typically occupies riparian habitat that contains both canopy and shrub layers, and includes some associated upland habitats. There is no suitable habitat for the least Bell's vireo at the Robles Diversion Dam; however, the species regularly nests approximately 13 miles downstream near the Highway 101 overpass. Additional releases during nesting season (April through July) are not likely to adversely affect the least Bell's vireo. Large storms are unlikely in the Ventura River system during the least Bell's vireo breeding season.

The western snowy plover and California least tern rest or forage on San Buenaventura State Beach which is just south of the Ventura River mouth. Western snowy plovers use the beach for wintering (Smith 2003). California least terns forage in the estuary. San Buenaventura State Beach has been designated as critical habitat for the western snowy plover. Neither species nests at San Buenaventura State Beach. The closest known breeding area for the western snowy plover and California least tern is approximately 4 miles south at McGrath State Beach in Ventura County. Reclamation does not expect stormflow supplementation operations to substantially alter the stormflow conditions within the Ventura River nor would diversion operations erode beach habitat or know nesting areas. We therefore, concur that the proposed project is not likely to adversely affect the western snowy plover or California least tern.

The California red-legged frog has been reported from San Antonio Creek, a tributary to the Ventura River located approximately 7 miles downstream from Matilija Dam. It has also been

observed from above Matilija Dam, approximately 2 miles upstream. Reclamation does not anticipate that the additional releases would have any effect on the California red-legged frog either downstream or upstream of the Robles Diversion. This species is dependent on pools of water. The small amount of additional flow, relative to overall stormflow conditions, may have positive, although temporary, effects on the habitat for the California red-legged frog downstream of the Robles Diversion. We concur that the proposed project is not likely to adversely affect the California red-legged frog.

Further consultation pursuant to the Act, is not required. If the proposed action changes in any manner or if adverse effects to any listed species are detected at any time during the project implementation, you should contact us immediately to complete the appropriate level of consultation.

If you have further questions regarding this matter, please contact Chris Delfith of my staff at (805) 644-1766.

Sincerely,

Rachel E. Tamm
acting for
Bridget Fahey
Division Chief
Santa Barbara/Ventura/Los Angeles

cc: Maurice Cardenas, California Department of Fish and Game
Rick Rogers, National Oceanic and Atmospheric Administration Fisheries

Literature Cited

Smith, R. 2003. Ventura county snowy plovers - 2002 survey results. Unpublished report prepared for Point Reyes Bird Observatory and the Channel Coast District of the California Department of Parks and Recreation.

U.S Bureau of Reclamation. 2003. Revised Biological assessment for diversion operations and fish passage facilities at the Robles diversion. Unpublished report prepared for National Marine Fisheries Service. Long Beach, California.

Appendix B

Mitigated Negative Declaration for the Robles Diversion Dam Fish Screen and Fishway

MITIGATED NEGATIVE DECLARATION FOR THE ROBLES DIVERSION DAM FISH SCREEN AND FISHWAY

Prepared for:

CASITAS MUNICIPAL WATER DISTRICT
Oak View, California

Prepared by:

ENTRIX, INC.
Walnut Creek, California

Project No. 351401

December 4, 2000

MITIGATED NEGATIVE DECLARATION
FOR THE
ROBLES DIVERSION DAM
FISH SCREEN AND FISHWAY

Prepared for:

CASITAS MUNICIPAL WATER DISTRICT
1055 Ventura Avenue
Oak View, California 93022

Prepared by:

ENTRIX, INC.
590 Ygnacio Valley Road, Suite 200
Walnut Creek, California 94596

Project No. 351401

December 4, 2000

LIST OF FIGURES

Page

1.1 BACKGROUND

Casitas Municipal Water District (CMWD) is a special district formed in 1952 (under its previous name of the Ventura River Municipal Water District) to develop water supply for growers and residents of the Ojai and Ventura areas (Figure 1). The entire City of San Buenaventura boundary as it existed in 1952 was included in the CMWD's service area. Upon its formation, CMWD entered into an agreement with the Bureau of Reclamation (USBR) that led to the construction of Casitas Dam and associated facilities (the Ventura River Project) which were completed in 1959. The facilities were built by the USBR under a repayment contract to CMWD; repayment will be complete in 2012. The facilities are presently owned by the USBR, but CMWD operates and maintains these facilities under contract to the USBR.

CMWD serves an area of approximately 150 square miles. The District supplies water to a current population of approximately 63,000 people, and to approximately 6,000 acres of agricultural lands. The CMWD water supply consists of runoff from the Coyote Creek watershed above Lake Casitas and runoff from the Ventura River, which is diverted at the Robles Diversion Facilities and conveyed to Lake Casitas (Figure 1). Approximately 55 percent of CMWD's water supply is diverted from the Ventura River. CMWD diverts water from the Ventura River at the Robles Diversion Dam, which is located approximately 1.4 miles downstream of the confluence of Matilija and North Fork Matilija creeks. The Robles Canal diverts water from the upstream portion of the Ventura River into Casitas Reservoir on Coyote Creek, a tributary to the Ventura River. These diversions take place under a water right license issued by the State Water Resources Control Board. Ninety percent of the diversions each year occur during the period from December through April.

The Robles Diversion Dam and its access road present barriers to upstream and downstream migration of southern steelhead trout (*Oncorhynchus mykiss*), a federally listed endangered species. The purpose of the proposed project is to facilitate the up- and downstream migration of steelhead past the Robles Diversion Dam to access spawning and rearing habitat in the upper watershed.

1.2 PROJECT NEED

In August of 1997, southern California anadromous steelhead were listed as endangered under the federal Endangered Species Act. The Ventura River steelhead are included in this listing decision. Robles Diversion Facility and Matilija Dam were identified by the California Department of Fish and Game (CDFG) as the most significant impediments to steelhead migration in this system. According to CDFG, "restoring steelhead runs in this river will be crucial to restoring southern steelhead stocks" and "recovering these stocks... will be the highest priority for CDFG steelhead management" (McEwan and

Jackson 1996). Provision of a fish ladder and fish screens at this site is a high priority for CDFG and is the single most significant restoration action for Southern California steelhead (Dennis McEwan, CDFG, pers. comm.).

The Ventura River Steelhead Restoration and Recovery Plan (SRRP) was developed in December 1997. The SRRP and the Federal Register (Volume 65, No. 32, pages 7764 – 7787, February 16, 1999) identify portions of the Ventura River as critical habitat for steelhead. The lower reaches of the river exhibit low flow to subsurface flow conditions during certain times of year that do not support steelhead rearing conditions. Therefore, although identified as critical steelhead habitat, there is little potential to increase production in the mainstem downstream of the Robles Diversion because the rearing habitat is limited. Historically, over 50 percent of the available spawning and rearing habitat in this system were above the Robles Diversion Dam (Moore 1980; McEwan and Jackson 1996). The SRRP identifies fish passage modifications to the Robles Diversion Facilities as absolutely essential to increase and maintain viable populations of steelhead within the Ventura River watershed (SRRP 1997).

To benefit listed steelhead, CMWD is proposing construction of a fish ladder to allow fish access to important spawning and rearing habitat upstream of the Robles Diversion Dam. Much of the important steelhead spawning and rearing habitat upstream of the Robles Diversion is located in Los Padres National Forest. Aquatic habitat in North Fork Matilija Creek is in good condition. Fish population and habitat surveys conducted by the U.S. Forest Service (USFS) (Chubb 1997) and the CDFG (Steve Parmenter and Dennis McEwan, CDFG, pers. comm.) indicate resident rainbow trout production in North Fork Matilija Creek is high, demonstrating existing habitat conditions are suitable for steelhead. Constructing fish passage structures at the Robles Diversion Facilities will provide adult steelhead migrating upstream with access to approximately eight miles of spawning and rearing habitat in North Fork Matilija Creek and will provide downstream access to adult and juvenile steelhead.

The County of Ventura in coordination with state and federal agencies are currently conducting geologic, engineering, and environmental studies to determine the feasibility of removing Matilija Dam, located above the Robles Diversion Facilities on Matilija Creek. Decommissioning and removal of the dam are actively being pursued. The removal of Matilija Dam would restore access to about 26.4 miles of headwater spawning and rearing habitat in Matilija Creek and its tributaries (Moore, 1980; SRRP 1997). The availability of these historic spawning grounds will not benefit steelhead of the Ventura River if upstream and downstream passage is not provided at the Robles Diversion Facility.

1.3 PROJECT OVERVIEW

CMWD is the project applicant and has prepared the project plan with design assistance from Borcalli and Associates' engineers and ENTRIX biologists. Guidance in refining the design was provided by CDFG, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), USBR and Friends of the Ventura River.

The project would modify the existing Robles Diversion Facilities to provide for the safe upstream passage of adult steelhead and the safe downstream passage of juvenile. Proposed for installation are a fishway, fish screen, high and low flow fish exit channels, a spillway energy dissipater, and a series of low-head stone weirs and an at grade low flow channel crossing. The weirs allow for removal of the existing concrete road crossing downstream of the diversion spillway. The project is essential to provide and maintain access to good spawning and rearing habitat located upstream of Robles Diversion Facilities in the mainstem of the Ventura River, North Fork Matilija Creek, and the mainstem of Matilija Creek below Matilija Dam. The best habitat is available in North Fork Matilija and in Matilija Creek, upstream of Matilija Dam. Additionally, the provision of fish passage at the Robles Diversion Facilities would be a prerequisite to providing passage to the headwaters of the main Matilija Creek and tributaries following planned removal of the Matilija Dam.

The County of Ventura in cooperation with state and federal agencies is currently developing a plan for the removal of Matilija Dam. Achieving passage at Robles is of paramount importance for recovery of steelhead stocks in the Ventura River and essential for realizing full benefit from the removal of Matilija Dam. As such, the passage features at Robles have been designed with consideration of changes that may occur if Matilija Dam is removed and the watershed experiences an increase in sediment loading.

1.4 Report Organization

The remainder of this document is organized as follows:

- Section 2.0 provides a detailed description of the project, including a site map and construction drawing.
- Section 3.0 provides the environmental checklist with explanations for each of the environmental factors.
- Section 4.0 provides a detailed list of mitigation measures.
- Section 5.0 provides a list of preparers.
- Section 6.0 provides a list of the literature cited.

2.1 PROJECT SITE/EXISTING CONDITIONS

The proposed project is located at Robles Diversion Facilities in Ventura County within SE1/4 of Section 33, Township 5N, Range 23W, and the NE1/4 of Section 4, Township 4N, MDB&M. The water control and diversion headworks are located on the right bank of the Ventura River approximately 13.5 miles upstream from the Pacific Ocean and 2.0 miles downstream from Matilija Dam (Figure 1 and 2). The existing Robles Diversion Facilities consist of an earthen dam with a timber cutoff wall, a reinforced concrete spillway structure with three 16-foot-wide and one 10-foot-wide radial gates, and a headworks structure with three 11.5-foot-wide radial gates at the entrance to the concrete-lined canal used to convey water from the Ventura River to Lake Casitas. The canal includes a Parshall flume to measure the flow diverted from the Ventura River.

The radial gates in the spillway structure are operated to maintain a "forebay" pool during periods when water is being diverted through the headworks structure for conveyance to Lake Casitas. At all other times, the spillway gates are raised. The headworks is operated to control the amount of water diverted into the conveyance canal for delivery to Lake Casitas. Under current operations, adult or juvenile steelhead migrating downstream could be entrained in the diverted water, and would not be returned to the Ventura River.

The water rights permit under which CMWD operates, provides for diversion of up to 107,800 AF per year at the Robles Facility to storage in Lake Casitas. There is no instantaneous diversion limit established by the permit. However, there is a structural limit on the instantaneous diversion, as the canal that carries water from the Robles Diversion Dam to Lake Casitas has a maximum capacity of 600 cubic feet per second (cfs). Currently, when water is available, CMWD diverts up to 500 cfs to Lake Casitas. This provides additional capacity within the diversion canal for any additional inputs from sources such as rain and runoff.

When the water level in Lake Casitas is at 2 feet below the spillway crest, CMWD does not divert water. The spillway gates at these times are raised, and all flows, up to approximately 7,000 to 8,000 cfs, pass through the spillway structure. When flows exceed the capacity of the spillway structure, water overtops the earthen dam and passes through the overflow channel. The confluence of the spillway channel and overflow channel is approximately 1,500 feet downstream of the Robles Diversion Facilities.

Approximately 450 feet downstream from the spillway is a concrete weir/roadway that functions as a low flow measuring station and provides vehicular access to the headworks when the flow is less than 15 cfs. The weir/roadway is impassable to fish when flows are less than 100 cfs. The spillway structure is impassable to upstream migrating steelhead

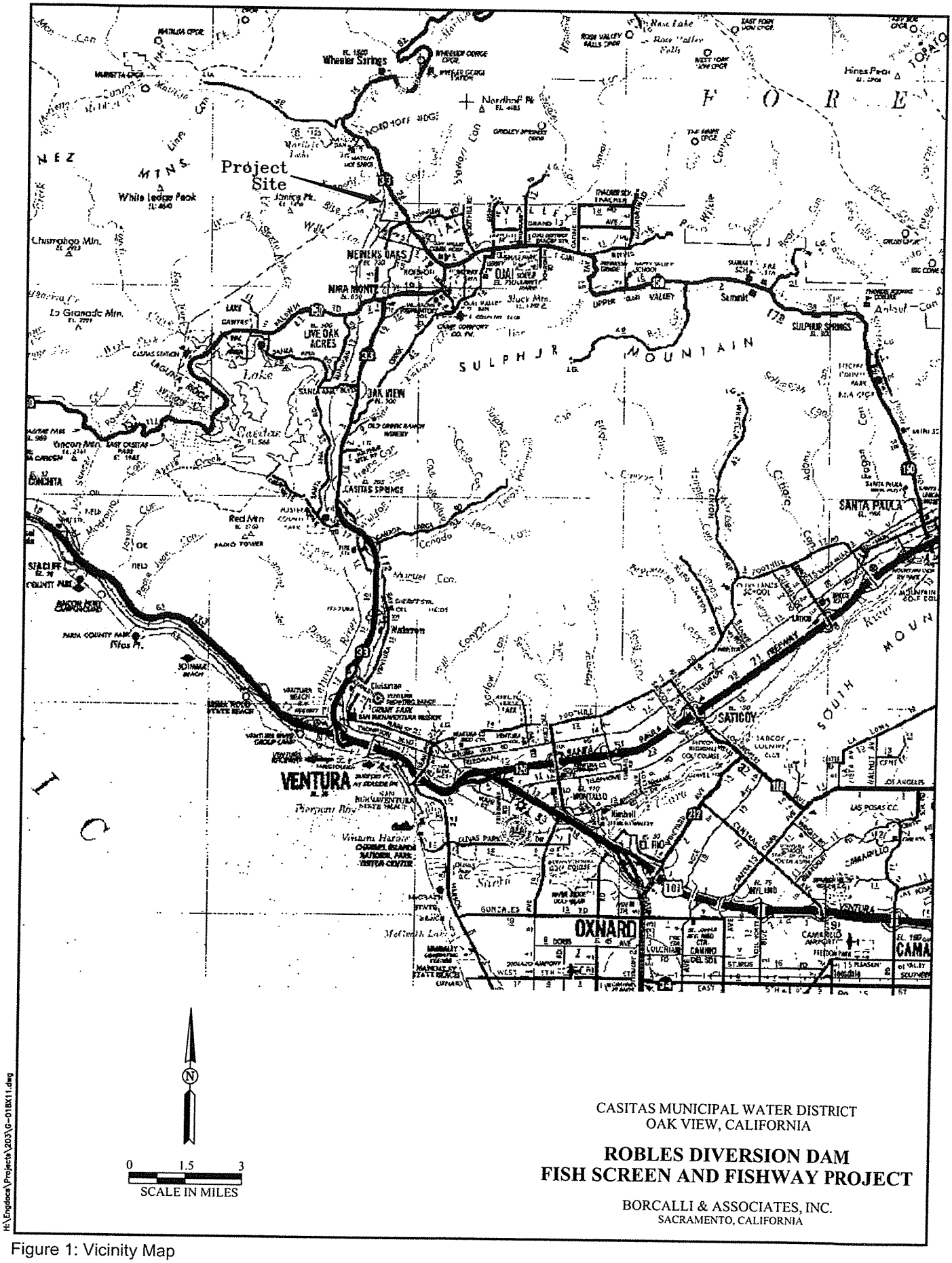
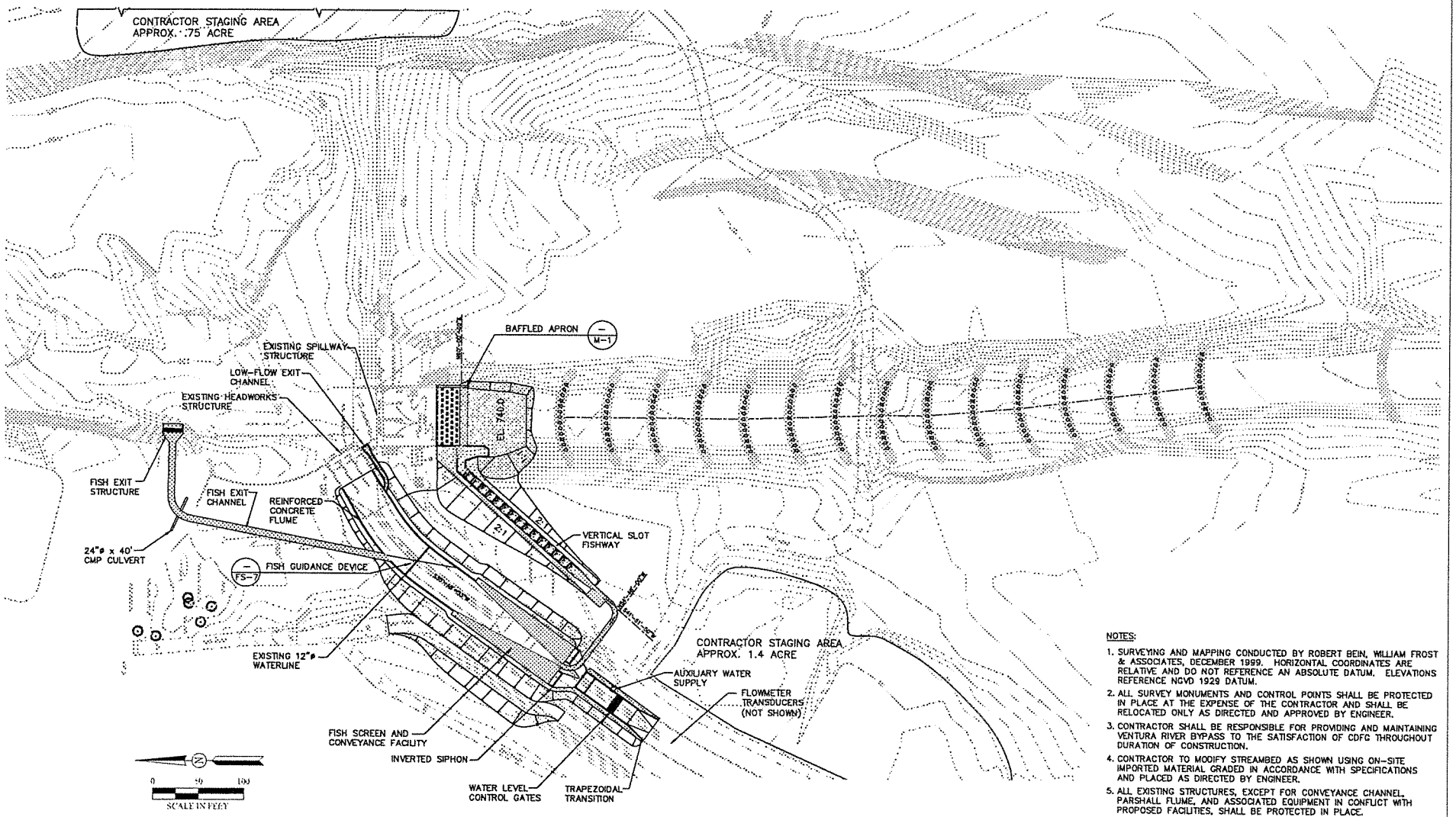


Figure 1: Vicinity Map



NOTES:

1. SURVEYING AND MAPPING CONDUCTED BY ROBERT BEIN, WILLIAM FROST & ASSOCIATES, DECEMBER 1999. HORIZONTAL COORDINATES ARE RELATIVE AND DO NOT REFERENCE AN ABSOLUTE DATUM. ELEVATIONS REFERENCE NGVD 1929 DATUM.
2. ALL SURVEY MONUMENTS AND CONTROL POINTS SHALL BE PROTECTED IN PLACE AT THE EXPENSE OF THE CONTRACTOR AND SHALL BE RELOCATED ONLY AS DIRECTED AND APPROVED BY ENGINEER.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING VENTURA RIVER BYPASS TO THE SATISFACTION OF CDFG THROUGHOUT DURATION OF CONSTRUCTION.
4. CONTRACTOR TO MODIFY STREAMBED AS SHOWN USING ON-SITE IMPORTED MATERIAL GRADED IN ACCORDANCE WITH SPECIFICATIONS AND PLACED AS DIRECTED BY ENGINEER.
5. ALL EXISTING STRUCTURES, EXCEPT FOR CONVEYANCE CHANNEL, PARSHALL FLUME, AND ASSOCIATED EQUIPMENT IN CONFLICT WITH PROPOSED FACILITIES, SHALL BE PROTECTED IN PLACE.

REV	DATE	BY	CHK	APPR	DESCRIPTION
1	4/28/00	TWB	TWB	FEB	SDX SUBMITTAL

DESIGNED BY: T. BULLER
DRAWN BY: T. BULLER
CHECKED BY: F. BORCALLI
IN CHARGE: F. BORCALLI
DATE: 8/18/00

BORCALLI & ASSOCIATES INC.

SUBMITTED

APPROVED

CASITAS MUNICIPAL WATER DISTRICT
ROBLES DIVERSION DAM FISH SCREEN AND FISHWAY PROJECT

SITE PLAN

SCALE OF ORIGINAL: 1"=50'

DRAWING NO: G-1

SHEET: 1

Figure 2

under all flow regimes. The existing Robles structures prevent steelhead from migrating upstream and spawning in North Fork Matilija Creek. Matilija Dam, located on Matilija Creek just upstream from the confluence with North Fork Matilija Creek, prevents access to suitable habitat upstream in Matilija Creek, Murietta Creek and the Upper North Fork Matilija Creek.

The habitat downstream of the Robles Diversion was surveyed by Mark Capelli in 1995. According to that survey, the river section between the Robles Diversion downstream to Highway 150, "consisted principally of a series of pools and glides through a boulder field with little or no riparian cover." Shade cover was provided by rocks or boulders and deep-water habitat. During the survey, this reach contained a greater number of steelhead captured per unit time effort, compared to reaches further downstream (Capelli 1997).

2.2 General Project Description

The purpose of the proposed project is to facilitate the up- and downstream migration of southern steelhead trout (federally listed as endangered), and provide them access to suitable spawning and rearing habitat upstream of Robles Diversion Dam. The proposed project is also likely to improve the movement of any other native fish species. The project will result in the temporary removal of some of the riparian vegetation and disturbance of the associated wildlife immediately downstream of the Robles Diversion during grading and installation of the low-head stone weirs and low-flow crossing. The project is not expected to interfere with any other native and/or sensitive wildlife species, corridors, nursery sites, or other sensitive natural communities.

Construction is scheduled to begin in August 2001 and is expected to take 8 months to complete. Delay in obtaining the necessary permits or funding for the project will result in a delay in implementation. In such a case, it is anticipated that construction would begin in August 2002. Work taking place in the channel, such as construction of the fish ladder entrance, the upstream end of the exit channel, and streambed modification, will be limited to no flow conditions (*i.e.*, August 1 to October 31), when the channel is naturally dry. Priority will be given to completing instream work while the channel is dry. All construction activities taking place outside of the wetted channel (*e.g.*, fish screen, fish ladder, and auxiliary water supply) can generally be accomplished during most months.

2.3 Project Engineering Description

The primary project features include a fish screen, flow control structure, flow measurement section, fish guidance device, fishway, auxiliary water supply, high and low flow fish exit channels, a baffled apron, and a series of low-head stone weirs allowing for the removal of the existing concrete road crossing downstream of the spillway (Figure 2).

The project components are further described as follows:

1. Fish Screen and Diversion Structure – The fish screen structure will consist of vertical, stainless steel, wedge-wire screen panels aligned horizontally in series in a chevron configuration within the diversion flume. The fish screen assembly,

approximately 120 feet long, will be installed to prevent entrainment of adult and juvenile steelhead within the water diverted to Lake Casitas. The fish screen panels will be continuously cleaned using mechanical traveling brush mechanisms. The brush cleaning system will be operated via electric motors, activated manually or automatically, at preset time intervals.

The fish screen surface area was designed according to CMWD's historic maximum diversion rate of 500 cfs plus an additional 100 cfs for the auxiliary water supply pipeline, for a combined total of 600 cfs. In order to account for inefficiency in the fish screen system (*e.g.,* potentially non-uniform flow, debris, *etc.*), the system was over-designed for a maximum capacity of 726 cfs. Given the proper hydrologic and climatic conditions, CMWD may divert more than 500 cfs, up to either the fish screen limit or the diversion canal limit, whichever is less. The fish screen capacity will be determined during operation of the system. In practice, it is anticipated that CMWD will not divert more than 550 cfs. The design will comply with the criteria of the CDFG and NMFS. The approach velocity will not exceed 0.4 feet per second, and the sweeping velocity will be at least two times greater.

Adjustable, perforated plate baffle assemblies will be installed behind the fish screen panels to uniformly distribute approach velocities throughout the screen face. The porosity control devices will be implemented to prevent the occurrence of "hot spots" or areas where the approach velocity exceeds 0.4 feet per second.

The screen will be located between the existing headworks structure and concrete-lined diversion canal. The entire screen assembly will be installed within a new reinforced concrete flume with a width and height of 40.0 and 11.7 feet, respectively. Installation of the fish screen assembly will require excavation of 10,800 cubic yards of material, of which 5,600 cubic yards will be used as backfill and 5,200 cubic yards spoiled at CMWD's existing spoil area.

Approximately 350 lineal feet of the existing concrete-lined diversion canal, including a 74-foot-long Parshall flume, will be removed for construction of the fish screen and diversion structure. Approximately 75 cubic yards of reinforced concrete from demolishing the Parshall flume will be disposed at a facility appropriately licensed to accept the material. Approximately 950 cubic yards of new reinforced concrete will be placed to construct the new flume.

2. Flow Control Structure – The flow control structure will consist of a 20-foot wide rectangular flume section containing a single-leaf, overshot gate. The "overshot" gate will be electronically actuated to maintain a design forebay water surface elevation, and to provide the desired rate of diversion. The overshot gate will function as an adjustable weir. The gate will be operated manually or automatically according to a predetermined control logic subroutine.

   When the gate is fully raised, the diversion process will be discontinued. Under normal operation, the radial gates at the headworks structure will be fully opened, and diversion control will be provided by the flow control structure.

   Under current operation, if CMWD is not diverting water to Lake Casitas, the spillway gates are fully raised. The proposed project requires CMWD to modify its

current operation of the spillway gates and to use them to create a forebay pool, during the entire diversion season. In order to avoid trapping steelhead in the forebay pool at the end of the season, the low-flow fish exit channel gate will be raised to release water and fish. The low-flow fish exit will remain open during the summer and fall when CMWD is not diverting water. During brief periods of high runoff, the spillway gates will open as necessary to maintain the designated water surface elevation in the forebay.

Construction of the flow control structure will require excavation of 3,000 cubic yards of material, of which 1,600 cubic yards will be used as backfill and 1,400 cubic yards will be spoiled at CMWD's existing spoil area. Approximately 250 cubic yards of new reinforced concrete will be placed to construct the new flume.

3. Flow Measurement Structure – A section of the canal downstream of the flow control structure will be equipped with multi-path, ultrasonic velocity and water level measurement transducers. The measured data will be relayed to a central programmable logic controller (PLC) for flow monitoring and flow control/gate actuation purposes.

   The structure instrumentation will document and record the amount of water diverted from the Ventura River to Lake Casitas.

4. Fish Guidance Device – The fish guidance device will be located within the diversion flume downstream of the headworks structure. The device will be aligned at approximately 25 degrees to the flume centerline, and will span almost its entire length. The fish guidance device consists of a series of slotted panels constructed of evenly spaced, vertically aligned, profiled louver vanes.

   The primary objective of the guidance device is to direct adult upstream migrants toward the entrance of the high-flow exit channel. The project feature will ensure that upstream-migrants do not exit through the existing headworks structure, risk being captured within transverse velocities and swept downstream through the spillway structure. The high-flow exit channel is aligned to relocate the point of exit in the river or forebay approximately 200 feet upstream of the spillway structure where velocities are much less. The downstream end of the fish guidance device will include a covered slot, or fyke, enabling downstream migrants to negotiate past the fish guidance device while preventing upstream migrants from passing through. The fish guidance device will be configured to accommodate the safe passage of downstream migrating adult and juvenile steelhead.

5. Fishway – The fishway will be a vertical slot type, designed to function at flows of 10 to 50 cfs. It will facilitate upstream passage of adult steelhead around Robles Diversion Dam. The fishway will function for upstream migrating steelhead as well as downstream migrating juvenile and adult steelhead. Flow into the fishway will be self-regulating according to forebay and tailwater surface fluctuation. The entrance into the fishway will be located adjacent to the existing spillway abutment and immediately downstream of the spillway structure.

   The fishway design flow is 1,500 cfs. Using accepted criteria, an attraction flow of 10 percent or 150 cfs is required and will be maintained during migration periods.

The fishway will be designed to convey up to 50 cfs, and the auxiliary water supply pipeline will contribute the balance of 100 cfs. The control slide gate will be adjusted automatically according to measured flow in the Ventura River and the pipeline to maintain the proper flow relationship.

The fishway will be approximately 360 feet long and consist of a sloped, rectangular flume partitioned by vertical slot baffles that are located at equal increments, creating a step-like arrangement of resting pools. The flume will be 8.0 feet wide with 16.0-foot high walls. The structure will be constructed of reinforced concrete, and entirely covered with galvanized steel grating for operational access, support and debris fallout protection. The fishway entrance will contain five vertical slots aligned perpendicular, 30 degrees to, and parallel with the streamflow. The slots can be manipulated to generate optimum fish attraction and will be equipped with stoplog channels to allow for closure during periods when the ladder is non-operational. The fishway exit will interface the fish screen via a rectangular channel and full-height vertical slot.

Construction of the fishway will require excavation of approximately 7,000 cubic yards of material, of which 5,000 cubic yards will be used as backfill and 2,000 cubic yards placed at CMWD's existing spoil area. Approximately 700 cubic yards of reinforced concrete will be required for construction of the fishway.

An entrance pool will be located at the fishway entrance to aid migrating fish into the fishway. One thousand cubic yards of material will be excavated to create the pool, all of which will be placed at the above-mentioned facility.

6. Auxiliary Water Supply Pipeline – The auxiliary water supply pipeline will introduce supplemental flow into the fishway at the entrance pool to enhance fish "attraction." As noted previously, the fish passage design flow is 1,500 cfs. Using accepted criteria, an attraction flow of 10 percent or 150 cfs is required. With the fishway designed for a maximum of 50 cfs, the auxiliary water supply flow will be designed for 100 cfs. The auxiliary supply flow will be conveyed through an HDPE pipeline and introduced through the sidewall of the initial entrance pool of the fishway. To avoid the capture and entrainment of migrating fish at the pipeline inlet, the auxiliary water will be diverted downstream of the fish screen. Accordingly, the fish screen will be designed to accommodate both CMWD's historic maximum diversion rate of 500 cfs plus the additional auxiliary water supply flow of 100 cfs.

   The auxiliary water supply will consist of an inlet control slide gate, a high-density polyethylene pipeline, a flowmeter, and an outlet diffuser structure. The diffuser will placidly introduce the supplemental flow into the entrance pool to avoid flows that could be injurious or confusing to fish. The inlet will be located downstream of the fish screen to avoid the risk of entrainment, and upstream of the proposed flow control structure to maintain submergence under all diversion conditions. The pipeline will be installed adjacent to the fishway. The 325-foot HDPE pipeline and concrete diffuser structure will utilize the open trench excavated for the fishway, therefore no additional excavation will be required.

7. Fish Exit Channels – Two fish exit channels are included in the proposed project. The high-flow exit channel will function as the primary migration route throughout

the diversion season. The high-flow exit channel is included, as previously mentioned, to prevent "fall-back" through the spillway structure by relocating the point of exit further upstream where conditions will be more favorable. The high-flow exit channel will operate at a flow rate of 40 cfs to 50 cfs. A low-flow exit channel is also included to circumvent the ambiguity of assigning a specific cut-off point at which the fish passage facilities are to be taken off-line. The purpose of the low-flow exit channel is two-fold. The channel will allow the forebay to self-drain at the end of the diversion season, thereby eliminating the forebay, which creates an attraction nuisance. The low-flow channel will also provide a means for fish passage during lower flows (less than cfs).

The low-flow channel will be opened at the end of the diversion season to drain the forebay. It will remain open until CMWD decides to begin diverting during the following rainy season, allowing any fish and water to bypass the system. Historically, CMWD allows the first few storms to move through the Robles Facility without diverting any water. These storms flush debris out of the system and act to recharge the alluvial groundwater basin. At the beginning of the diversion season, the low-flow fish exit will be closed to allow the forebay to fill in preparation for diversions. Once the forebay is full, the headworks of the diversion structure can be opened to provide a fish exit.

The high-flow exit channel will transition into an exit structure with a 54" slide gate, electric actuator, and steel trash rack, terminating at the Ventura River approximately 200 feet upstream of the spillway structure. The high-flow exit channel, including the exit structure, will be approximately 330 feet long. The high-flow exit channel will consist of a 5-foot wide by 12-foot deep rectangular reinforced concrete flume that interfaces with the fish screen structure just downstream of the guidance device. The low-flow exit channel inlet will be located between the existing headworks and spillway structures and will tie into the diversion flume downstream of the headworks structure. The low-flow exit channel will consist of a 3-foot wide by 17-foot high by 40-foot long concrete channel with a 60-inch slide gate and electric actuator. The channel walls will be constructed to existing grade and covered with galvanized steel grating.

Construction of the fish exit channels will require excavation of 5,000 cubic yards of material, of which 4,000 cubic yards will be used as backfill and 1,000 cubic yards placed at the above-mentioned facility. Approximately 600 cubic yards of reinforced concrete will be required for construction of the fish exit channels.

8. Streambed Modifications – A baffled apron structure and a series of low-head stone weirs will be included in the project to provide effective fish passage to the fishway entrance while maintaining a stable riverbed. The construction zone for the proposed streambed modifications is immediately downstream of the Robles Diversion spillway. This area is likely considered part of the designated critical habitat for steelhead in the lower Ventura River.

   The baffled apron structure will be constructed immediately downstream of the existing spillway apron. The baffled apron will be a reinforced concrete sill with baffle blocks on a sloping concrete slab. The baffle blocks will be distributed over

the sloping concrete slab in accordance with the criteria of the U.S. Bureau of Reclamation (USBR) to dissipate energy and limit the extent of turbulent flow in to the entrance pool. The USBR's criteria have been widely applied for energy dissipation at hydraulic structures. This will function to minimize competing attraction flows from the spillway and obscuring the fishway entrance by flows from the spillway. The sill and baffled apron structure will dissipate excess energy by creating a hydraulic jump within the existing spillway structure throughout the design flow range (0 cfs to 1,500 cfs). The structure will tie into the downstream end of the existing spillway apron with an abrupt invert offset, or sill, and will descend into the entrance pool at the base of the fishway at a 2:1 slope. The apron will be embedded approximately 10 feet into the entrance pool to control the extent of scour.

The channel below the spillway is straight, approximately 40 to 60 feet wide with banks at a 2:1 slope. The streambed and bank substrate consists of large cobble and boulders 1 to 2 feet in diameter. The top of the banks are covered with a relatively young stand of three to five-year-old willows.

Approximately 450 feet downstream from the spillway structure, a concrete low flow measuring weir/roadway is constructed across the spillway channel. The crossing currently functions as a grade stabilization structure, generating a drop of approximately 5 feet in the water surface profile and obstructing steelhead migration at low flows. To correct this, a series of fifteen (15) low-head stone weirs will be installed within the channel at uniformly spaced increments throughout a reach of approximately 800 feet downstream of the existing spillway structure. The series of weirs is designed to produce a step-pool arrangement conducive to upstream fish passage through the spillway channel up to the fishway entrance. In addition, the system will stabilize the streambed, provide the necessary submergence of the fishway entrance, and help maintain a consistent low-flow channel.

The weirs are designed to be approximately 40 feet wide in an arc with the low point in the center, and will be keyed into the embankments a minimum of 4 to 6 feet. Native stone (*i.e.*, cobbles and boulders) will be embedded in a grouted stone footing to a depth of 1/3 of the stone's diameter. Boulders will be anchored to and embedded into the weir footings to prevent undermining the structural support of the weirs, and to prevent erosion of the banks. The center of the low-head stone weirs will be approximately 1 foot lower than the outer edges, thus concentrating the flow towards the center and creating a consistent low flow channel, and reducing the potential for bank scour. Step-pools will exist on the downstream side of each weir. The low-head stone weirs will have a maximum height of 18 inches from the bottom of the downstream pool to the top of the weir. When water is present, this should result in passable conditions for both adult and juvenile fish. The streambed downstream of the weirs will be armored with native material (*i.e.*, cobbles and boulders) to prevent the development of excessively large scour holes.

The existing concrete road crossing will be removed and replaced with grouted rock constructed at the grade of the new riverbed at the location of the existing road crossing. The new road crossing will have the same dimensions as the existing road crossing (12 feet wide), but will be at the new riverbed elevation through the entire width of the channel. The road on either side of the channel will be cut into the bank

to eliminate the need for any elevation increase within the channel. The low-flow crossing will be placed immediately upstream of a low-head stone weir (Figure 2). This will ensure that the crossing will not become a fish passage barrier. This crossing will only be usable at flows under 15 cfs, when steelhead are likely to be absent from this reach.

A 30-foot area along the top of both banks will be cleared and graded to provide access for modifying the gradient of the channel and construction of the weirs. This will result in the temporary removal or disturbance of riparian vegetation during construction. The impacted area is approximately 24,000 square feet or 0.55 acres.

Installation of the low-head stone weirs will impact approximately 1.7 acres of the streambed. Approximately 15,000 cubic yards of material will be excavated, of which 11,000 will be spoil. Approximately 4,000 yards of graded and processed material will be screened from the spoil and will be used to construct the weirs and armor the pool inverts. Approximately 1,000 yards of lean concrete (*i.e.*, concrete with reduced Portland cement content) will be used to anchor the stone weirs into the embankments and streambed.

Maintenance of the stone weirs should be minimal and limited to debris removal, and will occur only during dry conditions when the channel is dewatered. Since the gradation and boulder size is large in relation to conventional design standards, scour of the restoration area should be nominal. Inspections will be conducted early in the service life of the system and on an ongoing basis immediately following significant flood events. The inspections will involve identifying undercutting or flanking around the weirs and repairing, as necessary. Significant movement of the boulders or armoring material will be restored following the guidance of NMFS and USFWS. If removal or disturbance of the riparian vegetation is required, appropriate restoration will be conducted.

The successful passage of fish requires using the physical structures described above. Regardless of flow within the Ventura River, a forebay must be maintained upstream of the existing spillway structure for the fish passage facilities to function properly.

Earthwork for the above-mentioned facilities will involve the use of hydraulic excavators and loaders, bulldozers, and off-road earth-hauling trucks. All construction equipment will be well maintained to ensure that exhaust is minimized. All equipment, while not in use, will be stored at two staging areas, one on each side of the river (Figure 2). The main staging area will be located southwest of the Robles Diversion Dam, between the existing access road and the Robles Diversion Canal on a large flat approximately 1.4 acres in size. An additional staging area, of approximately 0.75 acres in size, will be located east of the spillway channel.

The concrete supply will probably be accomplished with placements ranging from approximately 50 to 150 cubic yards per day. The existing concrete canal lining will be broken, crushed, and placed with the excavation spoil. Approximately 75 cubic yards of reinforced concrete from demolishing the Parshall flume will be disposed at a facility appropriately licensed to accept the material. All excess excavated material for the entire project will be spoiled at CMWD's existing spoil area on the right bank approximately

500 feet upstream from the Robles Diversion Facilities. This spoil basin is located completely outside the high flow channel, and separated from the river channel by a raised berm. The spoil material will be used by CMWD at a later time for construction of road basins and/or slope and embankment maintenance, and will not affect the capacity of the existing spoil area. A qualified archeologist will be present during all necessary excavations to ensure that no cultural resources will be damaged.

Work within or adjacent to the waterway includes the fish exit structure on the right bank approximately 200 feet upstream of the existing spillway structure, excavation for construction of the fish ladder entrance on the right bank just downstream of the spillway structure, incorporation of the baffled apron into the existing spillway structure, and modification of approximately 800 feet of the existing spillway channel via incorporation of low-head stone weirs and the low-flow crossing. Work within the forebay or spillway channel, downstream of the existing spillway structure, will be performed during periods of no flow. This will ensure the absence of steelhead, that water quality is maintained, and erosion minimized.

Environmental Checklist Form

1. Project title:

   Robles Diversion Dam Fish Screen and Fishway

2. Lead agency name and address:

   Casitas Municipal Water District

   1055 Ventura Avenue

   Oak View, CA 93022

3. Contact person and phone number:

   John J. Johnson, (805) 649-2251

4. Project location:

   Robles Diversion Dam, Ventura River, Ventura County

5. Project sponsor's name and address:

   John J. Johnson

   (805) 649-2251

   1055 Ventura Avenue, Oak View, CA 93022

6. General plan designation: Mult (multi use/water facility)

7. Zoning: Mult (multi use/water facility)

8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   See Section 2.0 of this report.

9. Surrounding land uses and setting (briefly describe the project's surroundings):

Los Padres National Forest to the north, west and east. Rural mountainous setting. The fishway to be installed on the west (right when looking downstream) streambank of the existing Robles Diversion Dam, operated by CMWD.

10. Other public agencies whose approval is required (*e.g.*, permits, financing approval, or participation agreement).

US Army Corps of Engineers, Section 404 and Section 10 permits. National Marine Fisheries Service and US Fish and Wildlife Service, Compliance with the Endangered Species Act, Section 7 Consultation. California Department of Fish and Game, Streambed Alteration Agreement. Regional Water Quality Control Board, 401 Water Quality Certification Waiver.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Hazards & 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	

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project 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 in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project 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

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 which 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 Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, the 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 these are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of work, and were 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 significant.

3.2 ISSUES

3.2.1 AESTHETICS

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the proposal:				
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 within a state 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, which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

The proposed fish screen structure will consist of vertical, stainless steel, wedge-wire screen panels installed in a chevron configuration within a rectangular concrete flume which replaces a section of the existing diversion canal. The proposed fish guidance device will be located within the rectangular flume upstream of the fish screen structure and will guide in-migrants toward the proposed high-flow exit channel. The high-flow fish exit channel, a rectangular concrete flume covered with steel grating, will be aligned to terminate approximately 200 feet upstream of the headworks structure. The low-flow exit channel, a concrete channel covered with steel grating, will be located between the existing headworks and spillway structures and will tie into the diversion flume downstream of the headworks structure. The fish screen structure and fish exit channels will be

embedded and recessed within existing grade and will not be very visible. The fish guidance device will consist of a steel-grating walkway and adjustable louver panels aligned across the proposed concrete flume. The proposed features will be integral and will subtly merge with the existing diversion facilities. Due to the existing visual character of the project area (an existing diversion dam), the proposed facilities will not further degrade the aesthetic quality of the area.

The flow control structure will be housed within a rectangular concrete flume integral with the existing diversion canal. The flow measurement structure will be located in a relined section of the canal downstream of the flow control structure. Since the flow control and flow measurement structures will be incorporated within facilities emulating the existing canal, they will not present a dissimilar appearance and will not contrast with the existing visual character of the river and the surrounding terrain.

The proposed streambed modifications will consist of a baffled apron structure and a series of low-head stone weirs installed at uniform increments across the existing spillway channel, generating a natural riffle hydraulic gradient. The existing concrete road crossing located approximately 450 feet downstream of the spillway structure will be removed by the implementation of the stone weir system. The low-head stone weir system will include an at grade low-flow crossing that will be placed immediately upstream of one of the weirs. The construction will utilize native material (*i.e.*, cobbles and boulders) and concrete for spatially positioned weirs along a channel reach of approximately 800 feet. The proposed baffled apron structure, consisting of a descending concrete apron and baffle blocks, will be a simple extension of the existing spillway structure and will present no negative aesthetic appearances.

3.2.2 AGRICULTURAL RESOURCES

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. 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 a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

There are no farmlands within the immediate vicinity of the proposed project. The routing of flow through the fish passage facilities will have no adverse effect on upstream or downstream water availability or adjudicated water right allotments for agricultural lands, or other water uses.

3.2.3 AIR QUALITY

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Where 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 proposal:				
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 non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

During construction, there could be some minor air emissions from construction equipment and dust generated from the necessary earthwork, material import operations, hauling, and concrete surface preparation (sandblasting). Construction equipment will be maintained to ensure exhaust is minimized. Water trucks may be used within the limits of the construction zone for dust control as necessary. No spraying or painting will be conducted at the project site. During project operations, no air emissions would be generated.

3.2.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
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 Dept. 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, regulations or by the California Dept. 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, marsh, vernal pool, coastal, *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?	☐	☐	☐	☒

Dams have been constructed on most streams that sustain steelhead in California. A major impact of dams has been the hindrance and/or complete prevention of upstream and downstream migration of anadromous species, consequently prohibiting steelhead access to historical spawning habitat. The proposed project was developed to facilitate steelhead passage beyond the Robles Diversion Dam. The proposed passage facilities will allow fish to access the upper portion of the Ventura River and North Fork Matilija Creek, which would allow access to good rearing and spawning habitat. The proposed fish screen structure will allow juvenile and spawned adult steelhead to migrate downstream without risk of entrainment within the water conveyed to Lake Casitas. The proposed fishway will allow outmigrants to circumvent the existing spillway structure at low flows so they can successfully reach the ocean. The proposed project will benefit federally listed steelhead.

The proposed project will not have an adverse impact on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS. California red-legged frogs, southwestern pond

turtles and Least Bell's vireo have been reported in the Ventura River watershed, but no individuals of these species, nor their habitat occur in the project area. No federally protected wetlands will be disturbed. The proposed project will not conflict with any habitat or natural community conservation plan.

The proposed project components will impact riparian vegetation in the area immediately downstream of the Robles Diversion Facilities during the proposed streambed modifications. This work will be performed when the river is dry. Riparian vegetation will be cleared to create 30-foot wide access lanes along each side of the spillway channel. This will temporarily displace the riparian wildlife community. These impacts will be mitigated by replanting and monitoring of vegetation where it has been disturbed (see Section 4.0).

The proposed project includes a component to restrict streambed construction timing to the dry season (periods of no flow). In most water year types, the river is dry at the project site during the proposed streambed construction period (August through October), so there will be no potential for sedimentation of downstream habitats. It is anticipated that subsurface water will be exposed during streambed excavation. Dewatering excavations may be necessary during construction. Excavation water containing fine-grained silt or sand will be pumped to an infiltration trench outside of the spillway channel. Under dry summer conditions the potential for sedimentation of downstream live river habitats is considered negligible because the live river is several miles downstream.

The proposed project will improve movement of steelhead in the Ventura River. With the exception of the removal and replacement of the riparian vegetation and temporary disturbance of the associated wildlife community, the project will not interfere with any other native wildlife species, corridors and/or nursery sites.

3.2.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the proposal:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Construction of the diversion and fish screen structure, flow control structure, fishway, fish exit channels, low-head stone weirs, and baffled apron will involve the excavation of approximately

43,000 cubic yards of streambed, adjacent embankment, and concrete and bank material from the existing diversion canal. The area to be excavated is spatially isolated and limited to the respective components of the subject project. The actual surface area of earthwork impact will be approximately 3.9 acres. Depths of excavation will vary and may range from less than 1.0 foot to 28.0 feet below ground surface. Cultural resources could potentially be unearthed by the excavations. The California State Historic Preservation Officer (SHPO) has been notified in writing to ensure that the presence of any cultural resources in the areas to be excavated are identified. The SHPO indicates that no prehistoric or historic resources have been identified within the project area (see attached Records Search, Attachment 2). A qualified archeologist will be present during the necessary excavations to ensure that no cultural resources will be damaged, as suggested by the SHPO.

The fish guidance device and flow measurement structure will not involve excavation.

3.2.6 GEOLOGY AND SOILS

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) 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 on- 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 risk to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

The construction of the proposed facilities will not jeopardize the structural integrity of the existing diversion structures. The excavations required for construction of the proposed components will take place during periods of no flow, when the excavation areas are dry. This will eliminate the potential for erosion. The proposed structures will not be used by people, but will require nominal operation and maintenance by qualified owner personnel, as is being practiced now. Therefore, the proposed project would not increase the risk of loss, injury, or death from seismic ground shaking, landslides, soil erosion, or flooding.

3.2.7 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the proposal:				
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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project 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?	☐	☐	☐	☒

The proposed project will not utilize, or emit hazardous materials, interfere with an adopted emergency response plan, or expose people or structures to a significant risk involving wildfires.

3.2.8 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	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 such that there would be 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 which 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, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☐	☒	☐
d) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
e) Otherwise substantially degrade water quality?	☐	☐	☐	☒
f) 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?	☐	☐	☐	☒
g) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☐	☒
h) 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?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

The flow of the Ventura River has been significantly altered by water diversions and is currently regulated by releases from the Matilija Dam and Robles Diversion. Historically, a flow of 20 cfs has been released through the spillway during diversions up to 500 cfs at the Robles Diversion, and the natural flow has been bypassed when not diverting. The implementation of the proposed fish ladder will include operational changes that may increase the flow conveyed downstream of the Robles Diversion. Water bypassed during diversion operations will be sufficient to provide for the safe passage flow requirements for upstream and downstream adult migrants and downstream juvenile migrants in the reach between the confluence with San Antonio Creek and the Robles Facility. This will ensure that migrating adult steelhead in the mainstem Ventura River will be able to reach the proposed fishway.

When not diverting to Lake Casitas, the natural flow will be bypassed through the a combination of the fishway, auxiliary pipeline and the spillway depending upon flow volume and conditions. Priority will be given to the fishway when flows are 50 cfs or less.

The proposed facilities will be automated to ensure that during diversions fish attraction flows equaling 10 percent of the total flow conveyed by the Ventura River will be passed downstream of the spillway through the fishway and auxiliary flow pipeline. This relationship will be maintained up to 1,500 cfs in the Ventura River or 150 cfs within the fishway and auxiliary flow pipeline. At flows greater than approximately 650 cfs, the spillway gates will be opened. The actual flow at which the gates are opened depends on how much water is being diverted. The 650 cfs value assumes a diversion of 500 cfs, although the system can divert slightly more.

The increased bypass flows during low flow periods will not alter the drainage patterns of the Ventura River, increase the rate or amount of surface runoff, or result in flooding on- or off-site. The project will not impede or redirect flood flows.

The project will influence groundwater recharge during low flow diversion periods when as much as 50 cfs would be released for operation of the fishway and passage of fish in the downstream reach. This will result in some increase in groundwater recharge because the proposed range of bypass flow exceeds the 20 cfs historically released during diversions. Areas where recharge will occur downstream of the fishway are not expected to change significantly. Although the increased volume of recharge is not expected to be significant, any increase in groundwater recharge during drought years would be considered a beneficial effect.

The proposed project includes a component to restrict construction timing to the dry season (July to October). In most water year types, the river will be dry at the project site during the proposed streambed construction period (August to October), so there will be no potential for sedimentation of downstream habitats.

1.1.9 LAND USE PLANNING

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with applicable environmental plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the 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?	☐	☐	☐	☒

The proposed project is located outside of any established community. The project does not conflict with any environmental, habitat or natural community conservation plan.

3.2.9 MINERAL RESOURCES

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of future 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?	☐	☐	☐	☒

There are no mineral extraction sites within the project area. The proposed project would have no affect on mineral resources.

3.2.10 NOISE

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the project:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Noise will be generated during the construction of the proposed project. Noise will be associated with that of typical heavy equipment used for construction (*i.e.*, excavators, loaders, trucks) and use of miscellaneous tools. There are no residents or other sensitive noise receptors within close proximity to the project site. Following installation, the structure will not generate noise. Therefore, noise effects are considered to be insignificant.

3.2.11 POPULATION AND HOUSING

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the proposal:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The proposed project will not affect population trends in the project area. There will be no permanent employees associated with the project's operation on a full-time basis.

3.2.12 PUBLIC SERVICES

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

The proposed project will have no affect on public services.

3.2.13 RECREATION

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

The immediate project area does not provide recreational opportunities. Therefore, the proposed project will not affect recreational resources in the area.

3.2.14 TRANSPORTATION/TRAFFIC

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (*i.e.*, result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated road 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 due to a design feature (*e.g.*, sharp curves or dangerous intersections) or incompatible uses (*e.g.*, farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (*e.g.*, bus turnouts, bicycle racks)?	☐	☐	☐	☒

During construction, traffic to the project area is expected to increase slightly. Once earthmoving equipment is mobilized, the traffic into and out of the project area will be limited to construction personnel, equipment deliveries, and concrete trucks. The largest concrete placement within a 24-hour period is anticipated to be approximately 700 cubic yards. Concrete deliveries will typically be accomplished with placements ranging from approximately 50 to 150 cubic yards per day.

The proposed project will have no direct or indirect affect on transportation and traffic once construction is completed.

3.2.15 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Would the project:				
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 are new or expanded entitlements needed?	☐	☐	☐	☒
e) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
f) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

The proposed project will have no affect on utilities and service systems. Excess excavation material will be spoiled at CMWD's existing spoil area on the right bank, approximately 500 feet upstream from the Robles Diversion Facility. This spoil basin is located completely outside the high flow channel, and separated from the river channel by a raised rim. The spoiled material will be used by CMWD at a later time for construction of road basins and/or slope and embankment maintenance, and will not affect the capacity of the existing spoil area.

3.3 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less-than-significant Impact	No Impact
Mandatory Findings of Significance:				
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, 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?	☐	☒	☐	☐
Issues (and Supporting Information Sources):				
a) 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.)	☐	☐	☐	☒
b) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

The proposed project will assist in the restoration and recovery of steelhead in the Ventura River. The project will not adversely affect any resources.

The following list of mitigation measures is recommended to protect sensitive species and their habitat from potential short-term impacts due to construction of the Robles Diversion fish screen and fishway.

1. In-channel construction will be restricted to the summer dry season when there will be no flow in the river.

2. Refueling of heavy equipment and vehicles will occur only within a designated, paved, bermed area where potential spills can be readily contained. Equipment and vehicles operated in or in close proximity to the river shall be checked and maintained to prevent leaks of fuels, lubricants or other fluids into the river. Construction equipment will be well maintained to ensure that exhaust is minimized.

3. All construction personnel will be informed of the potential for sensitive species to be present (and cursory identification) and will be instructed to inform the on-site biological monitor if suspected sensitive species are located.

4. A qualified archeologist will be present during the necessary excavations to ensure that no cultural resources will be damaged, as suggested by the SHPO.

5. Revegetation will be conducted to replace riparian trees and shrubs that will be removed or destroyed by construction work. All replacement vegetation will be native and could include arroyo or red willow, mulefat, sycamore or cottonwood. The revegetated area(s) will be monitored for five years.

6. River banks will be re-established to a 2:1 slope following construction of the low-head stone weirs to minimize erosion.

5.0
LIST OF PREPARERS

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Capelli, M. H. 1997. Ventura River Steelhead Survey. Ventura County, CA. California Department of Fish and Game.

Chubb, S. 1997. Ventura watershed analysis, focused input for steelhead restoration. Los Padres National Forest, Ojai Ranger District. Draft, June 3, 1997.

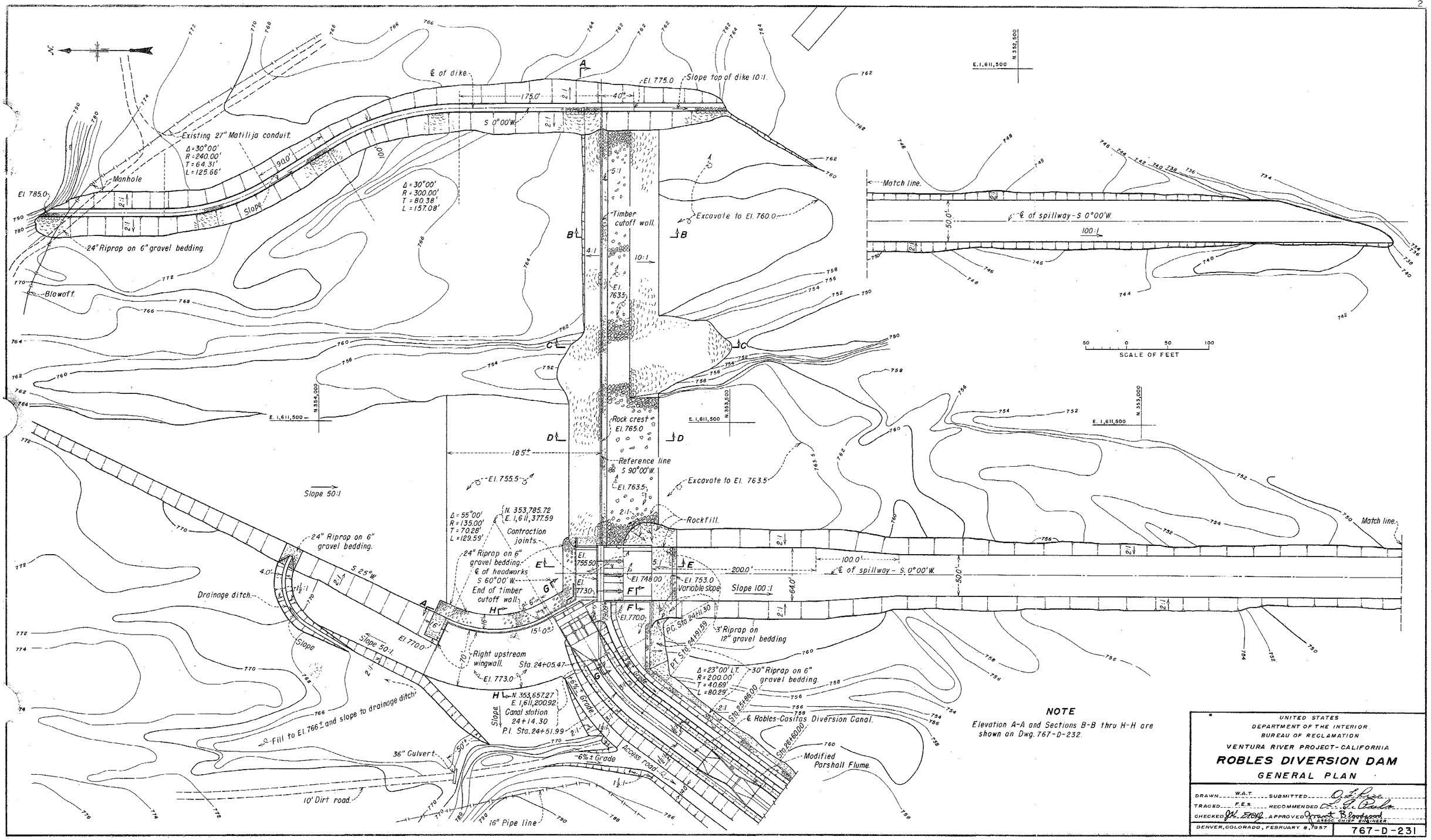
ENTRIX and Woodward Clyde Consultants. 1997. Ventura River Steelhead Restoration and Recovery Plan (SRRP) (December 1997).

McEwan, D. and T. A. Jackson. 1996. Steelhead Restoration and Management Plan for California. February 1996. California Department of Fish and Game.

Moore, Mark R. 1980. Stream Survey: Ojai Ranger District, Los Padres National Forest, Ventura Co., CA. United States Department of Agriculture, Forest Service.

Appendix C

1957 Forebay Design



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
VENTURA RIVER PROJECT - CALIFORNIA

ROBLES DIVERSION DAM
GENERAL PLAN

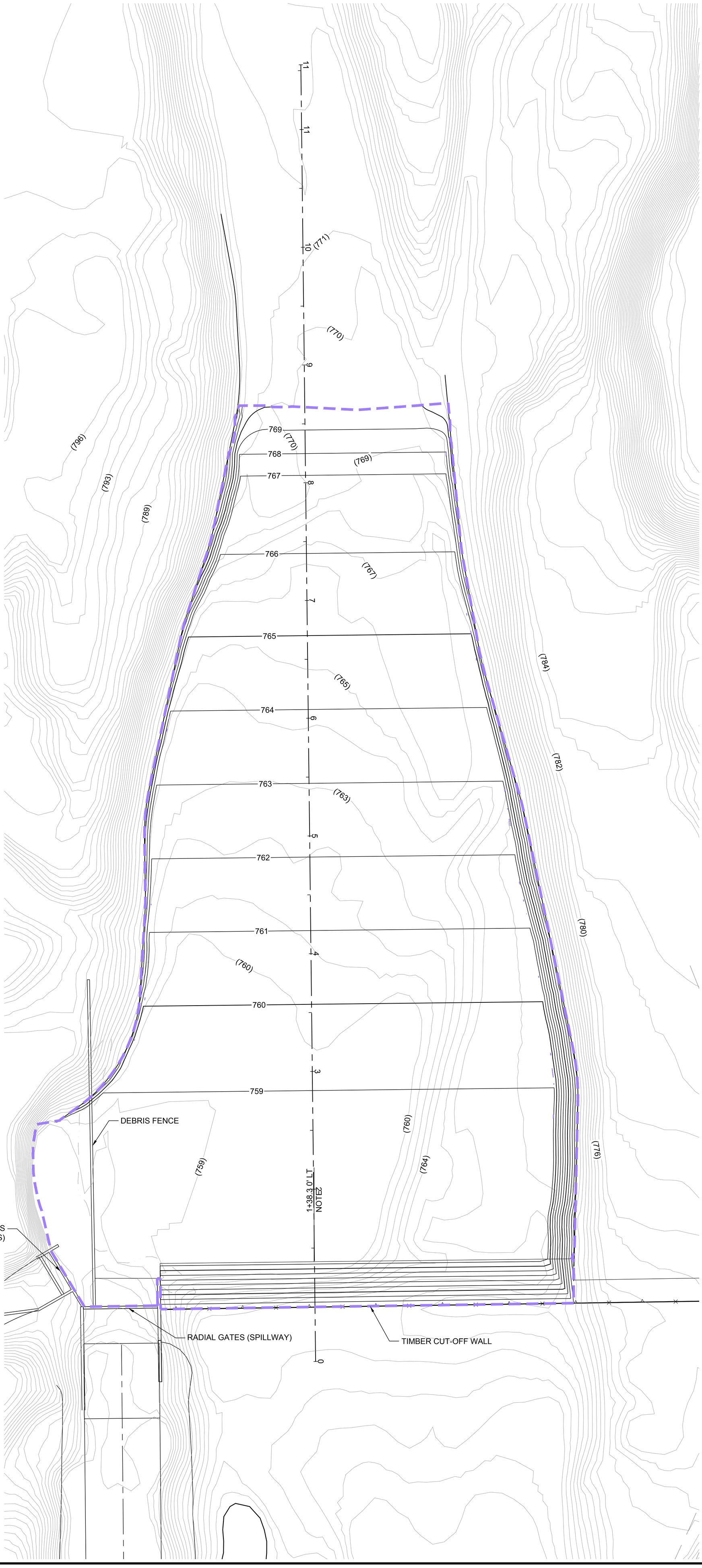
DRAWN	W.A.T.	SUBMITTED	O. J. Rice
TRACED	F.E.S.	RECOMMENDED	O. J. Rice
CHECKED	W. E. Foley	APPROVED	Grant B. Dodgson, Assoc. Chief Engineer

DENVER, COLORADO, FEBRUARY 8, 1957

767-D-231

Appendix D

Robles Forebay Sediment Removal Area



LIMITS OF SEDIMENT REMOVAL
AREA = 5.70 ACRES

ROBLES FOREBAY
SEDIMENT REMOVAL AREA

MNS ENGINEERS INC
ENGINEERING | SURVEYING
CONSTRUCTION MANAGEMENT

201 N. Calle Cesar Chavez
Suite 300
Santa Barbara, CA 93103
Phone: 805-692-6921
www.mnsengineers.com

40' 20' 0' 20' 40'
SCALE: 1" = 40'

Appendix E

Best Management Practices (BMPs) Summary Table

Best Management Practices (BMPs)	Activity 1 (Forebay Sediment)	Activity 2 (Fish Ladder, Screenbay, High-flow Bypass)	Activity 3 (Rock Weir and Measurement Weir)	Activity 4 (Entrance Pool)	Activity 5 (Concrete Repair)	Activity 6A (Timber Cut-off Wall)	Activity 6B (Debris Fence)	Activity 6C (Radial Gates)	Activity 6D (Instrumentation)	Activity 6E (Roads)
BMP-1 Work Period	X	X	X	X	X	X	X	X	X	X
BMP-2 Environmental Training	X	X	X	X	X	X	X	X	X	X
BMP-3 Pre-construction Wildlife Surveys	X	X	X	X	X	X	X	X	X	X
BMP-4 Steelhead Pre-construction Survey		X	X, unless dry	X, unless dry						
BMP-5 CRLF Pre-construction Surveys	X		X	X		X				X
BMP-6 LBVI and SWFL Pre-Construction Survey	X		X	X		X				X
BMP-7 Cover Excavations						X				
BMP-8 Nesting Birds	X	X	X	X	X	X	X	X	X	
BMP-9 On-site Biological Monitoring	X	X	X	X	X	X				X
BMP-10 Staging Equipment	X	X	X	X	X	X	X	X	X	X
BMP-11 Pollutant Management	X	X	X	X	X	X	X	X	X	X
BMP-12 Pollution Prevention	X	X	X	X	X	X	X	X	X	X
BMP-13 Material Storage	X	X	X	X	X	X	X	X	X	X
BMP-14 Tracking Loose Material	X	X	X	X	X	X	X	X	X	X
BMP-15 Stabilize Exposed Soil	X			X		X				X
BMP-16 Avoid Road Base Discharge	X									X
BMP-17 Concrete Washout Protocol					X					
BMP-18 Site Materials and Refuse Management	X	X	X	X	X	X	X	X	X	X
BMP-19 Re-fueling and Maintenance	X	X	X	X	X	X	X	X	X	X
BMP-20 Responding to Spilled Materials	X	X	X	X	X	X	X	X	X	X
BMP-21 Best Management Practice to Prevent Erosion	X	X	X	X	X	X	X	X	X	X
BMP-22 Speed Limits	X	X	X	X	X	X	X	X	X	X
BMP-23 Noxious Weeds	X	X	X	X	X	X	X	X	X	X
BMP-24 Noxious Vegetation Removal	X	X	X	X	X	X	X	X	X	X

Appendix B

Special Status Species Table

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Plants and Lichens				
Astragalus didymocarpus var. *milesianus* Miles' milk-vetch	None/None G5T2/S2 1B.2	Coastal scrub. Clay soils. 50-385 m. annual herb. Blooms Mar-Jun	Low	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the project site. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA
Calochortus fimbriatus late-flowered mariposa-lily	None/None G3/S3 1B.3	Chaparral, cismontane woodland, riparian woodland. Dry, open coastal woodland, chaparral; on serpentine. 270-1435 m. perennial bulbiferous herb. Blooms Jun-Aug	Low	CNDDB species record within a 1-mile radius of the project. Suitable habitat is present within the BSA, but not within the proposed project site.
Calochortus plummerae Plummer's mariposa-lily	None/None G4/S4 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m. perennial bulbiferous herb. Blooms May-Jul	Low	CNDDB species record within a 5-mile radius of the project. Marginally suitable sandy habitat occurs within the proposed project site. However, scouring of the forebay by high flow rain events, and inundation of the forebay with sediment make it unlikely that this species is present within the project site. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA
Fritillaria ojaiensis Ojai fritillary	None/None G2?/S2? 1B.2	Broadleafed upland forest (mesic), chaparral, lower montane coniferous forest, cismontane woodland. Usually loamy soil. Sometimes on serpentine; sometimes along roadsides. 100-1140 m. perennial bulbiferous herb. Blooms Feb-May	Low	CNDDB species record within a 5-mile radius of the project. Marginally suitable habitat occurs within the proposed project site. However, based on current conditions within the forebay, and the level of disturbance that this area sustained during the 2019 rain season, there is low potential for this species to be present within the project site.
Horkelia cuneata var. *puberula* mesa horkelia	None/None G4T1/S1 1B.1	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m. perennial herb. Blooms Feb-Jul(Sep)	Low	CNDDB species record within a 2-mile radius of the project. Marginally suitable habitat occurs within the proposed project site. However, based on current conditions within the forebay, and the level of disturbance that this area sustained during the 2019

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
				rain season, there is low potential for this species to be present within project site.
Imperata brevifolia California satintail	None/None G4/S3 2B.1	Coastal scrub, chaparral, riparian scrub, Mojavean desert scrub, meadows and seeps (alkali), riparian scrub. Mesic sites, alkali seeps, riparian areas. 3-1495 m. perennial rhizomatous herb. Blooms Sep-May	Low	CNDDB species record within a 1-mile radius of the project. Marginally suitable habitat occurs within the proposed project site. However, based on current conditions within the forebay, and the level of disturbance that this area sustained during the 2019 rain season, there is low potential for this species to be present within the project site. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA
Layia heterotricha pale-yellow layia	None/None G2/S2 1B.1	Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland. Alkaline or clay soils; open areas. 90-1800 m. annual herb. Blooms Mar-Jun	Low	CNDDB species record within a 2-mile radius of the project site. No suitable habitat occurs within the project site. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA
Monardella hypoleuca ssp. *hypoleuca* white-veined monardella	None/None G4T3/S3 1B.3	Chaparral, cismontane woodland. Dry slopes. 50-1280 m. perennial herb. Blooms (Apr)May-Aug (Sep-Dec)	Low	CNDDB species record within a 1-mile radius of the project. Marginally suitable habitat occurs within the proposed project site. However, based on current conditions within the forebay, and the level of disturbance that this area sustained during the 2019 rain season, there is low potential for this species to be present within the impact area. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA
Navarretia ojaiensis Ojai navarretia	None/None G2/S2 1B.1	Chaparral, coastal scrub, valley and foothill grassland. Openings in shrublands or grasslands. 275-620 m. annual herb. Blooms May-Jul	Low	CNDDB species record within a 2-mile radius of the project. No suitable habitat occurs within the project site. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Navarretia peninsularis Baja navarretia	None/None G3/S2 1B.2	Lower montane coniferous forest, chaparral, meadows and seeps, pinyon and juniper woodland. Wet areas in open forest. 1150-2365 m. annual herb. Blooms (May)Jun-Aug	Low	CNDDB species record within a 2-mile radius of the project. No suitable habitat occurs within the BSA.
Nolina cismontana chaparral nolina	None/None G3/S3 1B.2	Chaparral, coastal scrub. Primarily on sandstone and shale substrates; also known from gabbro. 140-1275 m. perennial evergreen shrub. Blooms (Mar)May-Jul	Low	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the project site. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA
Sagittaria sanfordii Sanford's arrowhead	None/None G3/S3 1B.2	Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. 0-605 m. perennial rhizomatous herb (emergent). Blooms May-Oct(Nov)	Low	CNDDB species record within a 5-mile radius of the project. Marginally suitable habitat occurs within the proposed project site. However, based on current conditions within the forebay, and the level of disturbance that this area sustained during the 2019 rain season, there is low potential for this species to be present within the impact area.
Sidalcea neomexicana salt spring checkerbloom	None/None G4/S2 2B.2	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub. Alkali springs and marshes. 3-2380 m. perennial herb. Blooms Mar-Jun	Low	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the project site. Focused botanical surveys conducted in May 2019 found the species to be absent from the BSA.
Invertebrates				
Bombus crotchii Crotch bumble bee	None/ Candidate Endangered G3G4/S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum (snapdragon), Phacelia (phacelia, scorpionweed, heliotrope), Clarkia, Dendromecon (bush poppy), Eschscholzia (poppy), and Eriogonum (buckwheat).	Low	CNDDB species record within a 5-mile radius of the project (1964 record). Food plants for the species occur within the BSA, including: *Antirrhinum multiflorum, Phacelia distans, Phacelia cicutaria* var. *hispida, Clarkia purpurea* ssp. *Quadrivulnera, Dendromecon rigida and Eriogonum fasciculatum* . Food plants for the species occur within the BSA, but not within the project area. Therefore, it is unlikely the

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
				species would be present within the project area.
Fish				
Gila orcutti Arroyo chub	None/None G2/S2	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave & San Diego river basins. Inhabits slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	Present	Arroyo chub (*Gila orcutti*) have been observed in the forebay, and upstream and downstream of the facility during recent surveys (Rincon 2019). The species has potential to be present within the forebay and spillway channel if flowing water is present. However, given the timing of the proposed project activities during the dry season, it is unlikely that there will be flow present within the Ventura River that could support the species.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Oncorhynchus mykiss irideus pop. 10 steelhead southern California DPS	Endangered/ None G5T1Q/S1	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	Moderate	Seasonally-suitable habitat present within the project footprint when surface water flows are present below the timber cut-off wall. CNDDB species record within 1-mile radius downstream of the project. However, given the timing of the proposed project during the dry season of an intermittent or ephemeral reach of the Ventura River, it is unlikely that there will be flow present within the portion of the Ventura River upstream or downstream of the forebay that could support the species.
Amphibians				
Rana draytonii California red-legged frog	Threatened/ None G2G3/S2S3 SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Moderate	Marginally-suitable habitat present within the BSA Suitable habitat may be present in the form of backwater near the diversion headworks within the forebay area. CRLF critical habitat present within a 1-mile radius of the project. CNDDB species record within a 4-mile radius of the project. However, given the timing of the proposed project activities during the dry season, it is unlikely that there will be adequate aquatic habitat present within the Ventura River upstream or downstream of the forebay (or within the forebay) that could support the species.
Reptiles				
Diadophis punctatus modestus San Bernardino ringneck snake	None/None G5T2T3Q/S2?	Most common in open, relatively rocky areas. Often in somewhat moist microhabitats near intermittent streams. Avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous veg.	Moderate	CNDDB species record within a 3-mile radius of the project. Marginally suitable habitat occurs within the proposed impact area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Emys marmorata western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Present	Suitable habitat for egg-laying is present upstream of the project, the downstream portion of the BSA may be suitable habitat for basking. Five turtles were observed approximately 500 feet upstream of the forebay in November 2019 during pre-construction surveys (Rincon 2019). CNDDB records the species within upstream portion of Ventura River and within a 1-mile radius of the BSA.
Phrynosoma blainvillii coast horned lizard	None/None G3G4/S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Moderate	Suitable habitat occurs within the BSA and the proposed impact areas. CNDDB records the species within a 2-mile radius of the project.
Salvadora hexalepis virgultea coast patch-nosed snake	None/None G5T4/S2S3 SSC	Brushy or shrubby vegetation in coastal Southern California. Require small mammal burrows for refuge and overwintering sites.	Moderate	Suitable habitat occurs within the BSA and the proposed impact areas. CNDDB records the species within a 2-mile radius of the BSA.
Thamnophis hammondii two-striped gartersnake	None/None G4/S3S4 SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Moderate	Suitable habitat occurs within the BSA and the proposed impact areas. CNDDB records the species within a 2-mile radius of the BSA.
Birds				
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	No Potential	CNDDB species record within a 5-mile radius of the project. No suitable habitat occurs within the impact area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Gymnogyps californianus California condor	Endangered/ Endangered G1/S1 FP	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	No Potential	California condor critical habitat present within a 5-mile radius of the project. No suitable nesting habitat observed within the BSA.
Vireo bellii pusillus least Bell's vireo	Endangered/ Endangered G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Moderate	The current post-fire conditions on site do not provide suitable habitat within the project footprint. The mulefat scrub community occurring in the BSA can be described as early successional habitat. Overtime the riparian vegetation within the BSA could provide suitable habitat if the density of the vegetation increases. Seasonality of the species should be taken into account to result in less than significant impacts. CNDDB records the species within a 2-mile radius of the project.
Mammals				
Chaetodipus californicus femoralis Dulzura pocket mouse	None/None G5T3/S3 SSC	Variety of habitats including coastal scrub, chaparral & grassland in San Diego County. Attracted to grass-chaparral edges.	No Potential	CNDDB species record within a 2-mile radius of the project. No suitable habitat occurs within the BSA.
Lasiurus cinereus hoary bat	None/None G5/S4	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Low	CNDDB species record within a 2-mile radius of the project. Marginally suitable foraging habitat occurs within the BSA.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Site	Habitat Suitability/ Observations
Sensitive Natural Communities				
Southern California Steelhead Stream Southern California Steelhead Stream	None/None GNR/SNR	–	Present	Southern California Steelhead Stream within the project footprint. The project is located within the Ventura River. Additional BMPs should be implemented when PCEs are present within the project.

[1] Notes:

FE = Federal Endangered
FT = Federal Threatened
SE = State Endangered
FP = CDFW Fully Protected
SSC = California Species of Special Concern

CRPR (CNPS California Rare Plant Rank)

1B = Rare, Threatened, or Endangered in California and elsewhere
2B = Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.1 = Seriously threatened in California (> 80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% occurrences threatened/ Moderate degree and immediacy of threat)

CDFW Rare

G1 or S1 = Critically Imperiled Globally or Subnationally (state)
G2 or S2 = Imperiled Globally or Subnationally (state)
G3 or S3 = Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 = Apparently secure, common and abundant

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Appendix C

Representative Site Photographs

Photograph 1. View of the forebay (facing southwest) following the 2019 sediment removal project (February 4, 2020).

Photograph 2. View of the timber cut-off wall after repairs to the wall were made in November 2019. Light vehicles can drive over the timber cut-off wall to access the fish passage facility to the west, without driving through the active flowing channel (February 2, 2020).

Photograph 3. View of the primary sediment placement area following the relocation of sediment from the forebay in November 2019 (March 17, 2020).

Photograph 4. View of the lower limit of the primary sediment placement area, facing upstream (March 17, 2020) .

Photograph 5. View of the screenbay looking toward the headworks (February 4, 2020).

Photograph 6. View of the upstream side of the spillway (February 4, 2020).

Photograph 7. View of upstream side of the spillway, radial gates and headworks (December 13, 2019).

Photograph 8. View of the timber debris fence and high-flow fish exit (black arrow). The headworks is shown in back of the fence, denoted with a red arrow (February 4, 2020).

Photograph 9. View of the baffled apron downstream of the spillway, at the beginning of the entrance pool (December 13, 2019).

Photograph 10. View looking at the downstream side of the spillway, at the entrance pool which was completely filled in with sediment following storms post-Thomas Fire (May 2, 2019).

Photograph 11. View of the entrance pool area surrounded by grouted riprap (February 4, 2020).

Photograph 12. View of the rock weirs downstream of the measurement weir, in the spillway channel (March 17, 2020).

Photograph 13. View of the measurement weir and road crossing (February 4, 2020).

Photograph 14. View of the entrance to the fish passage facility (April 16, 2019).

Appendix D

Robles Diversion Facility Botanical Report (May 3, 2019)

Rincon Consultants, Inc.
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May 3, 2019
Project No: 19-07445

Julia Aranda
Casitas Municipal Water District
1055 Ventura Avenue
Oak View, CA 93022
Via email: jaranda@casitaswater.com

Subject: Robles Forebay Restoration Project Rare Plant Survey Report

Dear Ms. Aranda:

Rincon Consultants, Inc. (Rincon) prepared this Rare Plant Survey Report to provide the Casitas Municipal Water District (CMWD) with an assessment of the potential impacts to special-status botanical resources associated with implementation of the Robles Forebay Restoration Project (project). This report documents the existing conditions of the project site and evaluates the potential for impacts to special-status plant species. The biological evaluation herein includes the results of a background literature review and floristic survey conducted by Rincon.

Project Location and Description

Casitas Municipal Water District operates the Robles Diversion Dam (Robles Diversion), which includes the forebay that was constructed in the late 1950s. The Robles Fish Passage Facility (Facility) is located on the Ventura River, 2 miles downstream of Matilija Dam, in unincorporated Ventura County, California (34.464820°N, -119.291107°W). The project is in the Matilija U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The Robles Diversion allows Ventura River flows to be diverted into the Robles Canal, which transports the water to Lake Casitas for storage and ultimately municipal use.

The Facility forebay is located upstream of the Facility above the timber cut-off wall in the Ventura River. The forebay was designed in 1957 as shown on the United States Department of Interior Bureau of Reclamation Robles Diversion Dam General Plan (February 8, 1957), and comprises approximately 4.61 acres of the Ventura River. It is imperative to maintain the depth of the forebay as designed, as it is a critical component of the Robles Diversion Facility and fish passage. Maintenance of the forebay requires moving dirt and rock within the channel using heavy equipment, and these activities occur when the streambed is dry. The proposed project includes the removal of an estimated 80,000 to 100,000 cubic yards of spoil (sediment and vegetation) that has accumulated in the forebay since the Thomas Fire.

When flows within the Ventura River are sufficiently high to overtop the cut-off wall, erosion of the timber cut-off wall and the banks of the overflow channel downstream occurs. Therefore, sediment removed during forebay maintenance activities is first used to restore these storm-eroded areas. For the purpose of this project, CMWD proposes to restore the forebay area by removing the accumulated sediment. The sediment removed will be used to restore storm-eroded areas within 1,600 feet

downstream of the timber cut-off wall. The project will involve use of heavy equipment to remove the sediment and vegetation in the forebay and shore up the channel banks downstream of the timber cut-off wall that have been eroded by heavy storms. The sediment would be removed from the forebay with equipment that could include a clamshell, bobcat tractor, or other loader and supporting vehicles (e.g., dump trucks, etc.) to transport and spread the sediment. The sediment would be deposited downstream of the timber cut-off wall over approximately 7.94 acres, where forebay sediment has been placed in the past, and where active flow within the channel would not be impeded. This project would be completed during dry conditions. The project would enable the Facility to operate as designed, both for water diversions and safe fish passage.

Regulatory Background

Local, state, and federal agencies regulate protected plant species, and may require an assessment of their presence or potential presence to be conducted on-site prior to the approval of proposed development on a property. Assessments for the potential occurrence of rare plant species are based upon known ranges, habitat preferences for the species, species occurrence records from the California Natural Diversity Database (CNDDB); and species occurrence records from other sites in the vicinity of the project site.

For the purpose of this report, rare plant species are those plants listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the federal Endangered Species Act (FESA); those listed or candidates for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act (CESA) or Native Plant Protection Act (NPPA); and those recognized by the CDFW under the California Rare Plant Rank (CRPR) system (Ranks 1 through 4, Table 1; Rank Threat Code Extensions, Table 2).

Table 1 California Rare Plant Rank Definitions

Rank	Definition
1A	Presumed Extinct in California
1B	Rare, Threatened, or Endangered in California and elsewhere
2	Rare, Threatened, or Endangered in California, but more common elsewhere
3	Need more information (a Review List)
4	Plants of Limited Distribution (a Watch List)

Table 2 California Rare Plant Rank Threat Code Extensions

Threat Rank	Definitions
.1	Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2	Fairly endangered in California (20-80% occurrences threatened)
.3	Not very endangered in California (<20% of occurrences threatened)

Methodology

A literature review and field survey were conducted as part of this assessment – each is described below.

Literature Review

Prior to conducting the field survey of the project site, Rincon biologists reviewed recent aerial photography of the Project site and consulted the CDFW's CNDDB (CDFW 2019a), California Native Plant Society's (CNPS) online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2019), and U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS 2019) for information on general botanical resources, rare plant species occurrences, and critical habitat designations within a nine-quad search of the project site.

Nomenclature follows *The Jepson Manual* (Baldwin et al. 2012) and updates available in the online Jepson eFlora (UCB, 2019), with status updates provided in the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2019b), the CDFW *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (CDFW 2019c), and the CNPS online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2019).

Field Survey

The rare plant surveys were floristic in nature (i.e., all plants encountered were identified to the lowest taxonomic level necessary to determine rarity) and generally followed the *CNPS Botanical Survey Guidelines* (CNPS 2001) and the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). The rare plant survey was performed by Rincon Senior Botanist Robin Murray on May 2 between the hours of 9:00 AM and 12:00 PM. All plant species observed within the study area were recorded (Attachment B, Floral Compendium). The study area is defined as the project area, plus a 100-foot buffer.

The survey was conducted using systematic field techniques by walking meandering transects through the entire study area. Special attention was given to areas with a high potential to support rare plant species (e.g., vegetation community interfaces, burned areas). Vegetation communities were described and mapped using the CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form (CNPS 2019). The results of the rare plant survey are discussed below.

Results

No special-status plant species were observed during the botanical survey. Nine land cover types were documented within the study area, of which four are unvegetated, and five are vegetation communities (Figure 1). Unvegetated land cover types include unvegetated riverbed, bare ground, concrete, and open water. Unvegetated riverbed consists of rocky material, ranging in size from boulders and cobbles to coarse sandy material. This land cover type is situated within the channel of the Ventura River. Bare ground is comprised of areas that are unvegetated and disturbed bare earth. These areas are highly compacted and appear to be subject to regular ground disturbance through vehicle use. Concrete areas are comprised of concrete infrastructure associated with the Robles Diversion. Open water consists of

actively flowing water within the low flow channel of the Ventura River. The vegetation communities are discussed in detail below.

Vegetation Communities

Red Brome Grassland

This vegetation community consists of a dense herbaceous layer comprised of primarily non-native grasses and forbs. Dominant herbaceous species include red brome (*Bromus madritensis*), ripgut brome (*Bromus diandrus*), wild oats (*Avena* spp.), yellow sweetclover (*Melilotus indicus*), black mustard (*Brassica nigra*), tocalote (*Centaurea melitensis*), redstem filaree (*Erodium cicutarium*), telegraph weed (*Heterotheca grandiflora*), and rattail fescue (*Festuca myuros*). Other less commonly encountered species include chaparral nightshade (*Solanum xanti*), California sagebrush (*Artemisia californica*), and tree tobacco (*Nicotiana glauca*). This community is widespread within disturbed upland portions of the study area.

Coast Live Oak Woodland

This vegetation community is characterized by a tree layer that ranges from continuous to open. The dominant tree species is coast live oak (*Quercus agrifolia*), but California walnut (*Juglans californica*) is consistently present as a co-dominant species. Commonly encountered shrub species include laurel sumac (*Malosma laurina*), greenbark ceanothus (*Ceanothus spinosus*), and California brickellbush (*Brickellia californica*). This community is situated adjacent to red brome grasslands, and the herbaceous layer is consistent with the species assemblage observed within that community.

Laurel Sumac Scrub

This vegetation community is characterized by an open shrub layer, dominated by laurel sumac, greenbark ceanothus, California brickellbush, chaparral mallow (*Malacothamnus fasciculatus*), and deerweed (*Acmispon glaber*). The herbaceous layer is dominated by non-native grasses and forbs, including red brome, ripgut brome, wild oats, yellow sweetclover, black mustard, tocalote, and horehound (*Marrubium vulgare*). Commonly encountered native herbaceous species include morning glory (*Calystegia macrostegia* ssp*. cyclostegia*), chaparral nightshade (*Solanum xanti*), common sand-aster (*Corethrogyne filaginifolia*), and chaparral yucca (*Hesperoyucca whipplei*). This community is situated along river banks and within portions of the Ventura River that are not subject to regular water flow. The portion of this community situated within the bed of the Ventura River is very sparsely vegetated, though the primary constituent species remain consistent with those of surrounding upland.

Mulefat Scrub

This vegetation community is characterized by a moderately open shrub layer, dominated by mulefat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*). Other commonly encountered shrub species include California brickellbush and Spanish broom (*Spartium junceum*). Dominant herbaceous species include western ragweed (*Ambrosia psilostachya*), mugwort (*Artemisia douglasii*), wild cucumber (*Marah macrocarpus*), fennel (*Foeniculum vulgare*), and yellow sweetclover. This community is situated in narrow strips along the banks of the Ventura River, immediately adjacent to open water within the low flow channel.

California Sycamore Woodland

This vegetation community is characterized by an open tree layer, dominated by California sycamore (*Platanus racemosa*). The shrub layer is consistent with the adjacent mulefat scrub community. This community is situated along the edges of the low flow channel of the Ventura River, within the southern portion of the study area.

Rincon appreciates the continued opportunity to support the Robles Forebay Restoration Project. Please do not hesitate in reaching out to the undersigned with questions related to the contents herein.

Sincerely,
Rincon Consultants, Inc.

Robin Murray
Senior Botanist

Steven J. Hongola
Principal / Senior Ecologist

Attachments

Attachment A Figures
Attachment B Floral Compendium

References

California Department of Fish and Wildlife (CDFW)

2018 Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, California. March.

2019a California Natural Diversity Database: RareFind5. Available online at: https://www.wildlife.ca.gov/Data/CNDDB/. Accessed April, 2019.

2019b Special Vascular Plants, Bryophytes, and Lichens List. Last updated March 2019. Available online at: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals. Accessed April, 2019.

2018c State and Federally listed Endangered, Threatened, and Rare Plants of California. Last updated August 2018. Available online at: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals. Accessed April, 2019.

California Native Plant Society (CNPS)

2001 *CNPS Botanical Survey Guidelines*. June. Available online at: http://www.cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf

2019 CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form. Last updated February 2019. Available online at: https://www.cnps.org/wp-content/uploads/2019/03/veg-releve-field-protocol.pdf. Accessed May, 2019.

CNPS, Rare Plant Program

2019 Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). 2019. Website http://www.rareplants.cnps.org. Accessed April, 2019.

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens

2009 *A Manual of California Vegetation, Second Edition*. California Native Plant Society, Sacramento, California.

United States Fish and Wildlife Service (USFWS)

1973 The Endangered Species Act of 1973, as amended (16 U.S.C 1531 et seq.).

2019 Critical Habitat Portal. Available at: http://criticalhabitat.fws.gov. Accessed April, 2019.

University of California, Berkeley

2019 The Jepson Herbarium. Available at: http://ucjeps.berkeley.edu/eflora/. Accessed April, 2019.

Attachment A

Figures

Figure 1 Vegetation Communities

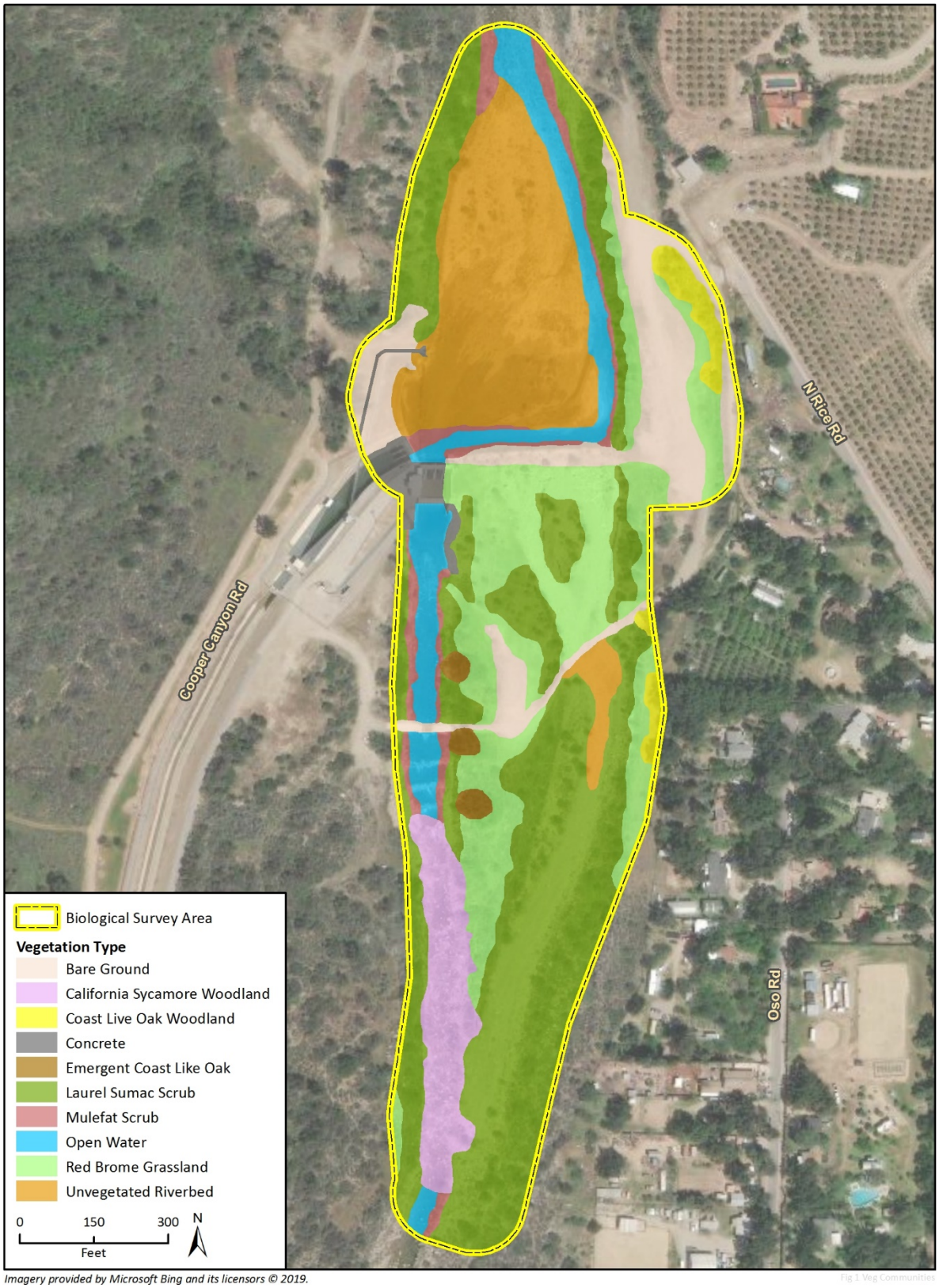

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Fig 1 Veg Communities

Attachment B

Floral Compendium

Scientific Name	Common Name
Acmispon glaber	deer weed
Ambrosia psilostachya	western ragweed
Antirrhinum multiflorum	many flowered snapdragon
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Arundo donax	Arundo
Astragalus trichopodus	southern California milkvetch
*Avena barbata**	slender wild oats
*Avena fatua**	wild oats
Baccharis pilularis	coyote brush
Baccharis salicifolia	mule fat
*Brassica nigra**	black mustard
Brickellia californica	California brickellbush
*Bromus diandrus**	common ripgut grass
*Bromus hordeaceus**	soft chess
*Bromus madritensis**	red brome
*Bromus tectorum**	cheat grass
Calystegia macrostegia ssp. *cyclostegia*	morning glory
*Carduus pycnocephalus**	Italian thistle
Ceanothus spinosus	greenbark ceanothus
*Centaurea melitensis**	tocalote
Chenopodium californicum	California goosefoot
*Chenopodium murale**	nettle leaf goosefoot
Clarkia purpurea ssp. *quadrivulnera*	purple clarkia
Corethrogyne filaginifolia var. *filaginifolia*	common sand-aster
Crassula connata	pygmy weed
Cryptantha sp.	popcorn flower
Cynodon dactylon	Bermuda grass
Datura wrightii	Jimsonweed
Dendromecon rigida	tree poppy
Ehrendorferia chrysantha	golden eardrops
Epilobium canum	California fuchsia
Eriodictyon crassifolius	thick leaved yerba santa
Eriodictyon parryi	poodle-dog bush
Eriogonum fasciculatum	California buckwheat
Eriophyllum confertiflorum	golden yarrow
*Erodium cicutarium**	redstem filaree
Erythranthe guttata	yellow monkey flower
Eucrypta chrysanthemifolia	spotted hideseed

Scientific Name	Common Name
*Festuca myuros**	rattail fescue
Foeniculum vulgare	fennel
Galium aparine	common bedstraw
*Helminthotheca echioides**	bristly ox-tongue
Hesperoyucca whipplei	chaparral yucca
Heterotheca grandiflora	telegraph weed
*Hypochaeris glabra**	smooth cat's ear
Isocoma menziesii	coastal goldenbush
Juglans californica	California black walnut
Keckiella cordifolia	heartleaf keckiella
Lepidospartum squamatum	scale broom
Lupinus albifrons	silver bush lupine
Lupinus hirsutissimus	stinging lupine
Lupinus succulentus	arroyo lupine
Malacothamnus fasciculatus	chaparral mallow
Malosma laurina	Laurel sumac
Marah macrocarpus	chilicothe
*Marrubium vulgare**	horehound
*Melilotus indicus**	yellow sweetclover
Mimulus aurantiacus	monkeyflower
*Nicotiana glauca**	tree tobacco
Opuntia ficus-indica	mission cactus
Phacelia cicutaria var. *hispida*	caterpillar phacelia
Phacelia distans	common phacelia
*Plantago lanceolata**	English plantain
Plantago major	common plantain
Platanus racemosa	California sycamore
Prosopis glandulosa	honey mesquite
Pseudognaphalium beneolens	cudweed
Pseudognaphalium californicum	everlasting
Quercus agrifolia	coast live oak
Ricinus communis	castor bean
Romneya coulteri	Matilija poppy
*Rumex crispus**	curly dock
Salix exigua	sandbar willow
Salix lasiolepis	arroyo willow
Salvia apiana	white sage
Salvia columbariae	chia sage
Salvia mellifera	black sage

Scientific Name	Common Name
Sambucus nigra ssp. *caerulea*	blue elderberry
Solanum douglasii	Douglas' nightshade
Solanum xanti	chaparral nightshade
Sonchus oleraceus	sow thistle
Spartium junceum	Spanish broom
Stipa miliacea var. *miliacea**	smilo grass
Typha latifolia	broadleaf cattail
Uropappus lindleyi	silver puffs
*Washingtonia robusta**	Washington fan palm
Xanthium strumarium	cocklebur

Appendix E

Habitat Assessment for Least Bell's Vireo and Southwestern Willow Flycatcher

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March 30, 2020
Project No: 19-08905

Kelley Dyer, P.E.
Assistant General Manager
Casitas Municipal Water District
1055 Ventura Avenue
Oak View, California 93022
Via email: kdyer@casitaswater.com

Subject: **Least Bell's Vireo and Southwestern Willow Flycatcher Habitat Assessment for the Casitas Municipal Water District Robles Diversion and Fish Passage Facility Project, Ventura County, California**

Dear Ms. Dyer:

Rincon Consultants, Inc. (Rincon) has provided this habitat assessment for least Bell's vireo (*Vireo bellii pusillus*) (LBVI) and southwestern willow flycatcher (*Empidonax traillii extimus*) (SWFL) for the Casitas Municipal Water District (CMWD) Robles Diversion and Fish Passage Facility Project (project or Facility).

The following habitat assessment provides information retained from a field visit to the project site and an appropriate buffer upstream and downstream. This study area includes the existing site Facility, and an additional 1,400 feet (ft) upstream and approximately 2,200 ft downstream within the Ventura River (refer to Figure 1, attached). The survey was completed on March 17, 2020 by Ms. Thea Benson. Ms. Benson is permitted/approved by the U.S. Fish and Wildlife Service (USFWS) to survey independently for SWFL and LBVI and is experienced in the identification of suitable habitat for both species. The field visit was completed to assess the current site conditions and habitat suitability for SWFL and LBVI within the study area.

Current Site Conditions

During the March 17, 2020 field visit, water was flowing in the Ventura River upstream and downstream of the Facility. Refer to attached site photographs. Water downstream moved quickly after being released from the Facility, first pooling at the Facility base creating large areas of open water, before being funneled downstream. During the field visit, there was a large area of open water, which may only occur during the rainy season. This pooled area does not support aquatic vegetation. The Ventura River floodplain broadens downstream of the existing site Facilities and is predominately characterized as unvegetated riverbed and other scattered habitats disturbed due to recent wildfires, heavy scouring due to high stream flows, and recent grading activities that occurred just south of the Facility (refer to Figure 1).

Vegetation communities identified in the study area have been described based on *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009), with modifications made as appropriate to best characterize the communities in the field. Plant communities are further discussed below. Refer to Figure 1.

Red Brome Grassland

This vegetation community consists of a dense herbaceous layer comprised of primarily non-native grasses and forbs. Dominant herbaceous species included red brome (*Bromus madritensis*), ripgut brome (*Bromus diandrus*), wild oats (*Avena* spp.), yellow sweetclover (*Melilotus indicus*), black mustard (*Brassica nigra*), tocalote (*Centaurea melitensis*), redstem filaree (*Erodium cicutarium*), telegraph weed (*Heterotheca grandiflora*), and rattail fescue (*Festuca myuros*). Other less commonly encountered species included chaparral nightshade (*Solanum xanti*), California sagebrush (*Artemisia californica*), and tree tobacco (*Nicotiana glauca*). This community is widespread within disturbed upland portions of the study area.

Coast Live Oak Woodland

This vegetation community is characterized by a tree layer that ranges from continuous to open. The dominant tree species is coast live oak (*Quercus agrifolia*), but California walnut (*Juglans californica*) is consistently present as a co-dominant species. Commonly encountered shrub species included laurel sumac (*Malosma laurina*), greenbark ceanothus (*Ceanothus spinosus*), and California brickellbush (*Brickellia californica*). This community is situated adjacent to red brome grasslands, and the herbaceous layer is consistent with the species assemblage observed within that community. Within the study area, a few small patches of coast live oak woodland occur in the upland areas within the Ventura River.

Laurel Sumac Scrub

This vegetation community is characterized by an open shrub layer, dominated by laurel sumac, greenbark ceanothus, California brickellbush, chaparral mallow (*Malacothamnus fasciculatus*), and deerweed (*Acmispon glaber*). The herbaceous layer is dominated by non-native grasses and forbs, including red brome, ripgut brome, wild oats, yellow sweetclover, black mustard, tocalote, and horehound (*Marrubium vulgare*). Commonly encountered native herbaceous species included morning glory (*Calystegia macrostegia* ssp*. cyclostegia*), chaparral nightshade (*Solanum xanti*), common sand-aster (*Corethrogyne filaginifolia*), and chaparral yucca (*Hesperoyucca whipplei*). This community is situated along riverbanks and within portions of the Ventura River that are not subject to regular water flow. The portion of this community situated within the bed of the Ventura River is very sparsely vegetated, though the primary constituent species remain consistent with those of surrounding upland.

Mulefat Scrub

This vegetation community is characterized by a moderately open shrub layer, dominated by mulefat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*). Other commonly encountered shrub species included California brickellbush and Spanish broom (*Spartium junceum*). Dominant herbaceous species included western ragweed (*Ambrosia psilostachya*), mugwort (*Artemisia douglasii*), wild cucumber (*Marah macrocarpus*), fennel (*Foeniculum vulgare*), and yellow sweetclover. This community is situated in narrow strips along the banks of the Ventura River, immediately adjacent to open water within the low flow channel. Within the study area, this community was sparse and individual mulefat plants were well spaced due to the large amount of boulders occurring within the riverbed. Dense and continuous clusters of the plants were not present.

California Sycamore Woodland

This vegetation community is characterized by an open tree layer, dominated by California sycamore (*Platanus racemosa*). The shrub layer is consistent with the adjacent mulefat scrub community. This community is situated along the edges of the low flow channel of the Ventura River, within the southern portion of the study area. Within the study area, the sycamore trees were well spaced and the

understory was lacking due to the large amount of boulders in the riverbed. The trees were not fully mature and did not provide a dense canopy.

Least Bell's Vireo

Defined Breeding Habitat

LBVI breeding habitat, as discussed in the Draft Recovery Plan (USFWS 1998), consists of structurally diverse woodlands along watercourses. LBVI occur in a number of riparian habitat types, including cottonwood-willow woodlands/forests, oak woodlands, and mule fat scrub. Essential habitat requirements include: (1) the presence of dense cover within 1-2 meters (m) (3-6.5 ft]) of the ground, where nests are typically placed and (2) a dense, stratified canopy for foraging (Goldwasser 1981, Gray and Greaves 1981, Salata 1981, 1983, RECON 1989). Early successional riparian habitat typically supports the dense shrub cover required for nesting as well as a structurally diverse canopy for foraging, and is the preferred habitat for LBVI. Mature habitat may be suitable in cases where there is a dense understory for foraging and nesting. In mature riparian habitat, the understory vegetation often consists of species such as California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversiloba*), California blackberry (*Rubus ursinus*), grape (*Vilis californica*), and a variety of perennials that provide concealment for LBVI nests.

In addition, in 1994, the USFWS defined critical habitat for LBVI and determined that the physical and biological habitat features (previously termed primary constituent Elements [PCEs]) that support feeding, nesting, roosting, and sheltering are found in riparian woodland vegetation that generally contains both canopy and shrub layers and includes some associated upland habitats.

Habitat Suitability within Study Area

The mulefat scrub community occurring in the study area can be described as early successional habitat. This community does not provide the dense, stratified canopy and cover which LBVI prefer for nest sites, due to the small linear nature of the habitat and the space between mulefat plants caused by the large amount of boulders in the Ventura River bottom. However, LBVI have been known to occur in similar habitats downstream of the study area, based on a query of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (2020). The open water occurring in the study area only temporarily pools during the rainy season and does not support vegetation along the water margins that would be suitable for LBVI. From this assessment, the study area may provide low suitable habitat for LBVI within the early successional mulefat scrub habitat.

Southwestern Willow Flycatcher

Defined Breeding Habitat

SWFL breeding habitat, as discussed in the survey protocol (Sogge et al. 2010), consists of dense riparian vegetation where surface water is present or soil moisture is high enough to maintain the appropriate vegetation characteristics (Sogge and Marshall 2000; USFWS 2002; Ahlers and Moore 2009). Vegetation characteristics of SWFL breeding habitat generally include dense tree or shrub cover, dense twig structure, and high levels of live green foliage (Allison et. al 2003); many patches with tall canopy vegetation also include dense midstory vegetation in the 2–5 m (6.5–16 ft) range.

The general categories of breeding habitat types include native broadleaf, exotic, and mixed native/exotic. Native broadleaf habitats can be composed of a single species of willow species (*Salix* spp.) or mixtures of native broadleaf trees and shrubs including, but not limited to, cottonwood (*Populus* sp.), willows, boxelder (*Acer negundo*), alder (Al*n*us spp.), and buttonbush (*Cephalanthus* spp.). This habitat often has a distinct overstory of cottonwood, willow, or other broadleaf tree, with recognizable subcanopy layers and a dense understory. Exotic sites can be nearly monotypic, dense stands of exotic species such as saltcedar (*Tamarix* spp.) or Russian olive (*Elaegnus angustifolia*) with a uniform density and canopy. Mixed native/exotic habitats include dense mixtures of native broadleaf trees and shrubs mixed with exotic/introduced species, such as saltcedar or Russian olive. Regardless of the plant species composition or height, occupied sites almost always have dense vegetation in the patch interior. These dense patches are often interspersed with small openings, open water, or shorter/sparser vegetation creating a mosaic that is not uniformly dense.

In addition, the study area occurs within USFWS (2005) defined SWFL critical habitat and the USFWS has identified portions of the Ventura River as habitat that may support physical and biological habitat features (PCEs) specific to SWFL. PCEs specific to SWFL include, but are not limited to, the following:

- Nesting habitat with trees and shrubs that include, but are not limited to, willow species and boxelder;
- Dense riparian vegetation with thickets of trees and shrubs ranging in height from 2–30 m (6.5–98 ft) with lower-stature thickets from 2–4 m (6.5–13 ft) tall found at higher elevation riparian forests and tall-stature thickets found at middle and lower elevation riparian forests;
- Areas of dense riparian foliage, at least from the ground level up to approximately 4 m (13 ft) above ground, or dense foliage only at the shrub level, or as a low, dense tree canopy;
- Sites for nesting that contain a dense tree and/or shrub canopy (i.e., a tree or shrub canopy with densities ranging from 50% to 100%);
- Dense patches of riparian forests that are interspersed with small areas of open water or marsh or shorter/sparser vegetation, that creates a mosaic that is not uniformly dense; patch size may be as small as 0.25 acre or as large as 175 acres; and
- A variety of insect prey populations, including but not limited to, wasps and bees (Hymenoptera), flies (Diptera), beetles (Coleoptera), butterflies/moths and caterpillars (Lepidoptera), and spittlebugs (Homoptera).

Habitat Suitability within Study Area

In consideration of the typical breeding habitat discussed above, suitable habitat for SWFL is not present within the study area. Although the study area does support riparian habitat, the study area does not provide dense vertical structure that provides suitable understory and overstory. In addition, the study

area consists of a rocky riverbed that naturally does not provide standing water for periods long enough to support marshy habitat that would attract and retain sufficient insect populations.

Although the habitat within the study area does not provide suitable breeding habitat for SWFL, the mulefat scrub and California sycamore woodland habitats may support SWFL during brief periods during migration as the study area may serve as an important stop-over habitat for the species.

Summary

In summary, the study area provides low suitable habitat for LBVI in patches of mulefat scrub, illustrated in Figure 1. The riparian habitat within the study area does not provide suitable habitat for breeding SWFL, however, the mulefat scrub and California sycamore woodland habitat may provide habitat for SWFL during brief periods for rest and foraging during migration. Within the mulefat scrub and California sycamore woodland habitats, both LBVI and SWFL protocol-level surveys will be completed during the appropriate survey periods to further assist in determining presence/absence of the species.

It is also important to note that migrant SWFL and LBVI may occur temporarily in riparian habitats that are structurally unsuitable for breeding and in non-riparian habitats. Such migration areas provide stop-over habitat, even though not used for breeding, and may be critically important resources affecting local and regional productivity and survival (USFWS 2002, USFWS 2005).

Sincerely,
Rincon Consultants, Inc.

Thea Benson
Senior Biologist/Project Manager
805.423.844
tbenson@rinconconsultants.com

Attachments

Figure 1

Site Photographs

References

Allison, L.J., Paradzick, C.E., Rourke, J.W., and McCarthey, T.C. 2003. A characterization of vegetation in nesting and non-nesting plots for Southwestern Willow Flycatchers in central Arizona: Studies in Avian Biology, v. 26, p. 81–90.

Ahlers, D., and Moore, D. 2009. A review of vegetation and hydrologic parameters associated with the Southwestern Willow Flycatcher – 2002-2008, Elephant Butte Reservoir

California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB). Accessed on March 24, 2020.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society, Sacramento.

Goldwasser, S. 1981. Habitat requirements of the least Bell's vireo. California Department of Fish and Game Final Report., Job IV-38.1.

Gray, M. V., and J. Greaves. 1981. The riparian forest as habitat for the least Bell's vireo (*Vireo bellii pusillus*). Paper presented at the California Riparian Systems Conference, University of California, Davis; September 1981.

Salata, L. 1981. Least Bell's vireo research, Camp Pendleton Marine Corps Base, San Diego Coutny, California, 1981. Unpubl. Rept., Natural Res. Off., Camp Pendleton.

Salata, L. 1983. Status of least Bell's vireo on Camp Pendleton, California: report on research done in 1983. Unpubl. Rept., U.S. Fish and Widlife Service, Laguna Niguel, Ca.

RECON (Regional Environmental Consultants). 1989. Comprehensive species management plan for the least Bell's vireo (*Vireo bellii pusillus*). Prepared for San Diego Association of Governments, San Diego.

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J. 2010. A natural history summary and survey protocol for the southwestern willow flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

U.S. Fish and Wildlife Service (USFWS). 2002. Southwestern Willow Flycatcher (*Empidonax traillii extimus)* Final Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

_____. 2005. Designation of critical habitat for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*), Final Rule: Federal Register 70:60886–61009 (October 19, 2005).

_____. 1998. Draft recovery plan for the least Bell's vireo. U.S. Fish and Wildlife Service, Portland, OR. 139 pp.

Figure 1 Vegetation Community Map

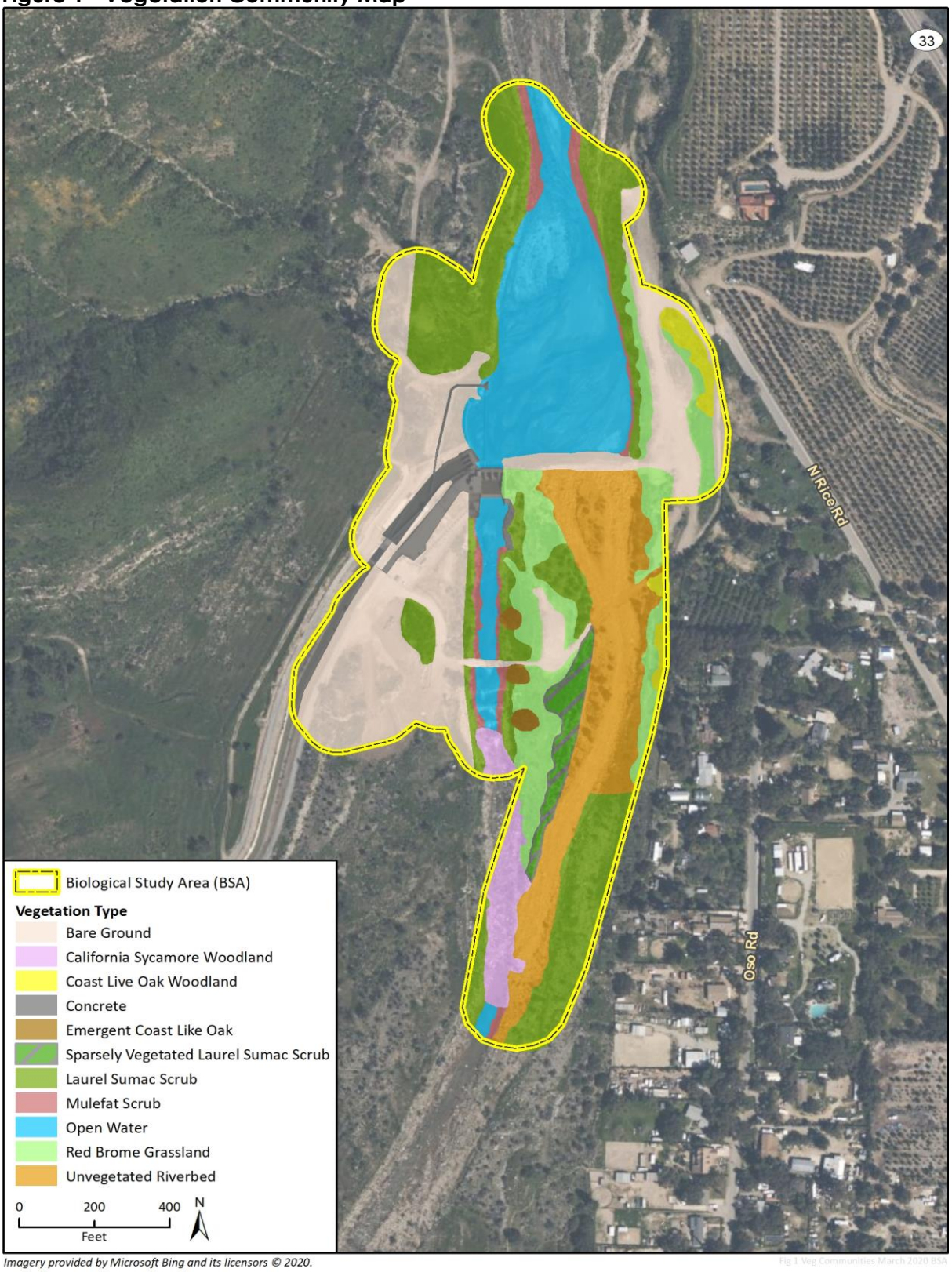

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Fig 1 Veg Communities March 2020 BSA

Site Photographs

Photo 1. Open water and unvegetated riverbed; aspect NW (March 17, 2020).

Photo 2. Unvegetated riverbed adjacent to existing facilities; aspect W (March 17, 2020).

Photo 3. Unvegetated riverbed on east side of study area; aspect E (March 17, 2020).

Photo 4. Unvegetated riverbed on east side of study area; aspect SE (March 17, 2020).

Photo 5. Unvegetated riverbed on east side of study area; aspect NE (March 17, 2020).

Photo 6. Laurel Sumac Scrub habitat along west side of study area; aspect NW (March 17, 2020).

Photo 7. Unvegetated riverbed and sparse Laurel Sumac Scrub; aspect N (March 17, 2020).

Photo 8. California Sycamore Woodland along river edge; aspect SE (March 17, 2020).

Photo 9. Active river channel with sparse Laurel Sumac Scrub; aspect NW (March 17, 2020).

Appendix F

Results of Surveys for O. Mykiss (Potential Steelhead) in the Vicinity of the Robles Diversion and Fish Passage Facility (January - October 2018)

Results of Surveys for O. mykiss (Potential Steelhead) in the Vicinity of the Robles Diversion and Fish Passage Facility

Fish attraction counts of O. *mykiss* in close proximity to the Robles Fish Facility from January through October 2018.

Date	Method	Direction	Length (m)	Temp (°C)	Turbidity (NTU)	Robles Discharge (CFS)	Species[a]	Count
01/12/2018	Bank	Downstream	200	13	25	16	NFO	0
01/12/2018	Bank	Upstream	140	13	25	16	NFO	0
01/22/2018	Bank	Downstream	200	10	6	11	NFO	0
01/22/2018	Bank	Upstream	140	10	6	11	NFO	0
02/01/2018	Bank	Downstream	200	13	5	8	NFO	0
02/01/2018	Bank	Upstream	140	13	5	8	NFO	0
02/06/2018	Bank	Downstream	200	15	5	8	NFO	0
02/06/2018	Bank	Upstream	140	15	5	8	NFO	0
02/13/2018	Bank	Downstream	200	13	4	8	NFO	0
02/13/2018	Bank	Upstream	140	13	4	8	NFO	0
02/27/2018	Bank	Downstream	200	11	37	8	NFO	0
02/27/2018	Bank	Upstream	140	11	37	8	NFO	0
03/05/2018	Bank	Downstream	200	11	93	11	NFO	0
03/05/2018	Bank	Upstream	140	11	93	11	NFO	0
03/13/2018	Bank	Downstream	200	16	846	12	NFO	0
03/13/2018	Bank	Upstream	140	16	846	12	NFO	0
03/24/2018	Bank	Downstream	200	13	1054	77	NFO	0
03/24/2018	Bank	Upstream	140	13	1054	77	NFO	0
04/02/2018	Bank	Downstream	200	15	416	24	NFO	0
04/02/2018	Bank	Upstream	140	15	416	24	NFO	0
04/12/2018	Bank	Downstream	200	17	379	21	NFO	0
04/12/2018	Bank	Upstream	140	17	379	21	NFO	0
04/26/2018	Bank	Downstream	200	19	145	14	NFO	0
04/26/2018	Bank	Upstream	140	19	145	14	NFO	0
05/02/2018	Bank	Downstream	200	16	265	21	NFO	0
05/02/2018	Bank	Upstream	140	16	265	21	NFO	0
05/10/2018	Bank	Downstream	200	21	18	13	NFO	0
05/10/2018	Bank	Upstream	140	21	18	13	NFO	0
05/21/2018	Bank	Downstream	200	17	8	12	NFO	0
05/21/2018	Bank	Upstream	140	17	8	12	NFO	0
05/31/2018	Snorkel	Downstream	200	20	7	10	NFO	0
05/31/2018	Snorkel	Upstream	140	20	7	10	NFO	0
06/04/2018	Bank	Downstream	200	23	7	8	NFO	0
06/04/2018	Bank	Upstream	140	23	7	8	NFO	0
06/20/2018	Bank	Downstream	200	23	3	4	NFO	0
06/20/2018	Bank	Upstream	140	23	3	4	NFO	0
06/28/2018	Snorkel	Downstream	200	24	2	3	NFO	0
06/28/2018	Snorkel	Upstream	140	24	2	3	NFO	0
07/11/2018	Bank	Downstream	200	25	2	3	NFO	0
07/11/2018	Bank	Upstream	140	25	2	3	NFO	0
07/26/2018	Snorkel	Downstream	200	28	2	2	NFO	0
07/26/2018	Snorkel	Upstream	140	28	2	2	NFO	0
08/01/2018	Bank	Downstream	200	27	1	2	NFO	0
08/01/2018	Bank	Upstream	140	27	1	2	NFO	0
08/10/2018	Bank	Downstream	200	26	2	1	NFO	0
08/10/2018	Bank	Upstream	140	26	2	1	NFO	0
08/21/2018	Bank	Downstream	200	27	1	1	NFO	0
08/21/2018	Bank	Upstream	140	27	1	1	NFO	0
08/23/2018	Snorkel	Downstream	200	27	1	1	NFO	0
08/23/2018	Snorkel	Upstream	140	27	1	1	NFO	0
08/27/2018	Bank	Downstream	200	26	2	1	NFO	0
08/27/2018	Bank	Upstream	140	26	2	1	NFO	0
09/05/2018	Bank	Downstream	200	26	2	1	NFO	0
09/05/2018	Bank	Upstream	140	26	2	1	NFO	0
09/12/2018	Bank	Downstream	200	25	1	1	NFO	0
09/12/2018	Bank	Upstream	140	25	1	1	NFO	0
09/19/2018	Snorkel	Downstream	200	24	2	1	NFO	0
09/19/2018	Snorkel	Upstream	140	24	2	1	NFO	0
10/03/2018	Bank	Downstream	200	23	1	1	NFO	0
10/03/2018	Bank	Upstream	140	23	1	1	NFO	0
		Upstream	4200 m				Upstream	0
		Downstream	6000 m				Downstream	0
		Total	10200 m				Total	0

[a]Fish Species Code: OMY = O. *mykiss* and NFO = No fish observed.

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Appendix G

California Red-legged Frog (*Rana draytonii*) Surveys, Robles Diversion Reach in Ventura River (November 2018 and October 2019)

California Red-legged Frog Surveys

Robles Diversion Reach
Ventura River



February 2019

Prepared By:

Catalyst
ENVIRONMENTAL SOLUTIONS

Prepared For:

CASITAS
Municipal Water District

Table of Contents

Section 1 – Introduction

Catalyst Environmental Solutions Corporation (Catalyst) is pleased to submit this report documenting the results of California red-legged frog surveys (CRLF, *Rana draytonii*) conducted in the Ventura River upstream and downstream of the Robles Diversion (Facility) and within the Facility screenbay (Screenbay) from November 13, 2018 to November 20, 2018. A final CRLF survey was conducted by biologists from Casitas Municipal Water District (Casitas) prior to an emergency cleanout of the Screenbay on February 7, 2019

California red-legged frog surveys were required to evaluate the presence/absence of CRLF within and around the Facility in preparation for sediment and vegetation removal within the Screenbay. On behalf of the Bureau of Reclamation (Reclamation), Casitas proposed to remove an estimated 225 cubic yards of spoil (sediment and vegetation) that had accumulated in the Screenbay. This accumulated sediment was approximately 12-16 inches in depth, and emergent vegetation (i.e., cattails) had taken root with extensive growth. During most years, the Screenbay dries and can be cleaned as needed during dry conditions. However, this year, it became evident that the Screenbay would not dry likely due to effects from the December 2017 Thomas Fire, which burned much of the watershed upstream of the Facility. These effects may include, but are not limited to, the loss of vegetation in the upper basin of the watershed which in turn reduces evapotranspiration, the increase in-channel sediment storage of water, and the presence of ash and fine sediments which may cause a reduction in in-channel infiltration rates. During permitting of the planned cleanout activities, multiple storms occurred resulting in temporary diversion shutdowns and ultimately a long-term shutdown due to inundation of sediment in the Screenbay. Sediment inundation resulted in diversion and fish passage operations being completely inoperable. Emergency cleanout activities occurred from February 7 to 10, 2019 to bring the Facility back into operation.

To document the presence/absence of CRLF in and adjacent to the Robles Diversion, Catalyst staff conducted surveys for CRLF within a two-mile reach upstream and downstream of the facility as well as within the Screenbay. Although protocol level surveys for CRLF do not require a federal incidental take permit, Steve Howard from Catalyst is permitted by the United States Fish and Wildlife Service to work with CRLF (Permit TE-99057B-0). Casitas biologists conducted surveys in the Screenbay for special status species including CRLF and steelhead prior to and monitored during emergency cleanout activities from February 7 to 10, 2019.

Section 2 – California Red-legged Frog

The California red-legged frog is federally listed as threatened. This subspecies of red-legged frog is endemic (native and restricted) to California and Baja California, Mexico, and occurs from sea level to elevations of about 1,500 meters (5,200 feet) (USFWS 2002). The diet of California red-legged frogs is highly variable. Hayes and Tennant (1985) found invertebrates to be the most common food items of adult frogs. Although vertebrates such as Pacific tree frogs (*Hyla regilla*)[1] and California mice (*Peromyscus californicus*) represented over half of the prey mass eaten by larger frogs, invertebrates were the most numerous food item. Feeding typically occurs along the shoreline and on the surface of

[1] Now considered the Baja California chorus frog or treefrog (*Pseudacris hypochondriaca*) (Duellman et al. 2016).

the water; juveniles appear to forage during both daytime and nighttime, whereas subadults and adults appear to feed at night (Hayes and Tennant 1985).

Several species prey on California red-legged frogs including raccoons, garter snakes, bass, sunfish, mosquito fish, herons, egrets, cats, foxes, coyotes, and most importantly, the introduced American bullfrog. Bullfrogs are considered one of the main threats to the persistence of California red-legged frogs and are one reason why the species are found more often in intermittent or seasonal aquatic habitat rather than in permanent waters. While California red-legged frogs have been known to co-exist with bullfrogs, the presence of these predators in breeding habitat significantly decreases the survivability of tadpoles, metamorphs, and juveniles, and if allowed to persist, can wipe out an entire population within one breeding pool or stream.

CRLF Distribution and Habitat in the Robles Project Reach

The reach surveyed by Catalyst was formerly surveyed for CRLF presence in 2007. These 2007 surveys described habitat in the reach between the California State Route 150 bridge and the Robles Diversion as non-suitable for CRLF. The reach from the Robles Diversion to a mile upstream was described as suitable habitat only in the first 2000 feet of river just upstream of Robles Diversion (ERA 2007). The 2007 surveys extended above Matilija Reservoir and all CRLF documented were located above the reservoir (ERA 2007). During steelhead surveys conducted in the Ventura River in 2010 a single CRLF tadpole was collected by dipnet approximately one mile downstream of the Robles Diversion (Allen and Riley 2012).

Breeding Habitat Preference

The California red-legged frog requires a variety of habitat elements with aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding sites of the California red-legged frog are in aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons (Hayes and Jennings 1988). Additionally, California red-legged frogs frequently breed in artificial impoundments such as stock ponds. Female California red-legged frogs typically deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto 1984), although some biologists have observed submerged egg masses (USFWS 2002). Steve Howard observed submergent CRLF egg masses in Matilija Creek upstream of Matilija Reservoir in February 2010. California red-legged frogs breed from November through early April (Storer 1925). Reis (1999) found the greatest number of tadpoles occurring in study plots with water depths of 0.26 to 0.5 meters (10 to 20 inches). While CRLF successfully breed in streams, high flows and cold temperatures in streams during the spring often make these sites risky environments for eggs and tadpoles (Reis 1999). Historically, suitable frog breeding sites probably were found mostly in unaltered low-gradient annual creeks, with perennial creeks and ponds probably being rare in the Mediterranean climate. However, many of these sites are now negatively impacted by altered water regimes (water extraction and damming), and sometimes eliminated by urban and agricultural development. (Rathbun 2012)

Temperature Preference and Tolerance

Frogs are poikilothermic (can't regulate internal body temperature) and several physiological features, and reproduction, are influenced by temperature. Warmer water, as heated by solar radiation, results in a shorter time between oviposition and metamorphosis - a feature that would be highly adaptive in Mediterranean climates such as southern California because of the potential for aquatic conditions at breeding sites to be short-lived. Despite the importance of water temperatures in understanding several important California red-legged frog behaviors, no empirical data are available on the topic (Rathbun 2012).

Section 3 - Methods

Survey methods were modified but followed (USFWS 2005), and specific equipment guidance was based on more recent technologies from (Tatarian and Tatarian 2016). The survey methods were modified to account for the time of year the cleanout activities were planned to occur and the urgency in conducting cleanout activities as soon as possible. Modifications included conducting the surveys when detection probabilities are lower (best survey period February 25 and April 30), and reducing the number of surveys from the recommended eight surveys conducted between the breeding and non-breeding seasons to four river surveys conducted only during the breeding season (November through March). Based on the historic records for this area, we believe these modifications are reasonable to reduce the potential for or possibly avoid effects to CRLF from the Screenbay cleanout activities. Surveyors used 300 lumen Black Diamond Spot LED headlamps and Bushnell 8x24 mm waterproof, roof top prism binoculars. Water temperature was taken with an alcohol thermometer. River surveys were focused on an area one mile downstream and one mile upstream of Robles Diversion (Figure 1). During night surveys, the focus was on observations of eyeshine as the surveyors walked within the creek thalweg or on the river bank looking at both left and right banks and on immerged substrate. A total of four river surveys were conducted, two during the day and two at night. The night surveys were conducted by two surveyors (Steve Howard and Maravilla Clemens) and the day surveys by one surveyor (Steve Howard). Two surveys were conducted focusing on the area within the Screenbay, one during the river surveys and one during the start of Screenbay dewatering in preparation for cleanout activities. One Screenbay survey was conducted by Catalyst and the other by Casitas biologists walking the entire Screenbay in a zigzag manner to visually inspect the entire Screenbay (Figure 2).

Section 4 – Results

No CRLF were observed during surveys conducted between November 13, 2018 and November 20, 2018 and no CRLF were observed in the Screenbay during surveys conducted prior to and during emergency cleanout activities from February 7 to 10, 2019. Habitat for CRLF did exist in areas upstream and downstream of Robles Diversion during the surveys but the presence of a large numbers of bullfrog larvae, especially downstream of the diversion, create predatory conditions that have the potential to substantially decrease CRLF survival or preclude the exploitation of habitats by CRLF in this reach of the Ventura River.

November 13, 2018 Day River Survey

This survey started at 1000 at the Ojai Valley Land Conservancy pool (Photo 1), which was dry during the surveys. The next upstream pool was wetted and was the downstream terminus of flow during the

survey (Photo 2). Water temperature at the wetted pool was 12℃ at 1010. The water stage in this pool diurnally fluctuates based on water line evidence on the banks. No fish or amphibians were observed from the bank in this pool. The first fish observed were arroyo chub (*Gila orcutti*) at the OVLC crossing at Meyer Road. The water temperature at this site was 15.5℃ at 1150. Water temperature below the Robles crossing was 13.5℃ at 1230. The survey ended at 1530 near the Cozy Dell trailhead. Water temperature was 15℃ at 1530. The only aquatic species observed during the survey were arroyo chub and two adult Baja California chorus frogs (*Pseudacris hypochondriaca*).

November 14, 2018 Night River Survey

This survey started at 1830 at the Ojai Valley Land Conservancy crossing. Water temperature was 15℃ at 1830. Numerous adult Baja California chorus frogs and California chorus frogs (*Pseudacris cadaverina*) were observed during the survey from the OVLC crossing the Robles Diversion. A long glide habitat exists between the OVLC property and Robles Diversion. Glide or run habitats have characteristics including slow moving, usually shallow water, with a smooth unbroken surface and often with small substrate including sands and silts. This glide had some of the best frog habitat in this reach. We observed numerous adult Baja California chorus (Photo 3) and adult California chorus frogs (Photo 4), 50+ bullfrog (*Lithobates catesbeianus*) larvae (Photo 5), one bullfrog subadult under a boulder undercut, one 12-inch largemouth bass (*Micropterus salmoides*) (Photo 6), and numerous arroyo chubs. We arrived at the Robles Diversion at 2030. We surveyed the reach above the diversion and arrived at the end point at 2330. No amphibians of any species were observed in this reach. The only fish that were observed above the diversion were a few arroyo chubs. Considerable silts were noted in this reach – a characteristic that is likely a result of the December 2017 Thomas Fire.

November 16, 2018 Night Screenbay Survey

No amphibian species were observed in the Screenbay during the survey that occurred from 1900 to 2130 PM. We observed one adult Baja California chorus frog at the entrance of the low flow channel at the diversion headworks and observed a few arroyo chubs (Photo 7) in the flow entering the low flow channel. Water temperature was 15.5℃ measured in the Screenbay at 1930.

November 19, 2018 Night River Survey

This survey started at 1830 at the Ojai Valley Land Conservancy crossing. Water temperature was 13.5℃. An adult Western toad (*Anaxyrus boreas*) (Photo 8) and an adult Baja California chorus frog were observed at the crossing. The same observations noted in the November 14 survey of bullfrog larvae in a long glide applied during this survey. The water temperature in the glide was 13.0℃ at 1915. We only observed two adult Baja California chorus fogs and a few arroyo chubs in the reach surveyed upstream of the Robles Diversion.

November 20, 2018 Day River Survey

This survey started at 1230 at the Ojai Valley Land Conservancy pool. Water temperature was 16.0℃ at 1230. Water temperature just downstream of Robles Diversion was 15.0℃ at 1345. A few adult Baja California chorus frogs and arroyo chubs were observed in the reach below Robles Diversion. No amphibians or fish were observed in the reach upstream of Robles Diversion.

February 7-10, 2019 Pre-Dewatering and Cleanout Screenbay Survey and Monitoring

This survey started at 1000 as the Screenbay was slowly draining in preparation for emergency cleanout activities. The forebay upstream of the diversion as well as the Screenbay were inundated with bedload and debris following storm events that occurred from February 2 to 4 (Photos 13 and 14). Bedload and debris that entered the Screenbay resulted in a complete shutdown of diversion and fish passage operations at Robles Diversion. To bring the diversion back into operation, Reclamation and Casitas removed sediment and debris in the Screenbay. Dewatering started at 0800 on February 7 and surveys for CRLF and other special status species including steelhead started at 1000 as the Screenbay was dewatering and continued until 1300. Cleanout activities of the Screenbay started on February 7 following dewatering activities and ended of February 10 at 1030. Monitoring was also conducted by Casitas biologists throughout the cleanout activities. No CRLF or other special status species were observed prior to or during cleanout activities.

Section 5 - Discussion

Our surveys were conducted in what is considered the CRLF breeding season between November and March. Storer (1925) describes breeding as occurring from January through March with observations of breeding occurring in Los Angeles County in November. Bulger et al. (2003) found that adult CRLF migration to and from breeding sites occurred from late October through mid-May at Santa Cruz, California study sites. Also, Bulger et al. (2003) found that approximately 11–22% of the adult population was estimated to migrate to and from breeding sites annually, whereas the bulk of the adult population was resident at breeding sites. The fact that there is a large bullfrog presence in suitable CRLF habitat within the survey reach downstream of Robles Diversion could account for the lack of CRLF presence and a reason that CRLF known to exist in the lower river and San Antonio Creek may not successfully exploit habitats in this reach. In one study (Lawler et al. 1999), the presence of just 50 bullfrog tadpoles nearly precluded recruitment of red-legged frog tadpoles to the juvenile stage in ponds that were studied.

Much of the habitat in the river above and below the diversion is comprised of riffles with a few habitats with slow moving water that would be suitable for CRLF. The forebay directly above the diversion has some suitable habitat in the form of backwater near the diversion headworks. We did focus efforts in this area but did not observe any CRLF. Aquatic habitats in the reach directly upstream of the forebay were comprised of riffles within a braided channel that flows through what appears to be recent deposition of fine sediments within cemented sediments (Photo 9). Upstream of this braided reach is a run habitat that is suitable for CRLF presence but possibly not breeding due to a lack of emergent vegetation and adequate depth (Photo 9). Located approximately 0.6 miles upstream of the diversion is a pool that consists of emergent and submergent vegetation with lateral scour that provides suitable breeding habitat for CRLF (Photo 10). Habitat types located upstream and downstream of this pool consist of riffles and some runs that are either not suitable for CRLF or only provide marginal CRLF habitat.

In conclusion, CRLF habitat does exist in the few habitats with slow moving water and breeding habitat structure (vegetation), but the presence of predatory aquatic species in these habitats create unfavorable conditions for CRLF. The reach downstream of the diversion consists of a few suitable habitats for CRLF but the presence of bullfrogs and predatory fish (bass) along with the fact that some of this reach becomes dry in some years most likely makes it difficult for CRLF to exploit habitats in this

reach. Habitat adjacent to the diversion does consist of elements that are suitable for CRLF, including emergent and submergent vegetation and adequate depth but the presence of bullfrogs and predatory fishes can be detrimental to CRLF survival in these habitats. Surprisingly, habitats in the river upstream of the diversion were almost void of any frog species. We did observe a few Baja California chorus frogs during night surveys but very few compared to the reach downstream of the diversion. Habitat in the Robles Diversion Screenbay during the surveys consisted of shallow, laminar flowing water in a scoured channel close to the concrete wall and screens. The remaining, and majority of habitat in the Screenbay consisted of deposited fine sediments and dense vegetation (cattails) with no flowing water (Photos 11 and 12). We did not observe any frog species in the Screenbay – this is most likely due to a lack of suitable habitat from the presence of extremely dense vegetation. Also, no food sources for CRLF in the form of insects and invertebrates were observed in the Screenbay.

Section 6 - References

Allen, M. and S. Riley. 2012. Effects of electrofishing on adult frogs. Prepared for Casitas Municipal Water District. Normandeau Associates, Inc. Submitted June 30, 2012.

Bulger, J.B., N.J. Scott, and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Biological Conservation 110:85–95.

Duellman, W.E., A.B. Marion, and S.B. Hedges. 2016. Phylogenetics, classification, and biogeography of the treefrogs (Amphibia: Anura: Arboranae). Zootaxa 4104:1–109.

EcoSystems Restoration Associates (ERA). 2007. California red-legged frog survey report and relocation plan. Prepared for the Ventura County Watershed Protection District. June 2007.

Hayes, M.P. and M.M. Miyamoto. 1984. Biochemical, behavioral and body size differences between *Rana aurora* and *R.a. draytonii*. Copeia 1018–1022.

Hayes, M. P. and M. R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylii*): implications for management. Pages 144–158 in R.C. Szaro, K. E. Severson, and D. R. Patton, technical coordinators. Management of amphibians, reptiles and small mammals in North America. U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado, USA.

Hayes, M.P. and M.R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog *Rana aurora draytonii* (Ranidae). Southwestern Naturalist 30, 601–605.

Lawler, S.P., D. Dritz, T. Strange and M. Holyoak. 1999. Effects of introduced mosquitofish and bullfrogs on the threatened California red-legged frog. Conservation Biology 13:613–622.

Rathbun, G.B. 2012. Water temperatures in a California red-legged frog breeding pond. Immediate Science Ecology 1:7-11

Reis, D.K. 1999. Habitat characteristics of California red-legged frogs (*Rana aurora draytonii*): Ecological differences between eggs, tadpoles, and adults in a coastal brackish and freshwater system. M.S. Thesis. San Jose State University. 58 pp.

Storer, T.I. 1925. A synopsis of the amphibia of California. University of California Publications in Zoology 27:1-342.

Tatarian, G. and T. Tatarian. 2018. Criteria for the selection and use of light sources and binoculars for visual encounter surveys of adult and sub-adult California red-legged frogs (*Rana draytonii*). Updated 2/22/2018.

US Fish and Wildlife Service (USFWS) 2002. Recovery plan for the California Red-Legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, OR.

US Fish and Wildlife Service (USFWS) 2005. Revised guidance on site assessments and field surveys for the California red-legged frog. August 2005 report.

Appendix A - Figures

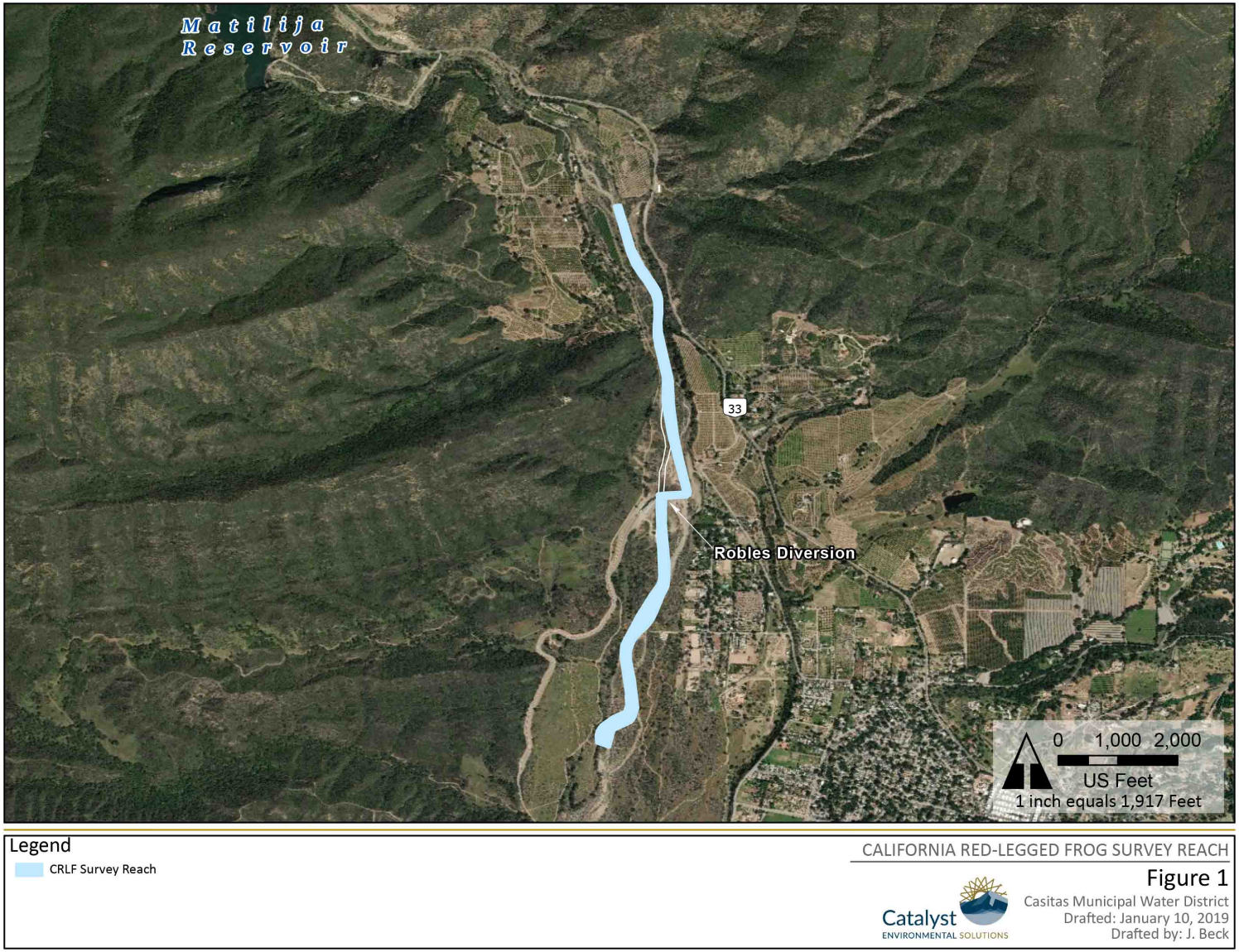

Figure 1 – California Red-legged frog survey reach

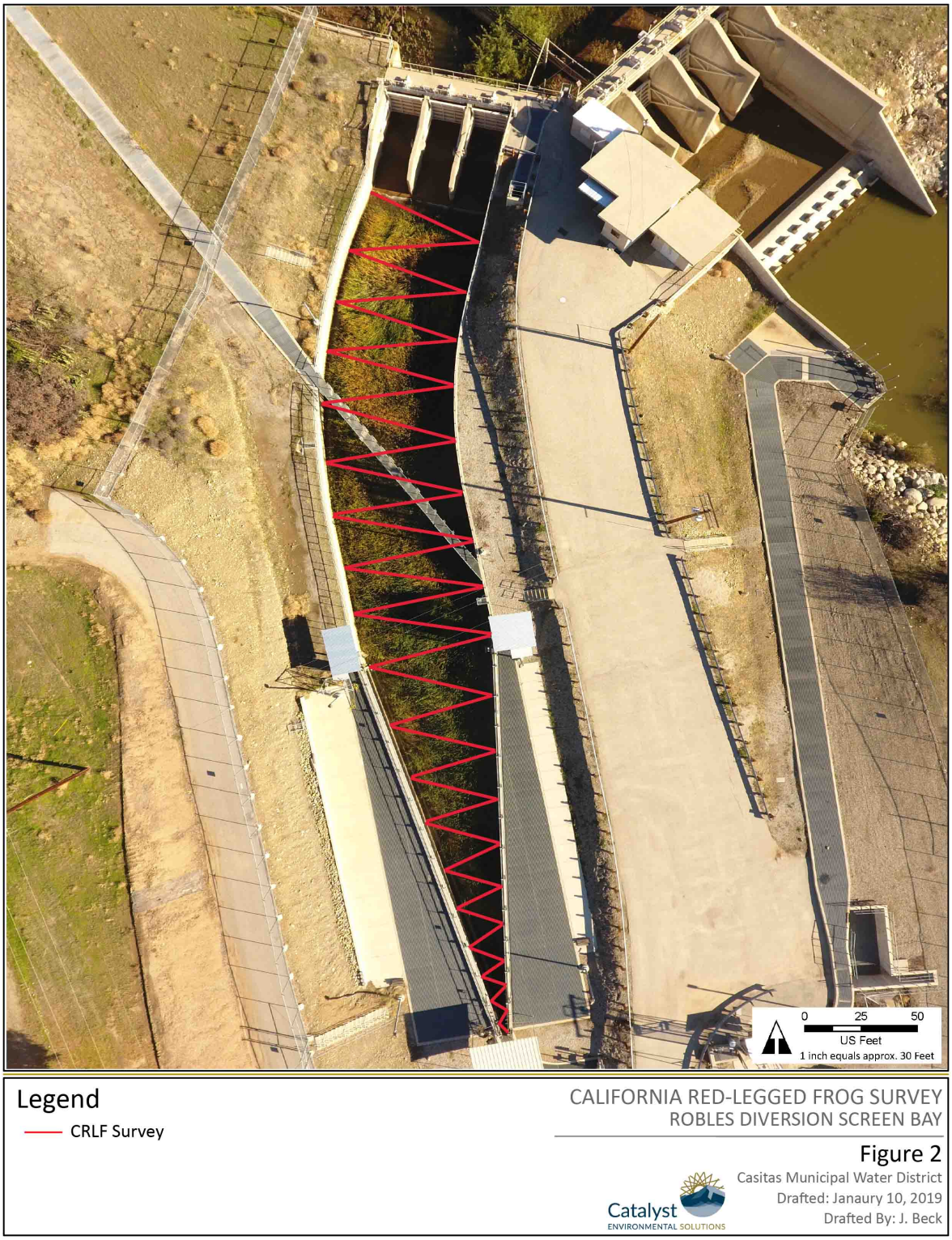

Figure 2 – California Red-legged frog survey transects in Robles Diversion screenbay

Appendix B - Photos

Photo 1 – Ojai Valley Land Conservancy (OVLC) pool

Photo 2 – OVLC pool, upstream of Photo 1, where flow goes subsurface (downstream start of surveys)

Photo 3 – Baja California chorus frog

Photo 4 – California chorus frog

Photo 5 – Bullfrog larva

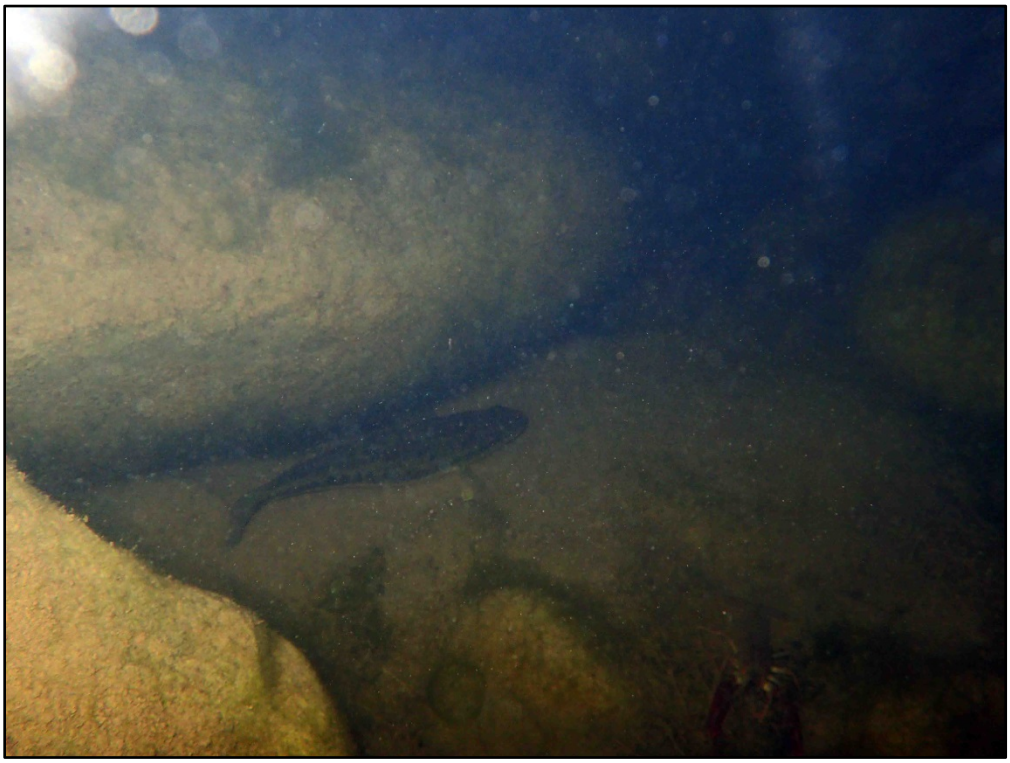

Photo 6 – Largemouth bass

Photo 7 – Arroyo chub

Photo 8 – Western toad

Photo 9 – Braided habitat and run habitat upstream of Robles Diversion

Photo 10 – Pool with suitable CRLF habitat approximately 0.6 miles upstream of Robles Diversion

Photo 11- Dense vegetation and sediment deposition in Robles Diversion screenbay

Photo 12- Dense vegetation and sediment deposition in Robles Diversion screenbay

Photo 13- Sediment inundation in Robles Diversion screenbay prior to emergency cleanout

Photo 14- Sediment inundating fish screens and brushes in Robles Diversion screenbay

Robles Forebay Restoration Project

California Red-legged Frog Survey Report

prepared for

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November 2019

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Table of Contents

Figures

Attachment A

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1 Introduction

Rincon Consultants, Inc. (Rincon) is pleased to submit this report documenting the results of California red-legged frog surveys (CRLF, *Rana draytonii*) conducted in the Ventura River upstream and downstream of the Robles Diversion (Facility). Qualified Rincon biologists conducted surveys one mile upstream and downstream of the Facility, within the Facility screenbay, and within the forebay upstream of the diversion headworks from October 10, 2019 to November 3, 2019.

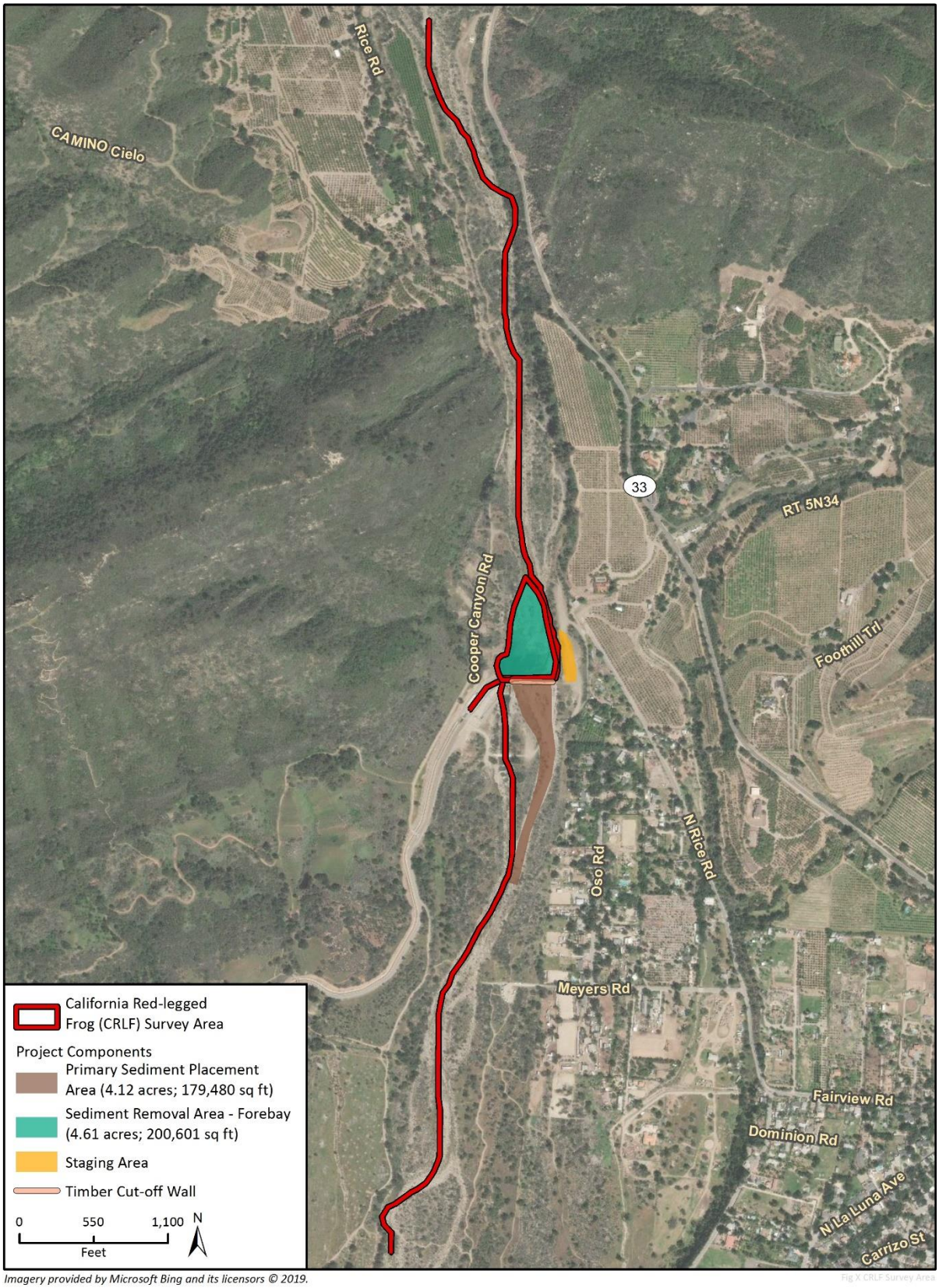
California red-legged frog surveys were required pursuant to the United States Fish and Wildlife Service (USFWS) Biological Opinion (SCC-432,2.2.1.06) and California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement (1600-2019-0145-R5) for the Robles Forebay Restoration Project. The project includes the removal of accumulated sediment within the forebay and will involve the use of heavy equipment to remove sediment and shore up the channel banks downstream of the timber cut-off wall that have been eroded by heavy storms. The sediment will be removed from the forebay with equipment that could include a clamshell, bobcat tractor, or other loader and supporting vehicles (e.g., dump trucks, etc.) to transport and spread the sediment. The sediment will be deposited downstream of the timber cut-off wall over approximately 4.12 acres, where forebay sediment has been placed in the past, within unvegetated or minimally vegetated channel, and where active flow within the channel will not be impeded.

The area in the forebay is usually dry by June each year. However, due to heavy rains in the winter of 2019, the late storms in May 2019, and the lack of mature vegetation in the watershed due to the Thomas Fire, this area remains saturated and surface flow continues through the forebay. It is anticipated that a surface water diversion will be needed to allow the forebay to dry out sufficiently so sediment removal can be performed. The stream diversion will remain in place throughout sediment removal activities in the forebay, to divert stream flow around the work area. The Stream Diversion Plan (dated August 15, 2019) will be implemented if the river is still flowing. A cofferdam will be erected to divert surface water into a 24-inch diameter corrugated pipe. The inlet of the diversion will be located approximately 1,000 feet upstream of the Facility. The diversion pipe intake will be screened (i.e., doubly with 3-millimeter mesh and the pipe will have a slope of approximately 33% with a drop of approximately 4 feet over an approximate 12-foot distance. The screening at the diversion intake will prevent aquatic organisms (e.g., fish) from traveling downstream or upstream because of the screening and steep, high velocity sheet flow in the pipe.

To document the presence/absence of CRLF in and adjacent to the Facility, Rincon biologists conducted surveys for CRLF within a two-mile reach upstream and downstream of the facility as well as within the screenbay and forebay (Figure 1). Although protocol-level surveys for CRLF do not require a federal incidental take permit, Rincon biologist Steve Howard is permitted by the USFWS to work with CRLF (Permit TE-99057B-0) and Steve and Peter Gaede were authorized by the USFWS (O8EVENOO-2019-F-0695) and CDFW (1600-2019-0145-R5) to conduct CRLF surveys for this Project.

No CRLF were observed during all day and night surveys conducted on October 11 (day), October 12 (day), October 14 (night), October 15 (night) and November 3 (night). The day surveys were conducted by Steve Howard. The night surveys were split with Steve Howard surveying the mile downstream of the diversion and Peter Gaede surveying the upper mile of the diversion including the forebay area. Both Steve and Peter surveyed the screenbay.

Figure 1 CRLF Survey Reach



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2 California Red-legged Frog Background

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2.1 CRLF Distribution and Habitat in the Robles Reach

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2.2 Breeding Habitat Preference

The CRLF requires a variety of habitat elements with aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding sites of CRLF are in aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons (Hayes and Jennings 1988). Additionally, CRLF frequently breed in artificial impoundments such as stock ponds. Female California red-legged frogs typically deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto 1984), although some biologists have observed submerged egg masses (USFWS 2002). Steve Howard observed submergent CRLF egg masses in Matilija Creek upstream of Matilija Reservoir in February 2010. California red-legged frogs breed from November through early April (Storer 1925). Reis (1999) found the greatest number of tadpoles occurring in study plots with water depths of 0.26 to 0.5 meters (10 to 20 inches). While CRLF

successfully breed in streams, high flows and cold temperatures in streams during the spring often make these sites risky environments for eggs and tadpoles (Reis 1999). Historically, suitable frog breeding sites probably were found mostly in unaltered low-gradient annual creeks, with perennial creeks and ponds probably being rare in the Mediterranean climate. However, many of these sites are now negatively impacted by altered water regimes (water extraction and damming), and sometimes eliminated by urban and agricultural development (Rathbun 2012).

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3 Methods

Survey methods were modified but followed the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005), and specific equipment guidance was based on more recent technologies from Tatarian and Tatarian (2018). The survey methods were modified to account for the time of year cleanout activities were scheduled to occur and the urgency in conducting cleanout activities prior to the 2020 rain season. Modifications included conducting the surveys when detection probabilities are lower (the best survey period is February 25 and April 30), and reducing the number of surveys from the recommended eight surveys conducted between the breeding and non-breeding seasons to four river surveys conducted just prior to the breeding season (November through March) and a final confirmation survey to be conducted 24 hours prior to project commencement. Based on the historic records for this area, we believe these modifications are reasonable to reduce the potential for, or possibly avoid, effects to CRLF from the forebay cleanout activities. Surveyors used 300 lumen LED headlamps and waterproof, roof top prism binoculars. Water temperature was taken with an alcohol thermometer. River surveys were focused on an area one mile downstream and one mile upstream of the Facility, including the forebay and screenbay (Figure 1). During night surveys, the focus was on observations of eyeshine as the surveyors walked within the creek thalweg or on the riverbank looking at both left and right banks and on immerged substrate. A total of five river surveys were conducted, two during the day and three at night. The first two night surveys were conducted by two biologists (Steve Howard and Peter Gaede) dividing the two-mile survey reach with one surveying the lower mile and the other surveying the forebay and upper mile. The screenbay was surveyed during one night survey. The two day surveys were conducted by one biologist (Steve Howard) surveying the entire two-mile reach including the forebay and screenbay. The fifth survey (night) was conducted by Steve Howard focusing primarily on the project area.

4 Results

No CRLF were observed during surveys conducted between October 10, 2019 and November 3, 2019. Habitat for CRLF did exist in areas upstream and downstream of the Facility but the large presence of bullfrog adults and larvae throughout the two-mile reach creates predatory conditions that have the potential to substantially decrease CRLF survival or preclude the exploitation of habitats by CRLF in this reach of the Ventura River. Also, the presence of Centrarchid fish (bass, green sunfish) can be detrimental to CRLF survival and the typical intermittent conditions of the mile reach below the diversion are not conducive to development of CRLF tadpoles.

4.1 October 10, 2019 Day Survey

This survey started at 0845 at the Ojai Valley Land Conservancy (OVLC) pools (Photograph 1). Flow was estimated to be approximately 2 to 3 cubic feet per second (cfs) at this location which can be dry during this time of year. Above average rain in the winter of 2018 maintained flow in this reach, which can go partially dry in most years. Water temperature was 17°C (62.6°F) at 1000 at the Oso Trailhead crossing. Adult Baja California chorus frogs, California tree frogs (*Pseudacris cadaverina*), and California toads (*Anaxyrus boreas halophilus*) were observed during the survey from the OVLC pools to the Robles Diversion. Besides the OVLC pools, the first 0.25 mile of this reach is dominated by riffle habitats (Photograph 2). After this reach, the channel becomes wider with lower gradient habitats (Photograph 3). Water temperature was 18°C (64.4°F) in the pool below the Robles Diversion low flow crossing (Photograph 4) at 1130. Sediment deposition in the approximate 0.5-mile reach below the diversion was dominated by glide/run and shallow riffle habitats where pools existed last year (Photograph 4). Glide or run habitats have characteristics including slow moving, usually shallow water, with a smooth unbroken surface and often with fine substrate including sands and silts. First year bullfrog tadpoles were observed throughout the mile reach below the Facility (Photograph 5). Flow below the Facility was estimated at approximately 5-7 cfs. Habitat in the reach from the low flow crossing to the fish ladder entrance pool (Photograph 6) and in the forebay (Photograph 7) was dominated by shallow glides with minimal riparian growth as a result of deposition of sediments in 2018. Water temperature in the forebay was 20°C (68°F) at 1200. Habitat in the mile reach above the Facility was dominated by shallow glides in the forebay eventually changing to higher gradient riffles (Photograph 8) and pools (Photograph 9) in the 0.75 mile to the confluence with Cozy Dell canyon. Adult Baja California chorus (Photograph 10) and California tree frogs (Photograph 11) were observed in the mile reach above the Facility as well as first year bullfrog tadpoles. Numerous young green sunfish were observed in a pool approximately 0.5 of a mile upstream of the Facility (Photograph 12). The dominant fish species was arroyo chub (*Gila orcutti*) with no native fish species observed including threespine stickleback or rainbow trout/steelhead. No southwestern pond turtles or snakes were observed during the survey. The survey ended at the Cozy Dell trailhead at 1530.

4.2 October 11, 2019 Day Survey

This survey started at 0930 at the Cozy Dell trailhead. Water temperature at 1000 was 15°C (59°F). Numerous young green sunfish were observed as well as thousands of arroyo chub (Photograph 13). Water temperature was 18°C (64.4°F) below the Robles Diversion at 1230. The same observations as the October 10 survey occurred in the reach below the Facility. The survey ended at 1600.

4.3 October 14, 2019 Night Survey

This survey started at 2000 with one biologist (Steve Howard) starting at the OVLC pools and the second biologist starting at the Facility headworks in the forebay. The survey of the lower mile included observations of numerous first year bullfrog tadpoles and a few adults (Photograph 14) at the OVLC pools as well as numerous adult California toads (Photograph 15). Numerous adult Baja California chorus frogs, California tree frogs and California toads were observed during the survey from the OVLC pools to the Facility. The dominant fish species was arroyo chub. Observations from the forebay to Cozy Dell Canyon included adult bullfogs (n=7), and numerous tadpoles. California tree frog and Baja California chorus frog adults and tadpoles were numerous, red-swamp crawfish were present but didn't appear to be in large numbers, and arroyo chub was the dominant fish species. Five southwestern pond turtles were observed upstream of the forebay. None were observed in the forebay. No snakes or rainbow trout/steelhead were observed during this survey. Terrestrial species observed during this survey were great horned owls both upstream and downstream of the Facility, a barn owl upstream of the Facility and mule deer feeding within the forebay.

4.4 October 15, 2019 Night Survey

This survey was the same as the October 14 survey with no additional observations to report. This survey also included a focused survey of the screenbay by both biologists. The only aquatic species observed in the screenbay were bullfrog sub-adults, adults and tadpoles, California tree frog and Baja California chorus frog adults and arroyo chub.

4.5 November 3, 2019 Night Survey

This survey started at 1830 with one biologist (Steve Howard) surveying the entire forebay work area including the active river channel. The only aquatic species observed were Baja California chorus frogs, California toads, and arroyo chubs.

5 Discussion

Habitats adequate for CRLF survival and breeding did occur in the two-mile reach of the river surveyed. However, much of the lower mile below the Facility does go dry in many years and deep pools with emergent vegetation required for breeding were sparse. Habitats upstream of the Facility were better suited for CRLF survival and breeding due to perennial conditions and the presence of deep pools with emergent vegetation. Unfortunately, the presence of predators and other potential factors could be the reason no CRLF were observed. Our surveys were conducted outside of what is considered the CRLF breeding season between November and March. Storer (1925) describes breeding as occurring from January through March with observations of breeding occurring in Los Angeles County in November. Bulger et al. (2003) found that adult CRLF migration to and from breeding sites occurred from late October through mid-May at Santa Cruz, California study sites. Also, Bulger et al. (2003) found that approximately 11–22% of the adult population was estimated to migrate to and from breeding sites annually, whereas the bulk of the adult population was resident at breeding sites. The fact that there is a large bullfrog presence in suitable CRLF habitat within the survey reach downstream and upstream of the Facility could account for the lack of CRLF presence and a reason that CRLF known to exist in the lower river and San Antonio Creek may not successfully exploit habitats in these reaches. In one study (Lawler et al. 1999), the presence of just 50 bullfrog tadpoles nearly precluded recruitment of red-legged frog tadpoles to the juvenile stage in ponds that were studied.

Much of the habitat in the river above the diversion is comprised of riffles with a few habitats with slow moving water that would be suitable for CRLF and the presence of some deep pools with emergent vegetation could support breeding. Aquatic habitats in the reach upstream of the forebay were comprised of riffles within a braided channel that flows through what appears to be recent deposition of fine cemented sediments. Located approximately 0.6 of a mile upstream of the diversion is a pool that consists of emergent and submergent vegetation with lateral scour that provides suitable breeding habitat for CRLF (Photograph 16).

In conclusion, CRLF habitat does exist in the few habitats with deep, slow moving water and breeding habitat structure (vegetation) upstream of the diversion, but the presence of predatory aquatic species in these habitats create unfavorable conditions for CRLF. The reach downstream of the diversion consists of a few suitable habitats for CRLF but the presence of bullfrogs and predatory fish (sunfish) along with the fact that some of this reach becomes dry in some years most likely makes it difficult for CRLF to exploit habitats in this reach. During the survey in 2018 (Catalyst 2018) habitats in the river upstream of the diversion were almost devoid of any frog species. That changed in 2019 with numerous frogs observed, but no CRLF.

6 References

Allen, M. and S. Riley. 2012. Effects of electrofishing on adult frogs. Prepared for Casitas Municipal Water District. Normandeau Associates, Inc. Submitted June 30, 2012.

Bulger, J.B., N.J. Scott, and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Biological Conservation 110:85–95.

Catalyst Environmental Solutions. 2019. California Red-legged Frog Surveys, Robles Diversion Reach, Ventura River. Prepared for Casitas Municipal Water District. February 2019.

Duellman, W.E., A.B. Marion, and S.B. Hedges. 2016. Phylogenetics, classification, and biogeography of the treefrogs (Amphibia: Anura: Arboranae). Zootaxa 4104:1–109.

EcoSystems Restoration Associates (ERA). 2007. California red-legged frog survey report and relocation plan. Prepared for the Ventura County Watershed Protection District. June 2007.

Hayes, M.P. and M.M. Miyamoto. 1984. Biochemical, behavioral and body size differences between *Rana aurora* and *R.a. draytonii*. Copeia 1018–1022.

Hayes, M. P. and M. R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylii*): implications for management. Pages 144–158 in R.C. Szaro, K. E. Severson, and D. R. Patton, technical coordinators. Management of amphibians, reptiles and small mammals in North America. U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado, USA.

Hayes, M.P. and M.R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog *Rana aurora draytonii* (Ranidae). Southwestern Naturalist 30, 601–605.

Lawler, S.P., D. Dritz, T. Strange and M. Holyoak. 1999. Effects of introduced mosquitofish and bullfrogs on the threatened California red-legged frog. Conservation Biology 13:613–622.

Rathbun, G.B. 2012. Water temperatures in a California red-legged frog breeding pond. Immediate Science Ecology 1:7-11

Reis, D.K. 1999. Habitat characteristics of California red-legged frogs (*Rana aurora draytonii*): Ecological differences between eggs, tadpoles, and adults in a coastal brackish and freshwater system. M.S. Thesis. San Jose State University. 58 pp.

Storer, T.I. 1925. A synopsis of the amphibia of California. University of California Publications in Zoology 27:1-342.

Tatarian, G. and T. Tatarian. 2018. Criteria for the selection and use of light sources and binoculars for visual encounter surveys of adult and sub-adult California red-legged frogs (*Rana draytonii*). Updated 2/22/2018.

US Fish and Wildlife Service (USFWS) 2002. Recovery plan for the California Red-Legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, OR.

US Fish and Wildlife Service (USFWS) 2005. Revised guidance on site assessments and field surveys for the California red-legged frog. August 2005 report.

Attachment A

CRLF Survey Photographs

Photograph 1. OVLC Ventura River Preserve pools

Photograph 2. Representative riffle habitat in 0.25 mile reach upstream of OVLC pools

Photograph 3. Representative low gradient habitat upstream of Oso crossing at Meyer Road

Photograph 4. Partial sediment filled pools downstream of Robles Diversion low flow crossing

Photograph 5. Bullfrog tadpole

Photograph 6. Sediment deposition downstream of Robles Diversion

Photograph 7. Robles forebay with shallow glides and minimal riparian vegetation

Photograph 8. Representative higher gradient habitats near Cozy Dell canyon confluence

Photograph 9. Pool habitat upstream of Robles Diversion forebay

Photograph 10. Baja California chorus frog

Photograph 11. California tree frog

Photograph 12. Juvenile green sunfish upstream of Robles Diversion

Photograph 13. Arroyo chubs

Photograph 14. Adult bullfrog at OVLC Pools

Photograph 15. California toad

Photograph 16. Pool with emergent vegetation upstream of Robles Diversion. Suitable CRLF breeding pool habitat.