Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program

Final Initial Study – Mitigated Negative Declaration

prepared by

Casitas Municipal Water District
1055 North Ventura Avenue
Oak View, California 93022
Contact: Kelley A. Dyer, P.E.
Assistant General Manager

prepared with the assistance of

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

December 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Acronyms and Abbreviations

AB	Assembly Bill
AE	Agriculture Exclusive zone
Basin	South Central Coast Air Basin
Basin Plan	Central Coastal Basin Water Quality Control Plan
BMP	Best Management Practice
BPS	Booster Pump Station
BSA	Biological Study Area
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CA	Coastal Agriculture zone
CALFIRE	California Department of Forestry and Fire Protection
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
Casitas	Casitas Municipal Water District
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CMA	Congestion Management Agency
CMP	Congestion Management Plan
CRHR	California Register of Historical Resources
CH_4	methane
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CVWD	Carpinteria Valley Water District
CWA	Clean Water Act
dB	decibel

dB(A)	A-weighted decibel
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
ECAP	County of Santa Barbara's Energy and Climate Action Plan
EIA	United States Energy Information Administration
EO	Executive Order
ESHA	environmentally sensitive habitat area
ERMs	emission reduction measures
FEMA	Federal Emergency Management Agency
FTA	Federal Transit Administration
GHG	greenhouse gas
HDD	horizontal directional drilling
HMMP	Habitat Mitigation and Monitoring Plan
HMMSCP	Hazardous Materials Management and Spill Control Plan
HP	horsepower
IS-MND	Initial Study-Mitigated Negative Declaration
kWh	kilowatt-hours
lbs/day	pounds per day
L_{eq}	one-hour equivalent noise level
LF	linear feet
MLD	most likely descendant
MS4	Municipal Separate Storm Sewer Systems
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
N_2O	nitrous oxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Properties
OS	Open Space zone
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
PM_{10}	particulate matter 10 microns or less in diameter
ppv	peak particle velocity

PRC	Public Resources Code
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
ROC	reactive organic compound
rms	root mean square
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SC	Southern California
SBCAPCD	Santa Barbara County Air Pollution Control District
SCADA	supervisory control and data acquisition
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SO_X	sulfur oxides
SR	State Route
SRA	State Responsibility Area
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMP	Traffic Management Plan
tpy	tons per year
USACE	U.S. Army Corps of Engineers
VCAPCD	Ventura County Air Pollution Control District
VCTC	Ventura County Transportation Commission
VMT	vehicle miles traveled
VOC	volatile organic compound
WEAP	Worker Environmental Awareness Program

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Introduction

In accordance with the requirements of CEQA Guidelines Section 15073, Casitas Municipal Water District (Casitas) published the Initial Study-Mitigated Negative Declaration (IS-MND) for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program in October 2021 for public review. The public review period lasted from October 22, 2021 through November 24, 2021. Since then, there have been minor changes to the project description. The purpose of this document is to update the IS-MND in accordance with these minor changes and update outdated information within the IS-MND.

Pursuant to CEQA Guidelines Section 15073.5, a lead agency is required to recirculate a negative declaration when the document must be substantially revised after public notice of its availability has previously been given, but prior to its adoption. CEQA Guidelines 15073.5(b) states a "substantial revision" shall mean:

1. A new, avoidable significant effect is identified and mitigation measures or project revisions must be added in order to reduce the effect to insignificance, or
2. The lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required.

CEQA Guidelines 15073.5(c)(4) states recirculation is not required when new information is added to the negative declaration which merely clarifies, amplifies, or makes insignificant modifications to the negative declaration. Although changes to the project description have resulted in changes to the text of the IS-MND, these changes merely clarify and/or amplify existing information within the IS-MND and therefore do not constitute substantial revisions. Accordingly, recirculation of this IS-MND is not required as a result of the changes made to this IS-MND.

Any changes made to the text of the IS-MND, other than minor typographical corrections, are shown in the IS-MND in <u>underline</u> for text additions and ~~strikethrough~~ for text deletions.

Initial Study

1. Project Title

Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program (R&M Program)

2. Lead Agency Name and Address

Casitas Municipal Water District
1055 North Ventura Avenue
Oak View, California 93022

3. Contact Person and Phone Number

Kelley A. Dyer, PE
Assistant General Manager
Casitas Municipal Water District
Phone: 805-649-2251 ext. 150
email: kdyer@casitaswater.com

4. Project Location

Casitas operates the Robles Diversion and Fish Passage Facility (Facility), as part of the United States Department of the Interior, Bureau of Reclamation's (Reclamation) Ventura River Project. The 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 D) 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 Southern California (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 United States Geological Survey 7.5-minute topographic quadrangle (Figure 1). The project 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.

Figure 1 Regional Project Location

Project Location

N

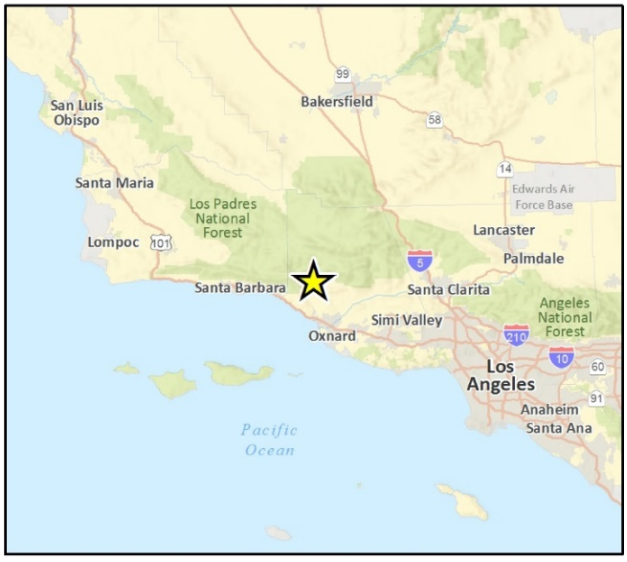
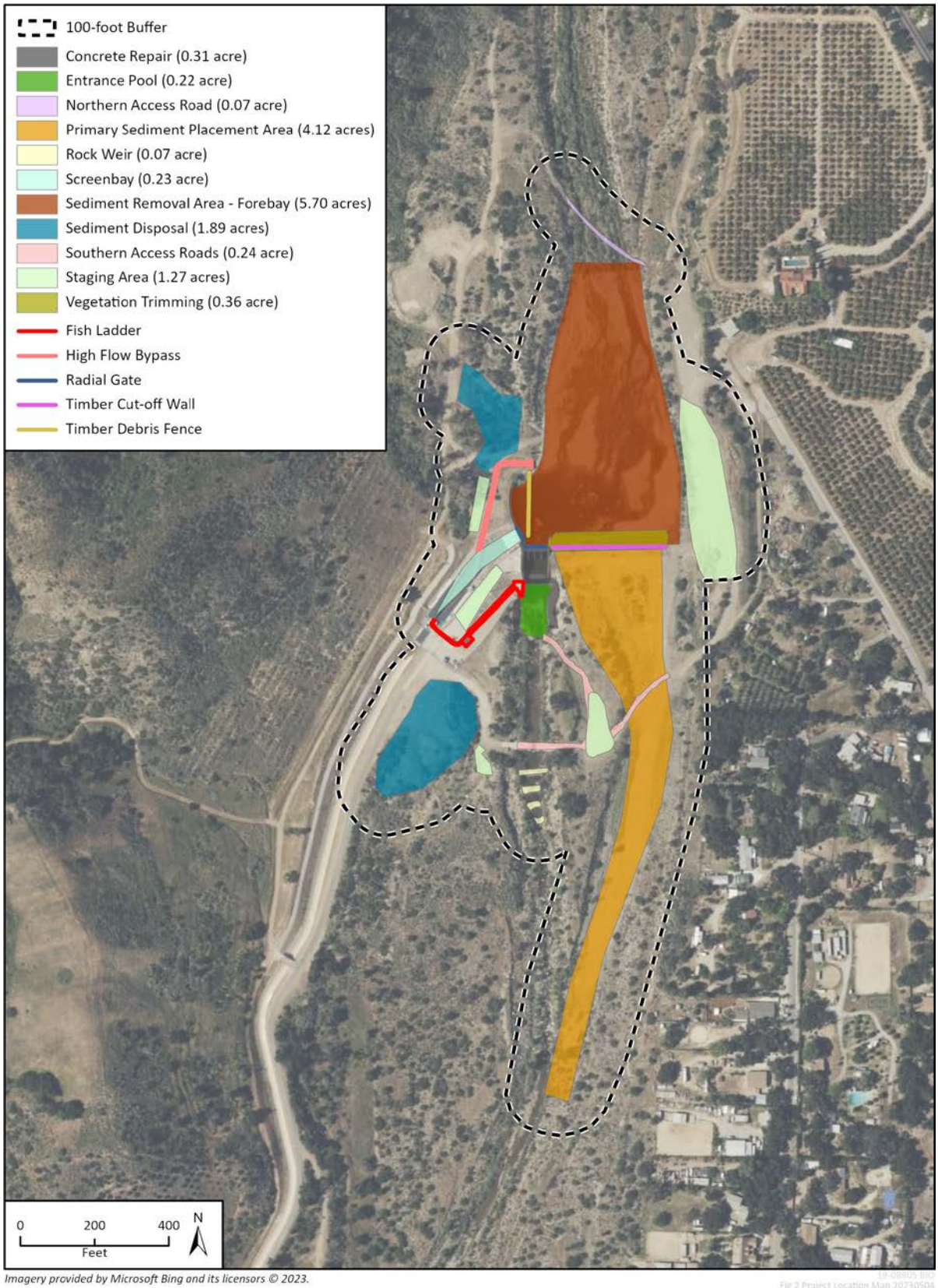


Figure 2 Project Area



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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.

5. Project Sponsor's Names and Addresses

Casitas Municipal Water District
1055 North Ventura Avenue
Oak View, California 93022

6. General Plan Designation

Open Space (OS)

7. Zoning

Open Space (OS-80 ac/TRU/DKS/HCWC and OS-80 ac/TRU/DKS)

8. Program Background

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 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 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, 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 Facility. The project modified the existing Facility to provide for the safe upstream and downstream passage of adult steelhead and the safe downstream passage of juveniles. Reclamation owns the 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 California 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 States 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 (BiOp) 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 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, RWQCB, and USFWS for construction of the Facility (Appendix B). Additionally, a Mitigated Negative Declaration (MND) was prepared for the fish passage improvements at the Facility (Appendix C). 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 environmental protection measures, called environmental Best Management Practices (BMPs), are described in Section 10.

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 the CDFW; January 21, 2020, with the Los Angeles RWQCB; and February 5, 2020, with the USACE, USFWS, and NMFS. All agency representatives provided feedback on the proposed activity descriptions, which Casitas has incorporated into the Final Project Description.

9. 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 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 flow 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.

9.1 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.

9.2 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.

Activity No. 1 Forebay Sediment

Permit History

Maintaining the depth and volume of the forebay is critical to operation of the 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 D). Following the severe storms in 1978, the forebay decreased in size to 5.70 acres, and Casitas has continued to maintain this footprint (Appendix E). 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 require 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 have been arranged through 2021~~. <u>During October and November 2021, an additional 15,300 cubic yards of sediment was removed from the forebay. Most of this sediment was stockpiled in designated on-site sediment disposal areas on the west side of the forebay since there was not sufficient capacity within the primary placement area.</u>

Sediment Removal (1A)

The annual maintenance and repair program 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 would 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 would 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) 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 return the forebay closer to its historical operational grade (Appendix E) by removing accumulated sediment, and relocating it downstream (1B; Figure 3), or to a stockpile area above the mean high-water mark. The remaining sediment excavated may be exported off-site. 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 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.

Based on the extent of damage and conditions, it may be necessary to perform emergency repairs to the Facility that involve recontouring or removal of sediment from the forebay during wet conditions. In accordance with the NMFS BiOp, if work must occur during wet conditions to restore the timber cutoff wall, BMPs will be applied to control water entering the Facility and limit turbidity leaving the Facility.

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 would 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 1B; Figure 3). The primary placement area allows sediment to remain in the Ventura River and be transported downstream as would naturally occur.

Prior to placing sediments during the November 2019 maintenance cycle, Casitas developed a fill design for the downstream placement area. This design was based upon the anticipated contours and elevation of the streambed associated with the placement of 50,000 cubic yards of sediment in the area. In December 2019, following the placement of approximately 32,600 cubic yards[1] of

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

sediment downstream of the timber cut-off wall, a photogrammetric aerial survey was conducted to document post-placement conditions. ~~of the placement area. The aerial survey from December will be compared to the fill design plan from November 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 would 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 as opposed to amounts that may need to be moved to disposal areas.

If the amount of sediment to be excavated exceeds the capacity of the placement area, the excess sediment that cannot be placed downstream would be stockpiled above the ordinary high-water mark of the Ventura River in designated soil disposal areas (Figure 2) or exported off-site. If sediment is stockpiled in designated disposal areas on-site, Casitas would 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 staff or contractors would 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 would be taken to a dump as a destruction load. Noxious species would be removed by hand or by hand-operated power tools, rather than by chemical means, where practicable. Casitas would monitor the soil 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

CDFW = California Department of Fish and Wildlife

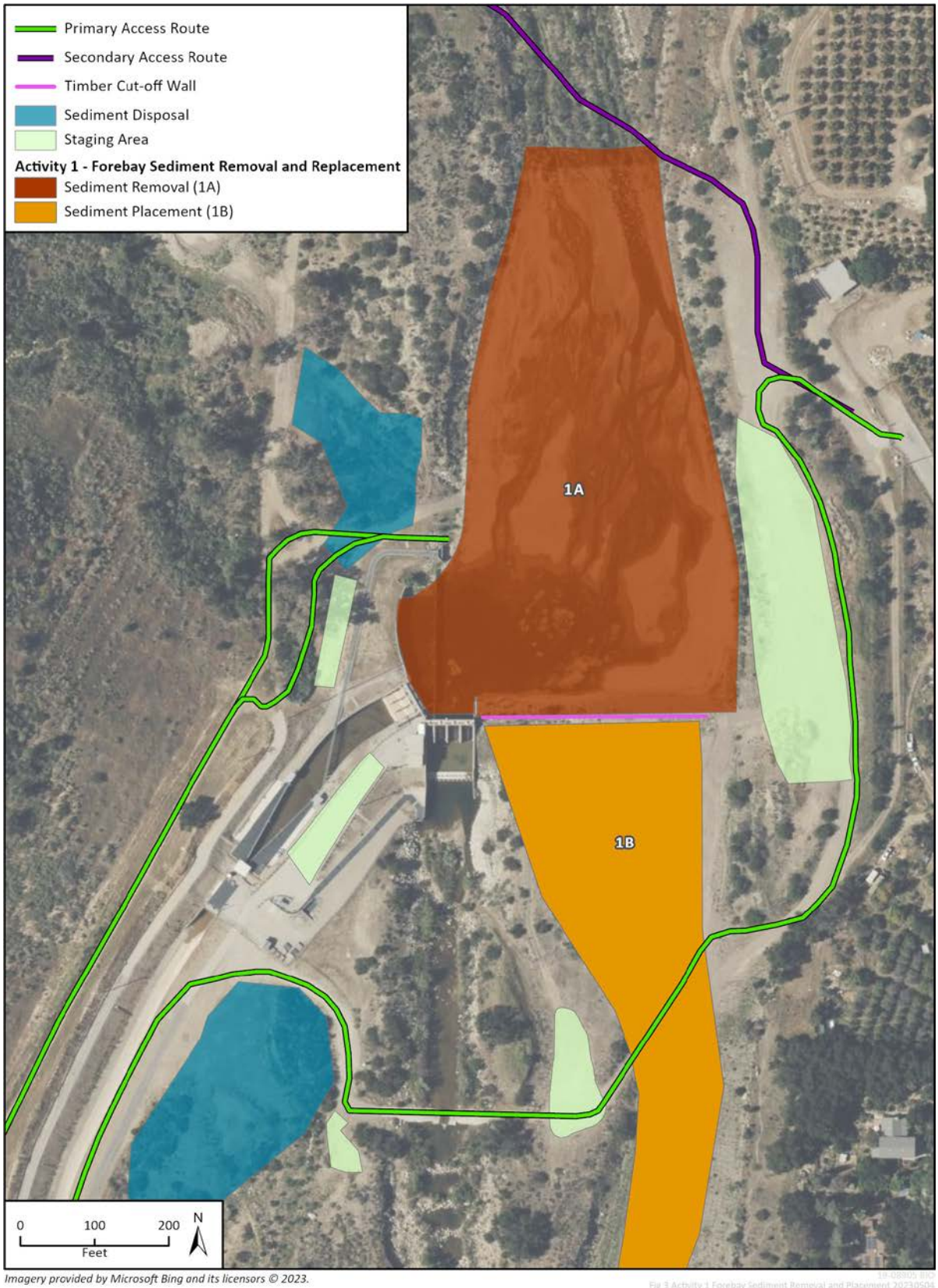
[1] Calculated to Ordinary High-Water Mark or edge of wetland

[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 acre).

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~~. Between October and November 2021, an additional 15,300 cubic yards of sediment was removed from the forebay and the majority of this sediment was stockpiled in designated on-site sediment disposal areas on the west side of the forebay since there was not sufficient capacity within the primary placement area. 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 to 20 percent of basin capacity is occupied by sediment and debris.

Figure 3 Activity 1 Forebay Sediment



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 on-site restoration to compensate for permanent impacts to jurisdictional areas (Appendix B). No additional temporary or permanent impacts to jurisdictional areas requiring compensatory mitigation for USACE, RWQCB, or CDFW requirements would 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 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. The necessary repairs or maintenance are conducted as quickly and safely as possible and the Facility is put back in service once it is fixed.

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 would evaluate 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 would be temporarily shut down. The necessary repairs or maintenance on the Facility would be conducted as soon as possible and the structure(s) would be put back in service once repairs are made. Maintenance of the fish ladder, screenbay, and high-flow bypass would 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 would 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 occurs via: the north end of Rice Road east of the forebay; the northern access road at the upper limit of the forebay; and the canal road to the south. 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, including heavy equipment use for up to 1 week.

REMOVAL OF SMALL DEBRIS

Small debris would be removed by hand via the access grate above the fish ladder, screenbay, and high-flow bypass. Small debris removal would 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 this case, the work would only be conducted if necessary to prevent critical issues and maintain operations of the diversion and fish passage.

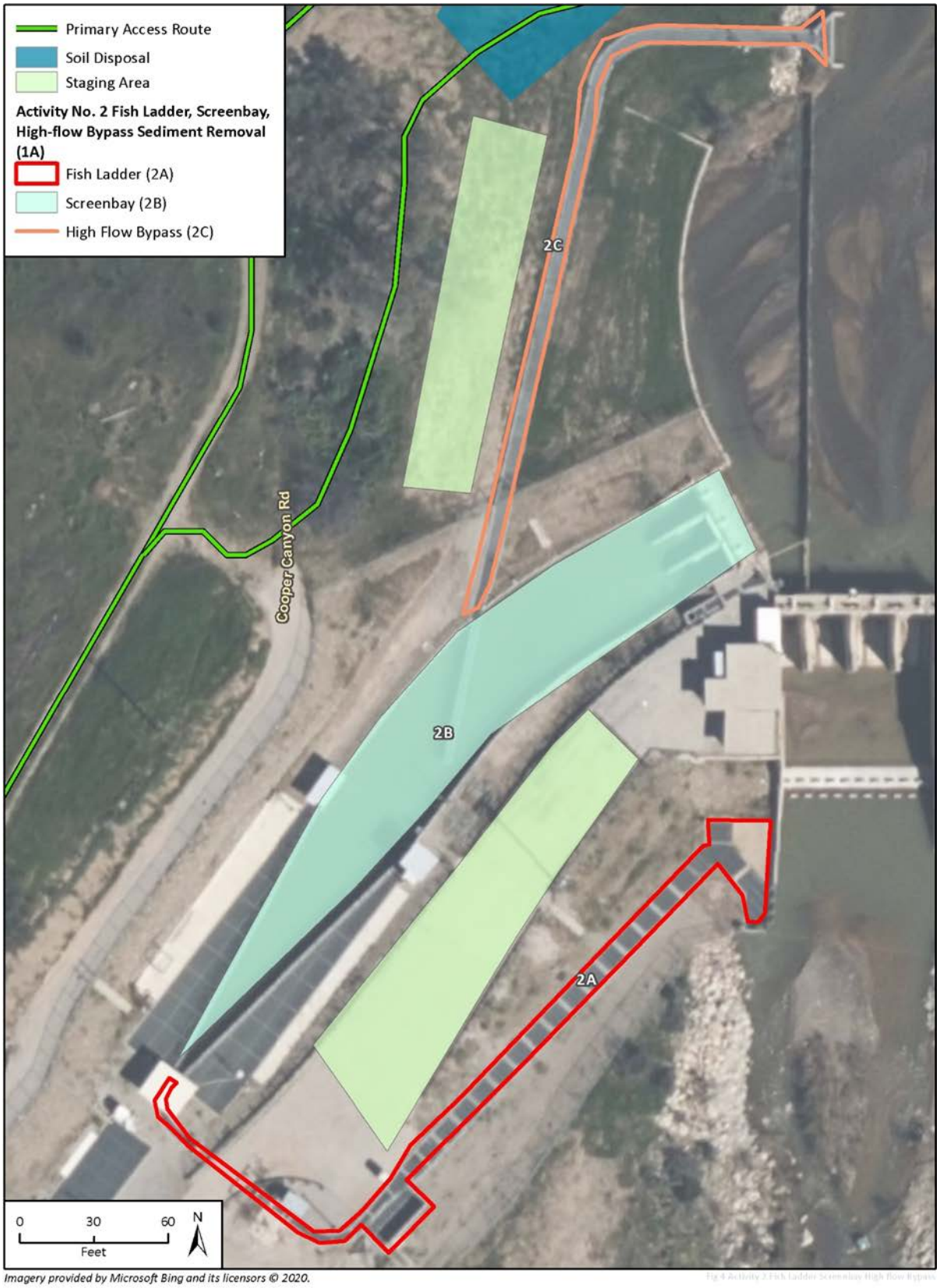
REMOVAL OF LARGE DEBRIS AND SEDIMENT

Removal of large debris (logs, large branches) and sediment would 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 federally-listed species (e.g., SC steelhead and California red-legged frog) would be conducted as the water recedes. If no listed species are observed in the Facility work would proceed.

An excavator would be staged adjacent to the access grates above the fish ladder, screenbay, and high-flow bypass, and would 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 would be loaded into dump trucks and removed to a disposal/storage site on Casitas property outside the river channel.

~~It is possible for water to pool within the lower portion of the fish ladder (i.e., entrance box and bottom five to seven steps of the ladder). If this portion of the fishway needs critical repair, block nets would 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 two 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~~.

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



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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 2003-2004. 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. Casitas has also 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 installing additional rock weirs due to the uncertain but long impending Matilija Dam Removal Project upstream of the 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 on-site restoration to compensate for permanent impacts to jurisdictional areas (Appendix B). Therefore, no additional temporary or permanent impacts to jurisdictional areas requiring compensatory mitigation would result from 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 would occur in upland areas on bare ground above the ordinary high-water mark and west of the channel where the weirs are located. Access to the weirs would be from Rice Road located east of the forebay across the Ventura River via the southern access road.

The existing concrete measurement weir may need repair if damaged to accurately measure flow from the 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 during wet conditions. Maintenance associated with the measurement weir should be minimal and limited to removal of debris by hand tools. Mechanical equipment (excavator or backhoe) may be required for large debris and sediment to be removed and placed downstream of the rock weirs. ~~and would occur only during dry conditions~~.

Since the weirs were modified in 2006 to include larger rock and more cabling, a total of 29 storms ranging from 1,400 to 23,000 cfs have occurred which demonstrates the longevity of the rock weirs functioning in the system. ~~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 exceed 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 modifications 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 would be removed and placed downstream of the weirs with heavy equipment (e.g., excavator or backhoe). It is anticipated the work would occur in dry conditions and heavy equipment would be used for up to ~~4~~ 5 days to make necessary adjustments to boulders and relocate large woody material.

Figure 5 Activity 3 Rock Weir and Measurement Weir

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 2003-2004. 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 acre (8,238 square feet) of the Ventura River low-flow channel. Casitas provided compensatory mitigation in the form of on-site 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 B). Therefore, no additional temporary or permanent impacts to jurisdictional areas requiring compensatory mitigation would result from maintenance of the entrance pool. The entrance pool would 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 C).

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 would 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.

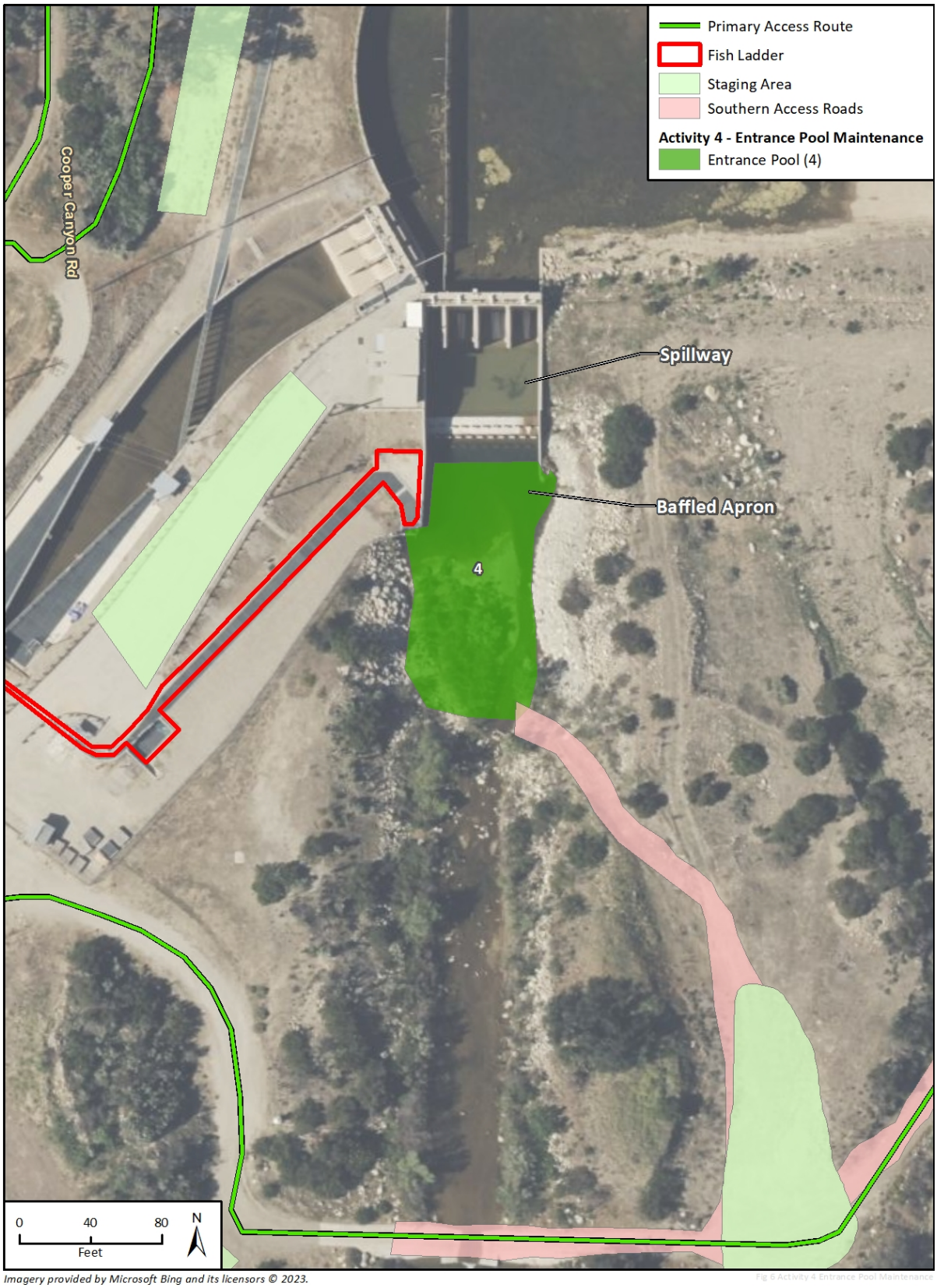
Sediment and vegetation removed would be stockpiled outside of jurisdictional areas in designated soil disposal sites. Re-contouring with boulder/cobbles/sediment would occur in the bottom of the entrance pool and adjacent areas to repair erosion along existing concrete abutments and riprap. The proposed 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) to transport and spread the sediment/debris in designated soil disposal areas. It is anticipated maintenance of the pool would require up to 3 to 4 weeks to complete. Staging of heavy equipment would occur in upland unpaved areas on the west and east of the channel adjacent to the entrance pool. Access to the entrance pool would be from Rice Road located east of the forebay across the Ventura River via the southern access road.

Similar to the entrance pool itself, the downstream area between the entrance pool and the measurement weir, referred to as the glide reach, was considered in the 2003 BiOp and ongoing monitoring by the Biological Committee.[2] Activities in this area would only occur if repairs are deemed necessary to *O. mykiss* passage.

[2] As described in the Facility's 2003 BiOp, the Biological Committee serves in an advisory role to the Management Committee and has primary responsibility of providing technical recommendations to the Management Committee on all steelhead issues. The Biological Committee consists of a representative from Reclamation, Casitas, NMFS, USFWS and CDFW. Reclamation serves as Chair of the Biological Committee. The Biological Committee meets annually each summer to review monitoring data from the preceding season's monitoring studies.

Figure 6 Activity 4 Entrance Pool



Activity No. 5 Concrete Structures

The 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 would 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 would 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 would implement BMPs for concrete repair (Section 3).

Heavy equipment would 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 would be staged in upland areas on bare ground west or east of the channel adjacent to the entrance pool. Access to the spillway would 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 ~~alter~~ expand the existing footprint of the Facility, and no permanent or temporary impacts to jurisdictional areas requiring compensatory mitigation are anticipated.

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~~ 25 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 would occasionally need maintenance and repair. The maintenance/repair would 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 acre) surrounding the base of the wall. Emergent and woody vegetation along the wall within this area would be removed during excavation to assess the extent of the damage and access the timber cut-off wall. Repair and maintenance would not be performed under the routine maintenance programmatic agreements if surface water is present in the work area. Based on the extent of damage and conditions, it may be necessary to perform temporary emergency repairs to the Facility during wet conditions until more permanent repairs can be made during dry conditions. 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.

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.

Figure 7 Activity 5 Concrete Structures

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 damage~~d portions of the wall, which were burned in~~ from 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 would depend on the ~~degree of damage to the structure~~ number and magnitude of damaging high flows or other events (e.g. fires).

Vegetation that develops near the top of the timber cut-off wall prevents uniform overtopping of flows and creates catch points for debris to accumulate. In the years when repairs to the timber wall are not made, woody vegetation with a diameter of three inches or less would be cut to ground level with hand operated power tools. Maintaining low or no vegetation along the wall would 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 the forebay as designed. Cut vegetation would be disposed of outside of jurisdictional areas, off-site. Vegetation trimming would occur outside the bird nesting season, and would usually require two to five days to complete.

Access to the timber cut-off wall would 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.

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

CDFW = California Department of Fish and Wildlife

[1] Calculated to Ordinary High-Water Mark 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 deflects debris away from the headwork gates and toward the spillway gates. Over time the fence collects woody debris, which requires removal. This maintenance activity would 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. If possible, debris would be removed by hand. Removed debris would be disposed of outside of jurisdictional areas. Repair of the timbers would 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 would 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.

Figure 8 Activity 6 Routine Maintenance

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 would be completed within 1 to 2 weeks. Access to the radial gates is along the timber cut-off wall (Figure 8). This effort would occur when the spillway area is dry. Small equipment and hand tools are used to sandblast and prime the gates before they are painted. BMPs would 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 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. Information collected is provided to NMFS and CDFW on an annual basis. Levelers, bubblers, transducers, etc. would 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 would 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 <u>are</u> ~~is one~~ sensor<u>s</u> 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 would 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, <u>depending on flow conditions</u>, 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 would 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 would use other methods, such as calculations based on other measuring instruments within the Facility, to estimate river flows. In addition, a staff gauge would be marked onto the measurement weir and would provide a redundant method to estimate flows if all other instrumentation fails. ~~be painted onto the measurement weir in summer 2021 and would be resistant to damage~~. Using these methods would ensure that river flows can continue to be estimated while the primary instruments are pending repairs.

Road Maintenance (6E)

Road maintenance and repair would occur as needed (estimated annually) on Reclamation property during dry river conditions. It is anticipated road maintenance would 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 traverses 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 would 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 3 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

CDFW = California Department of Fish and Wildlife

[1] Calculated to Ordinary High-Water Mark 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.

10. Best Management Practices

The environmental BMPs 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 would implement BMPs as they apply to each activity. Each spring, Casitas would 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 F.

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 during the fish passage season, 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 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~~ in years when any of Activities 1-6 are included in the annual maintenance and repair plan. 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, southwestern 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, southwestern 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 survey~~s~~ prior to the start Activities 1, 3, 4 and 6A.
- On~~e~~e 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, 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 and are no longer dependent on protected areas for foraging.

BMP-7 Cover Excavations (Activity 6A)

Any steep-walled excavations that may trap CRLF which will be left open overnight in areas within or adjacent to the Ventura River shall be covered and checked for CRLF 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 on site during all project operations that involve removal of the first 12 inches of ~~soil~~ sediment/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 on site, the monitor will then remain on site 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, sandbags, 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 the 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. In addition, fugitive dust control measures, such as periodic watering via water trucks, will be implemented as appropriate to minimize the release of particulates into the air.

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. The Spill Prevention Plan will identify steps to be taken including notification of appropriate local, state, and federal agencies in the event of significant spills. 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;
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; and

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, where practicable. 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.

11. 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 work planned to be conducted during dry conditions within the work period in the upcoming ~~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 Facility will be submitted to the USACE, CDFW, RWQCB, USFWS, NMFS, VCWPD and Reclamation at that time.

~~With regard to~~ As mentioned in Section 9.2 within the *Sediment Removal (1A)* discussion, regarding 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 photogrammetric aerial survey, will be presented in the annual maintenance and repair plan.

Casitas will provide all regulatory agencies with the Annual Maintenance and Repair Plan for the next fiscal year by May 30 each year. Work will commence as described in the Annual Maintenance and Repair Plan, and in accordance with the program's permits and authorizations.

~~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~~.

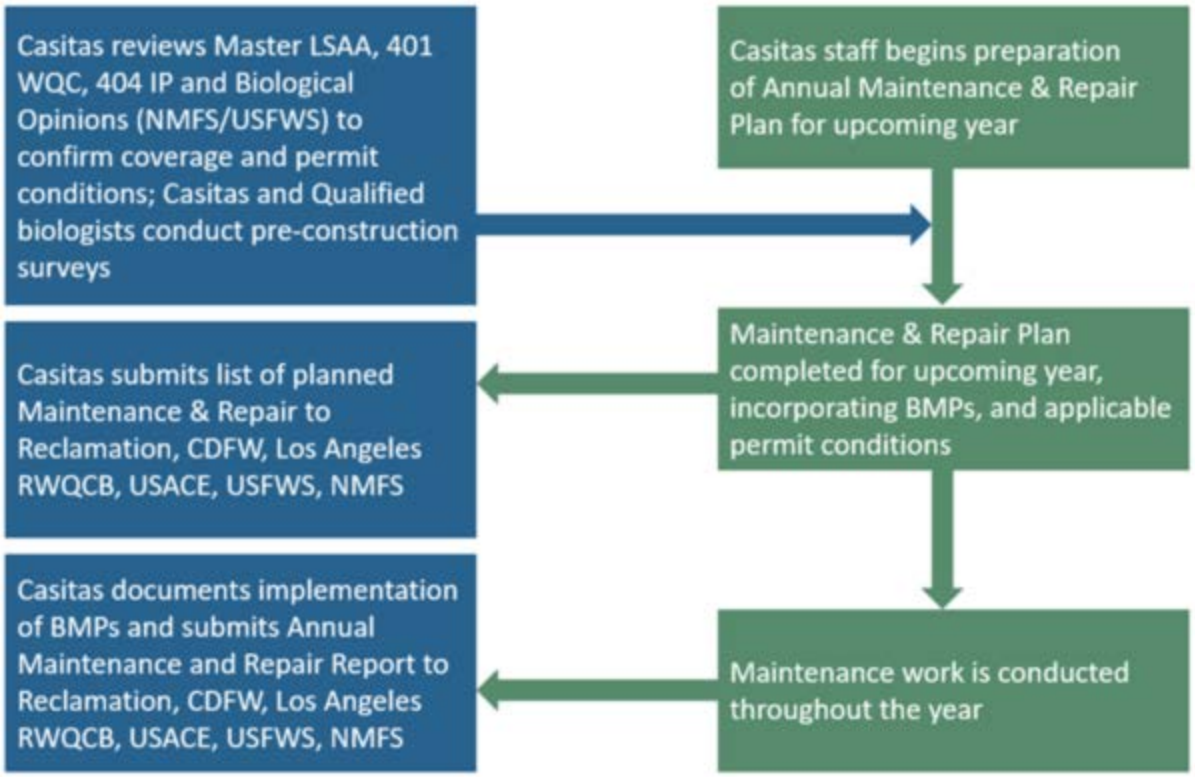
Casitas will coordinate the implementation of the environmental BMPs (Section 3) and permit conditions during the course of the year, as described above. At the end of the year, an annual report documenting all work performed and the successful use of the BMPs will be submitted to USACE, CDFW, RWQCB, USFWS, NMFS, VCWPD 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



12. 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.

12.1 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

12.2 Forebay Sediment Removal and Relocation

The Annual Report will also include the results of the photogrammetric 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~~.

13. Surrounding Land Uses and Setting

Land uses around the project site are predominantly agricultural and residential.

14. Other Public Agencies Whose Approval is Required

Casitas is the Lead Agency under CEQA with responsibility for approving the project. There are two CEQA Responsible Agencies for the project, where "responsible agency" is defined in CEQA as any public agency other than the CEQA Lead Agency which has discretionary approval authority over the

project. For the proposed Program, the two CEQA Responsible Agencies are the CDFW and the Los Angeles RWQCB. Contact information is provided below.

California Department of Fish and Wildlife, South Coast Region
3883 Ruffin Road
San Diego, California 92123

Regional Water Quality Control Board, Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

15. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

On behalf of Casitas, Rincon Consultants, Inc. contacted the Native American Heritage Commission (NAHC) on March 24, 2020, to request a Sacred Lands File (SLF) search of the project site. The NAHC replied on April 2, 2020, with positive results and listed six contacts who may have local knowledge of the area. As the CEQA lead agency for the project, Casitas then conducted "government to government" consultation with the identified Native American tribes for project compliance with Assembly Bill 52 (AB 52). As of the time of preparation of this IS-MND, one Native American tribe traditionally and culturally affiliated with the project area has requested consultation pursuant to PRC Section 21080.3.1. Julie Tumamait-Stenslie, Chairperson of the Barbareño/Ventureño Band of Mission Indians, requested Native American monitoring during project-related ground disturbance associated with Activities 1A and 1B. On November 15, 2024, proposed revisions to mitigation measures were reviewed and discussed with Matthew Vestuto, current Chairperson of the Barbareño/Ventureño Band of Mission Indians, and worker environmental awareness training was requested as a result of these discussions.

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact which is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

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

Determination

Based on 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 to 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 "less than significant with mitigation incorporated" 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 potential 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	Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
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. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	■	☐

a. Would the project have a substantial adverse effect on a scenic vista?

The project site is located along the Ventura River near the city of Ojai in the Ojai Valley portion of Ventura County; due to its location along the river, the project is intrinsically within a visually scenic area but does not have the elevation to affect the qualities of scenic vistas.

The County of Ventura General Plan Resources Element identifies the viewsheds of lakes (excluding land designated Existing Community) and State- or County-designated scenic highways as being worthy of special protection, including Lake Casitas and Matilija Reservoir near Ojai (County of Ventura 2019). Conservation of scenic resources is most critical where the resources will be frequently and readily viewed, such as from a highway, or where the resource is particularly unique (County of Ventura 2019). The project site is located within the boundaries of the Ojai Valley Area Plan but is not located in a designated Scenic Resource Protection Overlay Zone for lakes or ridgelines.

The City of Ojai General Plan does not specifically designate scenic vistas, but the City's General Plan Open Space Element does state scenic open space includes those areas with views of the city and

featuring the aesthetic quality of the Ojai Valley's ridgelines (City of Ojai 1987). Although surrounded by mountainous areas, the relatively flat nature of the Ojai Valley floor means scenic vistas of mountains and ridgelines are commonly obscured by intervening structures and vegetation in the project area. Continued implementation of the R&M Program would involve the presence and use of equipment and machinery within and around the project site. These activities may temporarily obstruct or degrade scenic views for residents and motorists in the immediate vicinity of the Facility; however, such effects would be temporary, restricted to active construction activities, and would be consistent with ongoing repair and maintenance activities at the Facility. Following construction, visual characteristics of the area would be the same as present conditions. There would be no permanent changes affecting scenic vistas. Potential impacts to scenic vistas from construction and operation of the proposed R&M Program would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

According to the California Department of Transportation, the nearest eligible State Scenic Highway to the project site is State Route 33 (SR 33), located approximately 0.3 mile east of the Facility. The proposed R&M Program would not result in damage to trees, historic buildings, rock outcroppings, or similar scenic resources within the SR 33 viewshed. Therefore, the project would not result in a substantial adverse effect on scenic resources visible from a state scenic highway and no impact would occur.

NO IMPACT

c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

As stated in the Project Description Section 13, *Surrounding Land Uses and Setting,* land uses around the project site are predominantly agricultural and rural residential. Figure 2, *Project Area*, shows the Facility's location within the Ventura River, and shows agricultural and rural residential uses to the east, on either side of Rice Road, and open space to the west, beyond Cooper Canyon Road. The Ventura River continues to the north and south of the Facility. In general, the area surrounding the Facility has a "small town" visual character including residential uses, as well as recreational open space, agricultural uses, and undeveloped mountain ridges.

The project area spans the city of Ojai and small portions of unincorporated Ventura County. Title 10, Chapter 2, Article 20 of the Ojai Municipal Code contains the City's design review policies. Pursuant to California Government Code 53091, the project is not subject to the design review policies contained in the City's zoning regulations, because local zoning ordinances do not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. The project would not conflict with regulations governing scenic quality in the project area as no regulations related to scenic quality apply to the proposed R&M Program.

Project activities would be visible from surrounding land uses and would temporarily alter the existing visual character and quality of the project area and vicinity, due to the presence of equipment and material, stockpiles of soil, and construction vehicles during R&M Program activities. Construction equipment and materials would be removed from all sites upon completion of R&M

Program activities. Due to the temporary nature of R&M Program activities and the removal of visible project components following completion of construction, construction and operation of the proposed R&M Program would not substantially degrade the existing visual character or quality of the project site and its surroundings. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?

Implementation of the R&M Program would involve the continuation of routine operation and maintenance of the Facility, as described in detail in the Project Description. Some of these activities may involve upgrading lighting fixtures; however, such improvements would be similar to existing infrastructure during operation, and additional lighting beyond what is currently provided for existing facilities is not proposed.

Proposed project components may create light and glare during construction due to the presence of construction vehicles and equipment. Construction would occur primarily during the daytime hours, though late afternoon activities during the winter could require the use of temporary lighting. If temporary lighting is required, depending upon the activity, light may be visible from surrounding roadways and residential and other land uses; however, the lighting would not face toward adjacent uses and would be directed towards the applicable maintenance and repair activities. Any construction lighting used would be shielded to minimize impacts to nearby receptors, including residents to the east. As such, light and glare from occasional nighttime construction activities would not substantially disturb sensitive receptors, and potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on 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. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■

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

b. Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

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

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

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

The project site is zoned OS, "Open Space." As shown on the California Department of Conservation (DOC) Ventura County Important Farmland 2016 map, the project site is not located in an area designated as Prime Farmland, Farmland of Statewide or Local Importance, or Unique Farmland (DOC 2017). The project site is not currently in agricultural production and is not located on land covered by a Williamson Act contract. The proposed R&M Program also would not cause the loss of forest land or conversion of forest land to non-forest use.

The project would not convert farmland to non-agricultural use, conflict with agricultural zoning or a Williamson Act contract, conflict with forest land or timberland zoning, or result in the loss of forest land. As such, no impact to agriculture or forestry resources would occur.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	■
b. 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?	☐	■	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	■	☐

The project area is in the South Central Coast Air Basin (Basin) which covers San Luis Obispo, Santa Barbara, and Ventura Counties. The Ventura County Air Pollution Control District (VCAPCD) monitors and regulates the local air quality in Ventura County and administers the Air Quality Management Plan (AQMP). The analysis presented in this section is based on information found in the Ventura County Air Quality Assessment Guidelines (Guidelines), adopted by the VCAPCD in 2003.

Air quality is affected by stationary sources (e.g., industrial uses and oil and gas operations) and mobile sources (e.g., motor vehicles). Air quality at a given location is a function of several factors, including the quantity and type of pollutants emitted locally and regionally, and the dispersion rates of pollutants in the region. Primary factors affecting pollutant dispersion are wind speed and direction, atmospheric stability, temperature, the presence or absence of inversions, and topography. The project site is in the southeastern portion of the Basin, which has moderate variability in temperatures, tempered by coastal processes. The air quality within the Basin is influenced by a wide range of emission sources, such as dense population centers, heavy vehicular traffic, industry, and weather.

Air Quality Standards and Attainment

The VCAPCD is required to monitor air pollutant levels to ensure National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are met. If the standards are met, the Basin is classified as being in "attainment." If the standards are not met, the Basin is classified as being in "non-attainment" and the VCAPCD is required to develop strategies to meet the standards. According to the California Air Resources Board (CARB) Area Designation Maps, the project site is located in a region identified as being in non-attainment for the ozone NAAQS and CAAQS and non-attainment for the particulate matter less than 10 microns in diameter (PM_{10})

CAAQS (CARB 2015). In February 2017, the VCAPCD adopted the 2016 Ventura County AQMP, which provides a strategy for the attainment of federal ozone standards (VCAPCD 2017).

San Joaquin Valley Fever (formally known as Coccidioidomycosis, hereafter referred to as Valley Fever) is an infectious disease caused by the fungus Coccidioides immitis. Valley Fever is a disease of concern in the Basin. Infection is caused by inhalation of Coccidioides immitis airborne spores, formed when dry, dusty soil or dirt is disturbed by natural processes, such as wind or earthquakes, or by human-induced ground-disturbing activities, such as construction, farming, or other activities (VCAPCD 2003). From 2011 to 2015, the number of cases of Valley Fever reported in California averaged 3,611 per year, with an average of 50 cases per year reported in Ventura County (California Department of Public Health 2016).

Air Emission Thresholds

The VCAPCD Guidelines recommend specific air emission thresholds for determining whether a project may have a significant adverse impact on air quality within the Basin. These air emission thresholds differ between the Ojai Planning Area, which is defined as the Ojai Valley and includes the project area, and the remainder of Ventura County. Because the proposed R&M Program is in the Ojai Planning Area, it would have a significant impact if its mobile source emissions exceed five pounds per day of Reactive Organic Compounds (ROC; also referred to as Reactive Organic Gases) or five pounds per day of Nitrogen Oxides (NO_X). The five pounds per day threshold for ROC and NO_X is not intended to be applied to construction emissions since such emissions are temporary. Nevertheless, VCAPCD Guidelines state construction-related emissions should be mitigated if estimates of ROC or NOx emissions from heavy-duty construction equipment exceed this threshold.

The VCAPCD has not established quantitative thresholds for particulate matter for either operation or construction. The VCAPCD indicates a project generating fugitive dust emissions in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or which may endanger the comfort, repose, health, or safety of any such person, or which may cause or have a natural tendency to cause injury or damage to business or property, would have a significant air quality impact. This threshold is applicable to the generation of fugitive dust during grading and excavation activities. The VCAPCD Guidelines recommend fugitive dust mitigation measures be applied to all dust-generating activities. Such measures include minimizing the project disturbance area, watering the site prior to commencement of ground-disturbing activities, covering all truck loads, and limiting on-site vehicle speeds to 15 miles per hour or less.

Applicable VCAPCD Rules and Regulations

The VCAPCD implements rules and regulations for emissions generated by various uses and activities. The rules and regulations detail pollution-reduction measures to be implemented during construction and operation of projects. Relevant rules and regulations to the project include those listed below.

Rule 50 (Opacity)

This rule sets opacity standards on the discharge from sources of air contaminants. This rule would apply during construction of the proposed R&M Program.

Rule 51 (Nuisance)

This rule prohibits any person from discharging air contaminants or any other material from a source which would cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public or which endangers the comfort, health, safety, or repose to any considerable number of persons or the public. The rule would apply during construction and operational activities.

Rule 55 (Fugitive Dust)

This rule requires fugitive dust generators, including construction and demolition projects, to implement control measures limiting the amount of dust from vehicle track-out, earth moving, bulk material handling, and truck hauling activities. The rule would apply during construction and operational activities.

Rule 55.1 (Paved Roads and Public Unpaved Roads)

This rule requires fugitive dust generators to begin the removal of visible roadway accumulation within 72 hours of any written notification from the VCAPCD. The use of blowers is expressly prohibited under any circumstances. This rule also requires controls to limit the amount of dust from any construction activity or any earthmoving activity on a public unpaved road. This rule would apply throughout all construction activities.

Rule 55.2 (Street Sweeping Equipment)

This rule requires the use of PM_{10} efficient street sweepers for routine street sweeping and for removing vehicle track-out pursuant to Rule 55. This rule would apply during all construction activities.

Rule 74.4 (Cutback Asphalt)

This rule sets limits on the type of application and volatile organic compound (VOC) content of cutback and emulsified asphalt. The proposed R&M Program is required to comply with the type of application and VOC content standards set forth in this rule.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

According to the VCAPCD Guidelines, a project may be inconsistent with the applicable air quality plan if it would cause the existing population to exceed forecasts contained in the most recently adopted AQMP. The VCAPCD adopted the 2016 Ventura County AQMP to demonstrate a strategy for and reasonable progress toward attainment of the federal 8-hour ozone standard. The 2016 Ventura County AQMP relies on the Southern California Association of Governments' 2016 Regional Transportation Plan/Sustainable Communities Strategy forecasts of regional population growth in its projections for managing Ventura County's air quality.

The primary objective of the R&M Program is to maintain the proper operation of the Facility and to protect life and property. The proposed maintenance and repair activities would preserve the conveyance capacity of the Facility by preventing the accumulation of obstructing vegetation and sediments that could impede fish passage and water diversion operations. The program would not expand the conveyance capacity beyond the original design. Consequently, it would not contribute

directly or indirectly to population growth and would not cause exceedances of the growth forecasts employed in the 2016 Ventura County AQMP. No impact would occur.

NO IMPACT

b. Would the project 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?

The proposed R&M Program would generate long-term emissions associated with R&M activities. Emissions for each activity were modeled as individual, consecutive, non-overlapping phases using the California Emissions Estimator Model (CalEEMod) version 2016.3.2.[3] Emissions were then added together for activities that may occur simultaneously to estimate a "reasonable worst-case-scenario" because VCACPD thresholds are based on maximum daily emissions. Although the R&M activities would occur regularly throughout the operation of the Facility, emissions were modeled as "construction" emissions in CalEEMod to account for the use of heavy-duty equipment.

For the purposes of modeling, the analysis relied upon the following assumptions:

- Crews would work five days per week.
- Up to ten workers would travel individually to the site each day throughout the duration of the activities.
- Fugitive dust control measures are required by VCAPCD Rule 55. Such measures include securing tarps over truck loads, removing vehicle track-out using PM_{10}-efficient sweepers, and watering bulk material to minimize fugitive dust. These measures were added as "mitigation" in CalEEMod but are included in the unmitigated outputs in this analysis. It was assumed the sweeping of paved roads would achieve a PM_{10} reduction of 25 percent (South Coast Air Quality Management District [SCAQMD] 1993).
- The "reasonable worst-case-scenario" assumes simultaneous implementation of Activity No. 1 and Activity No. 6E (Road Maintenance). Several other activities are expected to overlap; however, simultaneous occurrence of these two reasonably overlapping activities yields the most conservative (highest) emissions of all combinations of activities expected to overlap. Emissions from implementation of individual program activities and other combinations of program activities would be lower than emissions under this scenario. Emissions modeling for all individual scenarios is provided in Appendix G.
- **Activity No. 1 Forebay Sediment**. Under normal conditions, Casitas would place or stockpile 100 percent of the removed forebay sediment on site. However, under certain high-sediment conditions (e.g., post-fire), Casitas may need to export excess sediment off site. Preliminary air emissions modeling indicated this export scenario would yield higher air criteria pollutant emissions than the on-site placement scenario due to the haul trips. Therefore, this air quality analysis conservatively analyzes emissions under the export scenario. Casitas is attempting to identify a receiver in the county to beneficially use sediment removed during Activity 1. However, this analysis conservatively assumes Casitas would dispose of the sediment at the Simi Valley Landfill and Recycling Center, located in the city of Simi Valley approximately 50 miles (driving distance) from the project site.
    - **Haul trips.** It was assumed up to 5,000 cubic yards of soil would be disposed of at the Simi Valley Landfill and Recycling Center. Assuming haul trucks have a capacity of 16 cubic yards,

[3] CalEEMod was developed by the SCAQMD and is used by jurisdictions throughout the State to quantify criteria pollutant emissions.

approximately 626 ~~round-trip~~ one-way truck trips would be required throughout the 60-day duration of Activity No. 1. For the purposes of modeling, these haul trips were split into two phases. One phase accounts for the geographic portion of the haul trips occurring within the boundaries of the Ojai Valley Planning Area, totaling approximately ten miles. The second phase accounts for the geographic portion of the haul trips occurring outside the Ojai Valley Planning Area, totaling 40 miles.

- **Equipment.** Modeled off-road equipment for Activity No. 1 includes a backhoe, a Caterpillar 950 loader, two Caterpillar dozers (D8 and D6), a Caterpillar excavator 320, a Caterpillar 120 grader, a Caterpillar excavator 350, and a Caterpillar articulated dump truck 725. Two work trucks (Ford F350 type) and a water truck were modeled as on-road equipment in vendor trips to the site.

- **Activity No. 2 Fish Ladder, Screenbay, High-flow Bypass**. Assumed an excavator, a loader, and two water pumps would be used up to six days[4].
- **Activity No. 3 Rock Weir and Measurement Weir**. Assumed an excavator would be used up to four days.
- **Activity No. 4 Entrance Pool**. Assumed a bulldozer, an excavator, and an off-highway truck would be used for up to five days.
- **Activity No. 5 Concrete Structures**. Assumed two off-highway trucks, a concrete mixer, an excavator, and a pump.
- **Activity No**. **6 Routine Maintenance**.
  - For Timber Cut-Off Wall, assumed an excavator, a skid steer loader, an off-highway truck, a front-end loader, a backhoe, and a compactor.
  - For Debris Fence, assumed a backhoe.
  - For Radial Gates, assumed an aerial lift.
  - For Instrumentation, assumed no heavy equipment.
  - For Road Maintenance, assumed one dozer.

Criteria Air Pollutant Emissions

Program implementation would generate recurring criteria air pollutant emissions associated with fugitive dust and exhaust emissions from heavy-duty equipment and vehicles. Not all activities would occur simultaneously; therefore, this analysis uses the "reasonable worst-case-scenario" of simultaneous implementation of Activity No. 1 and Activity No. 6E (Road Maintenance) to calculate maximum daily emissions.

Table 5 summarizes maximum daily pollutant emissions during simultaneous implementation of Activity No. 1 and Activity No. 6E.

4 At the time of CalEEMod modeling, it was assumed that two water pumps would be used. Since that time, the Project Description has been revised and no longer includes the use of two water pumps. The CalEEMod modeling was not updated to reflect this change and therefore provides a conservative analysis of air quality emissions outputs with inclusion of the two water pumps.

Table 5 Reasonable Worst-Case Emissions – Unmitigated

	Estimated Maximum Daily Emissions (pounds/day)					
	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Ojai Valley Plan Area						
Activity No. 1 - Forebay Sediment	3.05	31.51	21.34	0.06	2.95	1.97
Activity No. 6E - Road Maintenance	1.12	11.01	4.51	0.01	3.36	2.01
"Worst-Case-Scenario" Maximum Daily Emissions	**4.16**	**42.52**	**25.85**	**0.07**	**6.31**	**3.98**
Ojai Valley Area Plan Significance Thresholds	5	5	N/A	N/A	N/A	N/A
Threshold Exceeded?	**No**	**Yes**	**N/A**	**N/A**	**N/A**	**N/A**
Ventura County						
"Worst-Case-Scenario" Maximum Daily Emissions	4.16	42.52	25.85	0.07	6.31	3.98
Haul Truck Emissions Outside Ojai Valley Plan Area	0.15	4.29	1.23	0.01	0.31	0.10
Total Ventura County Emissions	**4.31**	**46.81**	**27.08**	**0.08**	**6.62**	**4.08**
VCAPCD Significance Thresholds	25	25	N/A	N/A	N/A	N/A
Threshold Exceeded?	**No**	**Yes**	**N/A**	**N/A**	**N/A**	**N/A**

ROC: reactive organic compounds; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter 10 microns or less in diameter; $PM_{2.5}$: particulate matter 2.5 microns or less in diameter; N/A = not applicable (the VCAPCD has not adopted quantitative thresholds for these pollutants)

See Appendix F for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Emissions data is sourced from "mitigated" results, which incorporate emissions reductions from regulatory compliance measures and best management practices to be implemented during project implementation, such as watering of soils during construction required under VCAPCD Rule 55 and limiting vehicle speeds to 15 miles per hour (BMP-21). Emissions by activity include both on-site and off-site emissions.

As shown in Table 5, maximum daily emissions generated during the "reasonable worst-case-scenario" would exceed the NO_X emissions thresholds for both the Ojai Valley Planning Area and the overall VCAPCD jurisdictional area. Implementation of Mitigation Measures AQ-1, AQ-2, and AQ-3 would reduce potential impacts related to NO_X emissions to less-than-significant levels.

Fugitive Dust Emissions

The VCAPCD states significant air quality impacts would result if fugitive dust emissions are generated in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public. For construction impacts, the VCAPCD recommends minimizing fugitive dust through dust control measures.

Implementation of fugitive dust control measures are required by VCAPCD Rule 55. Such measures include securing tarps over truck loads, removing vehicle track-out using PM_{10} efficient sweepers, and watering bulk material to minimize fugitive dust. As a result, compliance with Rule 55 would ensure construction emissions would not be generated in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or endanger the comfort, repose, health, or safety of any such person or the public.

Valley Fever

The population of Ventura County has been and will continue to be exposed to Valley Fever from agricultural and construction activities occurring throughout the region. The fungal spores responsible for Valley Fever generally grow in virgin, undisturbed soil. Soils at the project site are already disturbed from Facility operations. Due to previous disturbance at the Facility, disturbance of soils during program activities is unlikely to pose a substantial risk of infection. Substantial increases in the number of reported cases of Valley Fever tend to occur only after major ground-disturbing events such as the 1994 Northridge earthquake (VPAPCD 2003). Implementation of the proposed program would not result in a comparable amount of ground disturbance. Furthermore, the standard control measures required by VCAPCD Rule 55 would reduce fugitive dust generation, which would further minimize the risk of spore mobilization and associated infection. Therefore, implementation of the program would not significantly increase the risk to public health above existing background levels. Because the project area does not pose a substantial risk for Valley Fever, impacts would be less than significant.

Mitigation Measures

The following mitigation measures would reduce impacts related to NO_X emissions to a less-than-significant level.

AQ-1 Tier 4 Equipment

All off-road equipment greater than 50 horsepower shall meet U.S. EPA Tier 4 emission standards.

AQ-2 Increased Dump Truck Capacity

On-road dump trucks used to export sediment during Activity No. 1 shall be double-bottom or tandem dump trucks, with a minimum capacity of 21 cubic yards of soil.

AQ-3 Haul Trip Timing

During years in which sediment removal under Activity No. 1 requires off-site export of excess sediment, Activity No. 1 shall not occur simultaneously with any other program activity.

Significance After Mitigation

Incorporation of Mitigation Measure AQ-1 would reduce the emissions associated with operation of off-road equipment. Mitigation Measure AQ-2 would reduce the emissions associated with off-site haul truck trips in Activity No. 1 by decreasing the total number of trips needed to haul the potential sediment exports (up to 5,000 cubic yards) from the project site. Assuming each double-bottom or tandem dump truck would have a capacity of 21 cubic yards of sediment, only 478 total one-way trips would be required. Mitigation Measure AQ-3 would reduce daily emissions during years in

which Activity No. 1 requires off-site export by prohibiting Activity No. 1 from overlapping with other program activities.

Table 6 summarizes maximum daily pollutant emissions in the reasonable worst-case emissions scenario, which would occur during years in which sediment removal under Activity No. 1 would require off-site export of excess sediment. Under this scenario, Mitigation Measures AQ-1 through AQ-3 would be implemented.

Table 6 Reasonable Worst-Case Scenario Emissions During Haul Years – Mitigated

	Estimated Maximum Daily Emissions (pounds/day)					
	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Ojai Valley Plan Area						
Activity No. 1 - Forebay Sediment	0.75	4.66	26.32	0.06	1.77	0.90
Ojai Valley Area Plan Significance Thresholds	5	5	N/A	N/A	N/A	N/A
Threshold Exceeded?	**No**	**No**	**N/A**	**N/A**	**N/A**	**N/A**
Ventura County						
Activity No. 1 Maximum Daily Emissions Inside Ojai Valley Plan Area	0.75	4.66	26.32	0.06	1.77	0.90
Haul Truck Emissions Outside Ojai Valley Plan Area	0.12	3.28	0.96	0.01	0.24	0.08
Total Ventura County Emissions	**0.87**	**7.94**	**27.28**	**0.07**	**2.01**	**0.98**
VCAPCD Significance Thresholds	25	25	N/A	N/A	N/A	N/A
Threshold Exceeded?	**No**	**No**	**N/A**	**N/A**	**N/A**	**N/A**

ROC: reactive organic compounds; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter less than 10 microns in diameter; $PM_{2.5}$: particulate matter less than 2.5 microns in diameter; N/A = not applicable (the VCAPCD has not adopted quantitative thresholds for these pollutants)

See Appendix G for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Emissions data is sourced from "mitigated" results, which incorporate emissions reductions from implementation of Mitigation Measures AQ-1 through AQ-3 in addition to County-required measures under VCAPCD Rule 55.

As shown in Table 6, with implementation of Mitigation Measures AQ-1 through AQ-3, the program would not generate emissions in excess of the VCAPCD significance thresholds established for the Ojai Valley Planning Area or the overall VCAPCD jurisdictional area in off-site haul years. This impact would be less than significant with mitigation incorporated.

Table 7 summarizes maximum daily pollutant emissions during years in which sediment removal under Activity No. 1 would not require off-site export of excess sediment. In these years, Mitigation Measure AQ-1 would apply, to require compliance with U.S. EPA Tier 4 emission standards, and Mitigation Measure AQ-2 would apply, to increase dump truck capacity to reduce the number of trips required, but Mitigation Measure AQ-3 would not apply, because no off-site sediment export would be required. Without Mitigation Measure AQ-3, which prevents Activity No. 1 from occurring

simultaneously with any other program activity, it is possible that simultaneous implementation of Activity Nos. 1 and 6E could occur.

Table 7 Reasonable Worst-Case Emissions During Non-Haul Years – Mitigated

	Estimated Maximum Daily Emissions (pounds/day)					
	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Ojai Valley Plan Area						
Activity No. 1 - Forebay Sediment	0.71	3.32	26.01	0.05	1.71	0.89
Activity No. 6E - Road Maintenance	0.18	0.50	4.30	0.01	2.84	1.54
"Worst-Case-Scenario" Maximum Daily Emissions Inside Ojai Valley Plan Area	**0.89**	**3.82**	**30.31**	**0.06**	**4.56**	**2.42**
Ojai Valley Area Plan Significance Thresholds	5	5	N/A	N/A	N/A	N/A
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

ROC: reactive organic compounds; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter less than 10 microns in diameter; $PM_{2.5}$: particulate matter less than 2.5 microns in diameter; N/A = not applicable (The VCAPCD has not adopted quantitative thresholds for these pollutants.)

See Appendix F for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Emissions data is sourced from "mitigated" results, which incorporate emissions reductions from implementation of Mitigation Measures AQ-1 through AQ-3 in addition to County-required measures under VCAPCD Rule 55.

As shown in Table 7, with implementation of Mitigation Measure AQ-1, the program would not generate emissions in excess of the VCAPCD significance thresholds established for the Ojai Valley Planning Area in non-haul years. This impact would be less than significant with mitigation incorporated.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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

The VCAPCD defines sensitive receptors as facilities or land uses that include members of the population particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors listed in the VCAPCD (2003) Guidelines include schools, hospitals, and daycare centers; sensitive receptors also typically include residences. The nearest sensitive receptors are residences located approximately 100 feet from the sediment placement area.

Traffic-congested roadways and intersections have the potential to generate elevated localized carbon monoxide (CO) levels (i.e., CO hotspots). In general, CO hotspots occur in areas with poor circulation or areas with heavy traffic. Existing CO levels in Ventura County have been historically low enough that VCAPCD monitoring stations throughout the county ceased monitoring ambient CO concentrations in March and July 2004 (VCAPCD 2010). R&M Program activities would cause a minor increase in vehicle traffic to the Facility as a result of worker vehicle trips, delivery of heavy-duty equipment and materials, water truck trips, and haul trips. Because the Facility is not located in an area with poor circulation or heavy traffic, project-related traffic would not cause or contribute

to potential temporary CO hotspots. Therefore, the program would not expose sensitive receptors to substantial concentrations of CO, and impacts would be less than significant.

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs generally consist of four types: organic chemicals, such as benzene, dioxins, toluene, and percholorethylene; inorganic chemicals such as chlorine and arsenic; fibers such as asbestos; and metals such as mercury, cadmium, chromium, and nickel. The primary TAC emitted by program implementation would be diesel particulate matter generated by heavy-duty equipment and diesel-fueled delivery and haul trucks. There would be a limited number of equipment in operation at any given time across the year, as not all activities would occur at the same time or in the same years. In addition, emissions associated with diesel-fueled delivery and haul trucks would be dispersed across truck trip routes and across different portions of the project site. As a result, the project would not generate substantial TAC emissions at sensitive receptors, and potential impacts from exposure of sensitive receptors to substantial TAC concentrations would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The program involves R&M activities at an existing water diversion and fish passage facility. Program activities could generate temporary odors associated with diesel exhaust generated by heavy-duty equipment operation. However, these odors would be localized to the area immediately surrounding the on-site activity and restricted to the duration of equipment use. The program does not involve any land uses listed by VCAPCD as facilities and operations that may generate significant odors, such as sanitary landfills, asphalt batch plants, food processing facilities, and feed lots (VCAPCD 2003). Consequently, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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 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, or regulations, or by the California Department of Fish and Wildlife or U.S. 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?	☐	☐	☐	■

In January 2021, Rincon Consultants, Inc. conducted a Biological Resources Assessment (BRA), including a literature review and the results of a field reconnaissance survey to document existing site conditions and the potential presence of special-status biological resources, including plant and wildlife species, plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. The following summarizes the findings of the BRA. The complete BRA including appendices is provided as Appendix A to this IS-MND.

The Biological Study Area (BSA) includes the 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. Presently, land uses in and around the BSA are predominantly open space and residential zoning. The project footprint occurs within the Facility within the Ventura River.

The BSA occurs between 724 to 790 feet above mean sea level. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey delineates four soil map units within the BSA including Riverwash (Rw), Orthents-Fluvents complex (38), dry, zero to 15 percent slopes, Cortina stony sandy loam (CrC), two to nine percent slopes, and Ojai stony fine sandy loam (OsD2), two to 15 percent slopes, eroded. Of these, Riverwash is designated as a hydric soil in the Ventura Area (USDA 2020).

Several plant communities and land cover types occur within the BSA. 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. 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.

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 southwestern pond turtles (*Actinemys pallida*) were also observed approximately 500 feet upstream of the forebay during pre-construction surveys conducted in November 2019.

The California Native Diversity Database (CNDDB) lists a total of thirteen special status plant species within five miles of the BSA. 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 R&M Program 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.

Fourteen special status wildlife species are listed in the CNDDB and tracked within the project region. Two special status species are known to occur within the BSA: southwestern pond turtle (SWPT, federally proposed threatened, state species of special concern [SSC]); and arroyo chub (SSC). Seven special status wildlife species have a moderate potential to occur in the BSA. Of these, three are federal and/or state-listed species (California red-legged frog: federally threatened, SSC; least Bell's vireo [*Vireo bellii pusillus*]: federally endangered, state endangered; and SC steelhead: federally endangered, state candidate endangered). Two special status wildlife species have a low potential to occur in the BSA; one of which is a federal and state endangered species: Southwestern willow flycatcher (*Empidonax trailii extimus*).

The CNDDB lists one sensitive natural community in the nine quadrangles that surround the BSA. 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 about 5-10 cfs flow occurs and it was designed only to operate at 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.

Portions of BSA are located on the Ventura River. The Ventura River is a relatively permanent water (RPW) because it contains flows for at least three 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 the Los Angeles RWQCB. The Ventura River is also subject to CDFW jurisdiction pursuant to Section 1600 *et seq.* of the Fish and Game Code. The Ventura River also functions as habitat corridor facilitating wildlife movement. 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 (CDFW 2010). 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 R&M 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-workdays (e.g., weekends).

Tree Protection Ordinances

The Ventura County Tree Protection Ordinance (Ventura County Code Section 8107-25) 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 six protected trees or more than four 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. 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 SC steelhead ~~– Southern California DPS~~, California red-legged frog and southwestern 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.

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 R&M Program would not conflict with the provisions of any such plans.

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

Special-status species are those plants and animals 1) listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS and NMFS under the federal Endangered Species Act; 2) listed or candidates for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act or Native Plant Protection Act; 3) recognized as Fully Protected species or Species of Special Concern by the California Fish and Game Code (CFGC) or CDFW; and 5) occurring on Lists 1 and 2 of the CDFW California Rare Plant Rank system per the following definitions:

- List 1A = Plants presumed extinct in California
- List 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- List 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20 to 80 percent occurrences threatened)
- List 1B.3 = Rare or endangered in California and elsewhere, not very endangered in California (<20 percent of occurrences threatened, or no current threats known)
- List 2 = Rare, threatened or endangered in California, but more common elsewhere

In addition, special-status species are ranked globally (G) and subnationally (S) 1 through 5 based on NatureServe's (2010) methodologies:

- 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 or S4 – Apparently secure Globally or Subnationally (state)
- G5 or S5 – Secure Globally or Subnationally (state)
- ? – Inexact Numeric Rank
- T – Infraspecific Taxon (subspecies, varieties, and other designations below the level of species)
- Q – Questionable taxonomy that may reduce conservation priority

Common bird species that receive protection under the Migratory Bird Treaty Act (MBTA) and/or CFGC 3503 but otherwise maintain no sensitivity designation are not treated as special-status species for purposes of this analysis.

Rincon biologists determined the majority of the BSA does contain suitable habitat for several special-status plant species based on a pedestrian survey and various records searches (refer to Appendix A). However, 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 elements. In addition, none of the species analyzed were documented in the BSA during previous surveys conducted by Rincon Consultants, Inc. Based on the lack of suitable habitat and results of botanical surveys, no special status plants are expected to occur within the project site.

Two special status wildlife species (arroyo chub and southwestern 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.

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 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), 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 federally listed species (e.g., SC steelhead and CRLF) 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 during repairs. 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 R&M Program, existing river conditions, and with the implementation of BMP-1, BMP-2, BMP-4, and BMP-9, the effects from the project would be is discountable and less than significant to SC steelhead (please see the BRA Report in Appendix A for further discussion).

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. The potential for adverse effects to individuals is low because project activities are expected to occur during the dry season, and when flowing or ponded water is not present at the Facility (BMP-1). Further, maintenance and repair activities will occur outside the period of dispersal (May through July) and breeding season (late November through April) for CRLF, as feasible. If project activities must occur during the dispersal period or breeding season, modified protocol surveys will be conducted prior to the initiation of work (BMP-5). If CRLF individuals are not identified in the project work areas, a biological monitor will be present during initial ground disturbing and or vegetation removal activities, and during pre- and post-rain events (BMP-9). The biological monitor will have the authority to halt any actions with the potential to result in impacts to the species.

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. The project includes implementation of multiple BMPs that would limit these potential impacts, including through conducting pre-construction surveys (BMP-5), conducting activities in the dry season (BMP-1), covering steep-walled excavations at night (BMP-7), and relocating individuals prior to construction (BMP-3).

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 (BMP-5), conducting activities in the dry season (BMP-1), and relocation of individuals prior to construction (BMP-3) 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. All trash and chemical contaminants would be controlled during project activities (BMP-18), therefore adverse effects to CRLF would be unlikely.

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 (BMP-2). 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 (BMP-24).

Stockpiles of removed sediment stored on site 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 (BMP-9).

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 (BMP-24).

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 or chemical-laden runoff (e.g., herbicides,

pesticides), 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 BiOp (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 R&M Program. Activities under the proposed R&M Program 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 R&M Program activities with the species' dispersal period (May 1 and July 1). The proposed R&M Program 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 R&M Program 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 BMPs identified in the Project Description, including BMP-1, BMP-2, BMP-5, BMP-7, BMP-9, BMP-23, and BMP-24, the adverse effects from the proposal Annual Repair and Maintenance Program to CRLF would less than significant.

Least Bell's Vireo (Vireo bellii pusillus) and Southwestern Willow Flycatcher (Empidonax trailii extimus)

Project activities are not expected to result in direct mortality or injury to adult least Bell's vireo and southwestern willow flycatcher given the limited foraging opportunities and lack of nesting opportunities within the BSA ~~Action Area~~. If least Bell's vireo and/or southwestern willow flycatcher do occur in the BSA ~~Action Area~~ while project activities are occurring, both species would be expected to be present in such low abundance that any chance encounter with adult individuals resulting in mortality or injury is unlikely.

Least Bell's vireo and southwestern willow flycatcher have not been documented within the BSA. Casitas conducted protocol surveys within the BSA for least Bell's vireo and southwestern willow flycatcher in the 2020 nesting season, the findings of which were negative (Rincon 2020).

Least Bell's vireo is known to occur in similar habitats downstream of the BSA, based on a query of the CNDDB (CDFW 2020). The vegetation community in the BSA may not provide adequate dense, stratified canopy and cover least Bell's vireo prefer as nest sites due to the sparse distribution of mulefat plants between boulders in the Ventura River bottom. The BSA provides moderately suitable habitat for least Bell's vireo due to the presence of early successional mulefat scrub. Harm may occur if least Bell's vireo is present during removal of emergent vegetation where individuals might be sheltering. In addition, removal of a relatively young stand of willows located within the lower limit of the entrance pool amounts to a loss of 1,500 square feet of low suitable habitat for the species. Vegetation at the entrance pool wanes during extended drought, and during high flows, it is scoured away. At present the entrance pool is filled with sediment. Typically, sediment does not accumulate in the entrance pool to the extent that it has. The sediment in the pool became trapped during intense storm events following the 2017 Thomas Fire. Under normal conditions, the pool was designed to be 8 to 10 feet deep without vegetation. The Ventura River is a dynamic system subject to a regular disturbance regime. Instream habitat features are significantly altered by winter flows, which are flashy in nature. Overall, adverse effects to in-channel habitat complexity from the program activities would be temporary and remain negligible or insignificant, especially considering the dynamic nature of the Ventura River channel. Given that the species has not been known to nest at the Facility, the removal of the early successional habitat within the entrance pool would not adversely affect least Bell's vireo. Conducting activities outside of the breeding season (February 1 – August 31); or conducting pre-activity surveys (BMP-6) if work occurs within the breeding season would reduce these impacts to less than significant.

Southwestern willow flycatcher 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 southwestern willow flycatcher, the mulefat scrub and California sycamore woodland habitats may support southwestern willow flycatcher during brief periods during migration, although the potential is low. With the implementation of BMP-1, BMP-2, BMP-6, BMP-9, BMP-23, and BMP-24, which are identified in the Project Description and would be implemented as part of the project, the effects from the proposed R&M Program would be discountable and less than significant on least Bell's vireo and southwestern willow flycatcher.

Special Status Terrestrial Species

San Bernardino ringneck snake (*Diadophis punctatus modestus*, state special animal, coast patch-nosed snake (*Salvadora hexalepis virgultea*, SSC), and coast horned lizard (*Phrynosoma blainvillii*, SSC), have a moderate potential to occur within the project areas (e.g., forebay, downstream sediment placement area, and low-flow channel) 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, southwestern pond turtle, and arroyo chub have low to moderate potential to occur within the project areas (e.g., forebay, downstream sediment placement area, and low-flow channel) given their highly aquatic nature and habitat requirements. The proposed R&M Program 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 was 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 southwestern pond turtle. If these special status species are present in the project site, they could be affected by activities. Best management practices (BMP-1, BMP-2, BMP-3, BMP-9, BMP-22, BMP-23, and BMP-24) require environmental education to aid workers in recognizing special status biological resources that may occur in the project site, work in dry conditions (as practicable), 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 proposed R&M Program does not include removal or trimming of trees; therefore, the project has been designed to avoid impacts to hoary bat (*Lasiurus cinereus*) 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.

Protected Nesting Birds

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 that occurs along the west bank of the Ventura River, and downstream near the sediment placement area provide 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. Impacts to common bird species would not rise to the level of significance under CEQA; however, the loss of birds, eggs, nests, or nestlings due to construction activities would be a violation of the MBTA and CFGC Section 3503 and must therefore be avoided. BMP-8, identified in the Project Description, is recommended for compliance with the MBTA and CFGC Section 3503.

LESS THAN SIGNIFICANT IMPACT

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

A southern California Steelhead Stream, the Ventura River, is present within the BSA. As stated above, the proposed R&M Program would typically occur within the Facility when conditions for SC steelhead migration would not be suitable. Therefore, potential impacts to the species are not anticipated. However, the implementation of BMPs identified in the Project Description will ensure construction materials do not indirectly impact the sensitive community, including BMP-10, BMP-11, BMP-13 through BMP-21, BMP-23, and BMP-24. Accordingly, potential impacts to the southern California steelhead stream would be less than significant.

The proposed R&M Program 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 BMPs to control erosion and sedimentation (BMP-21) and locate equipment and materials outside of wetted areas (BMP-10) would reduce effects to less than significant.

Activity No. 4, described in detail in the Project Description, Section 9.2, *Activities Descriptions,* involves the removal of the young stand of willows, and the excavation of the entrance pool to a depth of 8 to 10 feet. 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 acre (8,238 square feet) of the Ventura River low flow channel. Cleaning sediment 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 in the entrance pool depending on storm events. 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) and conducting pre-activity surveys (BMP-6) if work occurs within the breeding season would ensure compliance with the MBTA and CFGC 3503 ~~reduce impacts to avian species to less than significant~~.

LESS THAN SIGNIFICANT IMPACT

c. Would the project 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?

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 (except for emergency circumstances).

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, typically 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 on site 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, BMP-10, BMP-11, and BMP-13 through BMP-21 outlined in the Project Description (Section 9) are recommended to avoid potential indirect impacts to water quality within the potentially jurisdictional waters. The implementation of these BMPs, which are identified in the Project Description and would be implemented as part of the project, would reduce potential impacts to jurisdictional waters to a less-than-significant level.

LESS THAN SIGNIFICANT IMPACT

d. Would the project 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?

The Facility is located within a known wildlife corridor which 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 R&M Program 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 R&M Program 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.

LESS THAN SIGNIFICANT IMPACT

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

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 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. The Facility is owned by Reclamation and is exempt from Ordinance WP-2. The removal of sediment would occur within the forebay and entrance pool. Implementation of BMP-11 through BMP-23 would avoid and minimize potential indirect impacts to the Ventura River. Therefore, the proposed R&M Program 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 most 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 BMP-18 would minimize the attraction of wildlife to the project site. Therefore, the proposed R&M Program 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 R&M Program would not conflict with local policies or ordinances protecting locally important species and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project parcel does not occur within any HCP, NCCP, or other approved local, regional, or state habitat conservation plan areas. The proposed R&M Program would not conflict with the provisions of any such plans. Therefore, the proposed R&M Program would have no impact to HCP, NCCP, or other approved local, regional, or state habitat conservation plans.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	■
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	■	☐

A cultural resources assessment and technical report has been prepared for the R&M Program and is included as Appendix G to this IS-MND. This assessment consists of the following: cultural resources records search at the South Central Coastal Information Center (SCCIC), SLF search with the NAHC, pedestrian survey, and evaluation of an historic-period built-environment resource.

Rincon contacted the NAHC on March 24, 2020 to request a SLF search of the project site. The NAHC replied on April 2, 2020 with positive results for the project vicinity. The cultural resources records search identified five previously recorded archaeological resources within a 1.0-mile radius of the project site, all of which are prehistoric. Of those five resources, one consists of a village site which is likely what caused the positive SLF result. None of the recorded resources were located within or immediately adjacent to the project site. Two isolated lithic flakes were identified in imported fill-soil during the pedestrian survey. Steve Sharp with the Casitas Engineering Department confirmed the provenience of the soil where the artifacts were identified as imported fill during the survey (further discussion provided in Appendix G to this IS-MND). The isolated flakes were removed from their original context and stripped of any associations and/or data potential; thus, they were not formally recorded during the survey. No other archaeological resources were identified during the survey.

One historic era-built environment resource, the Robles Diversion Dam, is located within the project site. The Facility was previously evaluated and determined ineligible for listing in the National Register of Historic Places (NRHP) by Reclamation, a finding that received concurrence from the California State Historic Preservation Officer in September 2010 (Lopez 2019). The Facility was recorded as part of the current study and is recommended ineligible for listing in the NRHP and the California Register of Historical Resources (CRHR).

The ineligibility of the Facility for listing in the NRHP is based upon review of four criteria, summarized herein. Research did not suggest the Facility is associated with an event or series of events that made a significant contribution to the broad patterns of history in the city, region, state, or nation (Criterion 1). Research did not indicate that any persons associated with the Facility can be considered significant to local, state, or national history (Criterion 2). The Facility is utilitarian in

design and materials and is a common example of a dam complex. It does not embody distinctive characteristics of a type, period, or method of construction (Criterion 3). A review of available evidence and records search results did not indicate the Facility might yield information important to history or prehistory (Criterion 4). Therefore, the Facility does not qualify as a historical resource under CEQA.

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

The results of the cultural resources records search identified one previously recorded historic era-built environment resource, the Robles Diversion Dam, within the project site. The Robles Division Dam Complex was previously determined ineligible for listing in the NRHP. As described above, the Facility has also been determined to be ineligible for the CRHR. No other historic period built-environment resources were identified on the project site. Therefore, the project would have no impact to historical resources.

NO IMPACT

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

The cultural resources records search did not identify any archaeological resources in project site. Two isolated lithic flakes were identified in imported fill-soil during the pedestrian survey. Because they were identified in fill soils, they lack a discernable context and were not formally recorded. No other archaeological resources were identified during the survey. However, the SLF results were positive and the records search identified five prehistoric archaeological sites within a one-mile radius of the project site. Although none of these sites extend into the project site, two are large habitation sites (P-56-000139 and P-56-000194) and two are confirmed to contain human remains (P-56-000139 and P-56-000306). These resources are located upstream from the Diversion Dam and it is possible that artifacts or remains associated with the sites could have washed downstream over time from erosion. These factors increase the likelihood of encountering buried archaeological deposits during project-related ground disturbance. However, these deposits would have been the result of recent erosion and not the result of prehistoric human activity.

Project-related ground disturbance ~~is limited to Activities 1A and 1B, which~~ may include periodic removal and downstream redeposition of accumulated sediments (Activities 1A, 1B, and 4), small and large debris removal (Activities 2 and 3), and routine maintenance of Facility infrastructure (Activity 6)~~E, which includes road grading and excavation~~. Construction activities may result in the destruction, damage, or loss of culturally and scientifically important archaeological resources. Therefore, impacts to archaeological resources would be potentially significant. Implementation of Mitigation Measure CR-1 and CR-2 during project-related ground disturbance project implementation would reduce potential impacts to a less-than-significant level by providing archaeological monitoring and direction on how to properly address an unanticipated discovery of archaeological. Although any encountered resources in these areas are likely to be within a secondary context, the heritage value of such resources to local tribal groups remains. Monitoring is consistent with tribal concerns and precedent existing for the general area.

Mitigation Measures

CR-1 Archaeological Monitoring

Archaeological monitoring of all project-related ground disturbance during Activities ~~1A and 1B and of grading and excavation during Activity 6E~~ 1-6) shall be performed by a qualified archaeologist. Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983). Monitors will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological monitoring may be reduced to spot-checking or eliminated at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of rough grading. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the APE and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Sediment already monitored during removal does not require monitoring during subsequent placement unless excavation is occurring as part of that activity.

CR-2 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be eligible for the NRHP and/or CRHR, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts/adverse effects.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

The village site adjacent to the northeast corner of the project footprint has no documented human remains. Two other sites within one mile of the project have documented burials; however, no known human remains have been documented within the project site. Therefore, the project site is considered unlikely to contain human remains; nonetheless, the potential for the recovery of human remains during ground-disturbing activities is always a possibility. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. The State of California Health and Safety Code Section 7050.5 requires no further site disturbance until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the human remains are determined to be prehistoric, the coroner would notify the Native American Heritage Commission, which would determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance. These procedural requirements, codified under PRC Section 5097.98, do not represent mitigation measures. With compliance with existing laws and regulations for the unanticipated discovery of human remains, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	■
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	■

As a state, California is one of the lowest per capita energy users in the United States, ranked 48th in the nation, due to its energy efficiency programs and mild climate (EIA 2020). Most of California's electricity is generated in-state with approximately ~~30~~ 29 percent imported from the Northwest and Southwest in ~~2018~~ 2022 (CEC 202~~0~~4a). In addition, approximately ~~30~~ 54 percent of California's electricity supply comes from renewable energy sources, such as wind, solar photovoltaic, geothermal, and biomass (CEC 202~~0~~4a). Adopted on September 10, 2018, Senate Bill (SB) 100 accelerates the state's Renewable Portfolio Standards Program, codified in the Public Utilities Act, by requiring electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

California also requires all motorists use California Reformulated Gasoline, which is sourced almost exclusively from in-state refineries. Gasoline is the most used transportation fuel in California with ~~15.1~~ 13.6 billion gallons sold in ~~2015~~ 2022 and is used by light-duty cars, pickup trucks, and sport utility vehicles (CEC 202~~0~~4b). Diesel is the second most used fuel in California with ~~4.2~~ 2.2 billion gallons sold in ~~2015~~ 2022 and is used primarily by heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles (CEC 202~~0~~4b). Both gasoline and diesel are primarily petroleum-based, and their consumption releases greenhouse gas (GHG) emissions, including carbon dioxide and nitrogen oxides.

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Energy use during construction activities would be primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary grid power may also be provided to construction trailers or electric construction equipment. Energy use during construction would be temporary in nature, and construction equipment used would be typical of construction projects in the region. Operation of the proposed R&M Program would provide for the continued operation and maintenance of the Facility, which is an essential component of the water systems in the region, and would not result in new energy uses or expand or otherwise affect

energy uses in the project area. As such, the R&M Program would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. No impact would occur.

NO IMPACT

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

As mentioned above, SB 100 mandates 100 percent clean electricity for California by 2045. Because the proposed R&M Program would be powered by the existing electricity grid, the project would eventually be powered by renewable energy mandated by SB 100 and would not conflict with this statewide plan. Casitas, the City of Ojai, and the County of Ventura do not have any specific renewable energy or energy efficiency plans with which the project could comply. Nonetheless, the project would not conflict with or obstruct the state plan for renewable energy, and no impact would occur.

NO IMPACT

7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	■
2. Strong seismic ground shaking?	☐	☐	☐	■
3. Seismic-related ground failure, including liquefaction?	☐	☐	■	☐
4. Landslides?	☐	☐	■	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	■	☐
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks 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?	☐	☐	☐	■
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■	☐	☐

Geologic Setting

The proposed program is located along the Ventura River within the Ojai Valley, flanked by the Santa Ynez Mountains and Topa Mountains to the north and Sulphur Mountain to the south. The project site is in the Transverse Ranges Geomorphic Province, characterized by anomalous east-west trending mountain ranges (California Geological Survey [CGS] 2002).

The Transverse Ranges province is seismically active, bounded by three major fault zones, including the San Andreas Fault and Big Pine Fault to the north and the Malibu Coast Fault to the south. Seismic events can result in groundshaking, liquefaction, landslides, subsidence, tsunami and seiche. In addition to the three major faults described above, numerous smaller faults are in and around the Ojai Valley, including the Santa Ana Fault/Mission Ridge Fault Zone and the San Cayetano Fault. The Santa Ana Fault Zone is closest to the project site, located several miles downstream of the Facility.

The Facility site and surrounding area has two geologic units mapped at the surface (Dibblee and Ehrenspeck 1987): Quaternary young (middle to late Holocene) stream channel deposits (Qg) and Quaternary young (middle to late Holocene) alluvial fan deposits (Qa). Pleistocene to early Holocene alluvial deposits (Qoa), Oligocene Sespe Formation (Tsp), and Eocene Coldwater Sandstone (Tcw) are mapped extensively near the foothills and within the Santa Ynez Mountains and Topa Mountains. Exposures of these formations near the project area, and the stratigraphic setting in the vicinity are indicative that these units underly the Holocene units mapped at the surface, at unknown depths.

Paleontological Resources Setting

The paleontological sensitivities of the geologic units underlying the project site were evaluated based on the results of an online paleontological locality search and review of existing information in the scientific literature concerning known fossils within geologic units mapped within the project area. Fossil collections records from the Paleobiology Database and University of California Museum of Paleontology (UCMP) online database were reviewed, which contain known fossil localities in Ventura County (Paleobiology Database 2020; UCMP 2020). Based on the available information contained within existing scientific literature and the UCMP database, a paleontological sensitivity was assigned to each of the geologic units within the project site. The potential for impacts to scientifically important paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The Society of Vertebrate Paleontology (SVP) has developed a system for assessing paleontological sensitivity and describes sedimentary rock units as having high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources (SVP 2010). This system is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

Older alluvial sediments of late Pleistocene to early Holocene age, Oligocene Sespe Formation, or Eocene Coldwater Sandstone could preserve fossils at shallow depths. Accurately assessing the boundaries between younger and older units is generally not possible without site-specific stratigraphic data, radiometric dating or fossil analysis; however, in a fluvial system where erosion and deposition are actively occurring, underlying geologic units can occur near the surface, especially in areas near basin margins. A conservative estimate of the depth at which paleontologically sensitive units may occur ensures impact avoidance. Given the proximity of the proposed R&M Program to the surrounding mountains (i.e., Santa Ynez Mountains and Topa Mountains) and the prevalence of older deposits (e.g., Qoa) mapped at the surface throughout the

region, it is estimated the transition between younger alluvial sediments (i.e., Qa) and older units could occur at depths as shallow as three feet below ground surface.

Stream Channel Deposits: Middle to late Holocene stream channel (fluvial) deposits consist of loose, moderately well-drained, moderately sorted sand, silty sand, and occasional cobbles and boulders forming natural levees along streams (Dibblee and Ehrenspeck 1987; United States Geological Survey 1985). Intact middle to late Holocene fluvial deposits at the Facility are relatively young and have been subject to various flooding events from the hydrologically active Ventura River, resulting in an environment which is not conducive for the preservation of paleontological resources. Therefore, these sediments are assigned a **low paleontological sensitivity** (SVP 2010).

Alluvial Fan Deposits

Middle to late Holocene alluvial fan deposits are composed of unconsolidated to moderately consolidated, silt, sand, and gravel. Middle to late Holocene alluvial fan deposits are typically too young (i.e., less than 5,000 years old) to preserve paleontological resources and are also determined to have a **low paleontological sensitivity** according to SVP (2010) standards. Figure 10 depicts the surficial geologic units within the Facility and its immediate vicinity, as well as the paleontological sensitivity within the bounds of the Facility.

Pleistocene Alluvium

Pleistocene alluvial deposits, consisting of weakly-consolidated sediments of gravel, sand, and silt, have yielded significant vertebrate fossil localities throughout southern California from the coastal areas to the inland valleys. These localities have produced fossil specimens of terrestrial mammals such as mammoth, horse, camel, bison, rodent, bird, and reptile (Jefferson 2010; UCMP 2020). Pleistocene to early Holocene alluvial deposits (Qoa) is assigned a **high paleontological sensitivity**.

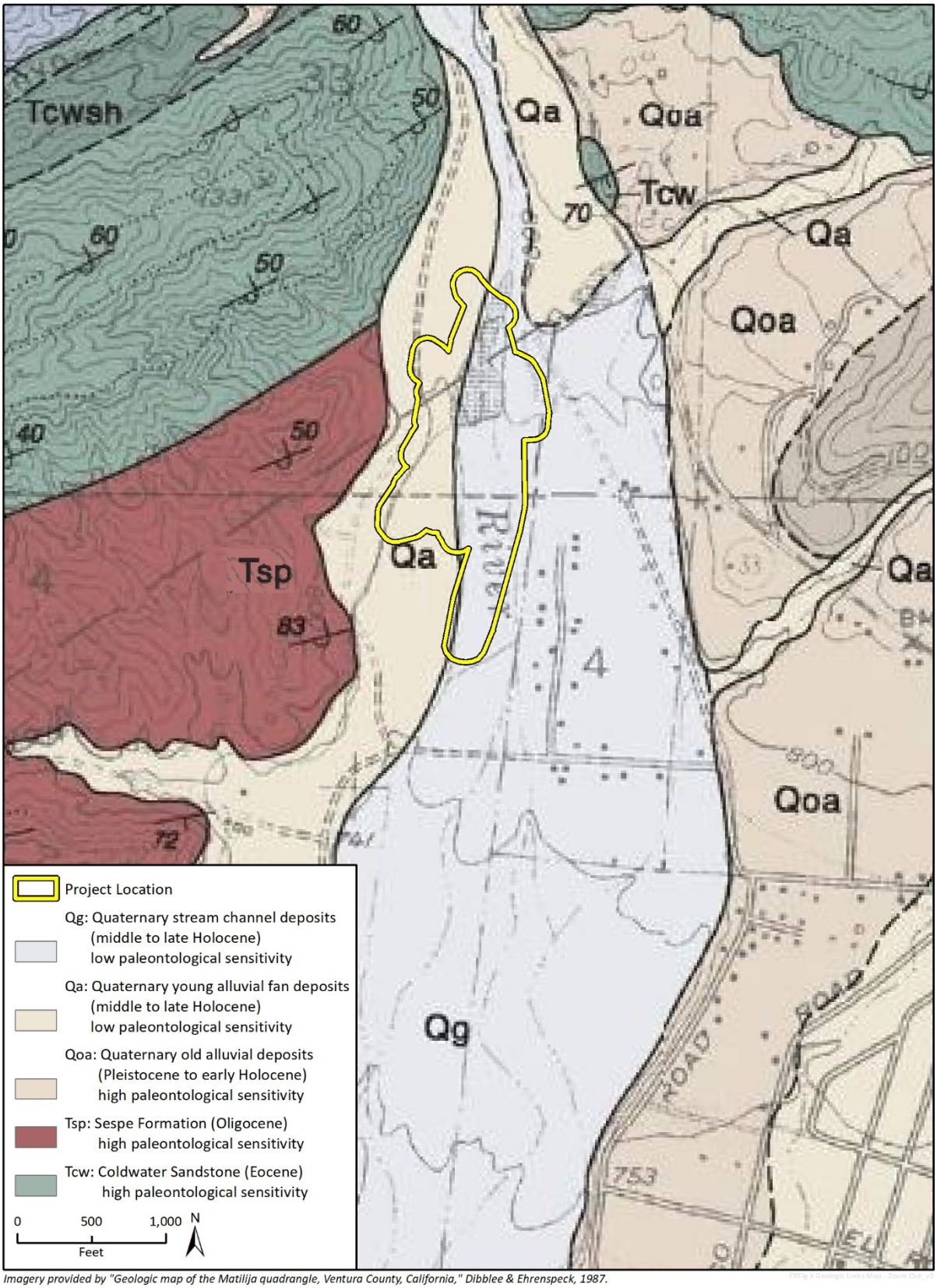
Sespe Formation

The non-marine Sespe Formation is composed of red-brown to yellow-brown, well-indurated, commonly crossbedded sandstone with imbricated pebble conglomerate and dark brown claystone. The Sespe Formation has yielded numerous fossil specimens of at least 35 mammalian, rodent, reptile, and bird species (Paleobiology Database 2020; UCMP 2020). The Oligocene Sespe Formation (Tsp) is assigned a **high paleontological sensitivity**.

Coldwater Sandstone

The marine Coldwater Sandstone is composed of sandstone, greenish-gray shale and siltstone, pebble conglomerate, and oyster reef debris (Dibblee and Ehrenspeck 1987). The Coldwater Formation has produced various invertebrate and microfossil localities and at least two vertebrate localities yielding unidentified mammalian specimens (Paleobiology Database 2020; UCMP 2020). The Eocene Coldwater Sandstone (Tcw) is assigned a **high paleontological sensitivity**.

Figure 10 Geologic Units and Paleontological Sensitivity of the Proposed Project



Imagery provided by "Geologic map of the Matilija quadrangle, Ventura County, California," Dibblee & Ehrenspeck, 1987.

a.1. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

a.2. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The CGS has mapped "Earthquake-Induced Landslide Zones" for the Matilija Quadrangle, which includes areas where previous landslide movement has occurred, or where local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements (CGS 2003). The Facility is not identified as being within an Earthquake-Induced Landslide Zone, and implementation of the program would not introduce or otherwise exacerbate existing potential for seismic-related landslides to occur.

Many of the hillsides surrounding the Facility site are identified as "Earthquake-Induced Landslide Zones" and may experience seismic-related landslides during implementation of the program. If the Facility site is affected by landslides on nearby hillsides, such as by receiving sediment flow from upstream landslide areas, the landslide-related sediment and debris would be removed from the Facility as part of regular operation and maintenance of the R&M Program. As described in the Project Description, Section 9.2, *Activities Descriptions*, maintaining the depth and volume of the forebay is critical to the operation of the Facility. Casitas has maintained the forebay footprint of 5.70 acres since the severe storms in 1978, and sediment and vegetation is removed from the forebay on average every four years. As described, the forebay requires annual maintenance, especially after heavy rainfall years, or during post-fire watershed recovery periods; this would include clearing out the Facility if inundated by earthquake-induced landslides from the surrounding hillsides. Therefore, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related liquefaction?

The Facility is located along the Ventura River, within the channel, and this area has been identified by the CGS as being a "Liquefaction Zone," or an area where liquefaction has historically occurred, or where the local geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacements such that measures defined in PRC Section 2693(c) would be required (CGS 2003). The proposed program would not construct a new structure such that mitigation under PRC Section 2693(c) would be required. The program would not introduce or exacerbate existing liquefaction potential and would not directly or indirectly cause adverse effects associated with liquefaction. However, due to being located within a Liquefaction Zone, it is possible that the site may be subject to liquefaction during implementation of the program. The program would not introduce structures or residents to the area, and would not increase the risk of loss, injury, or death involving seismic-related liquefaction. Therefore, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.4. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related landslides?

The CGS has mapped "Earthquake-Induced Landslide Zones" for the Matilija Quadrangle, which includes areas where previous landslide movement has occurred, or where local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements (CGS 2003). The Facility is not identified as being within an Earthquake-Induced Landslide Zone, and implementation of the program would not introduce or otherwise exacerbate existing potential for seismic-related landslides to occur.

Many of the hillsides surrounding the Facility site are identified as "Earthquake-Induced Landslide Zones" and may experience seismic-related landslides during implementation of the program. If the Facility site is affected by landslides on nearby hillsides, such as by receiving sediment flow from upstream landslide areas, the Facility would be maintained as proposed under the R&M Program. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in substantial soil erosion or the loss of topsoil?

Soils at the Facility are comprised of the bed of the Ventura River, which consists primarily of riverwash and Cortina stony sandy loam (USDA 2020). Cortina stony sandy loam is in Hydrologic Soil Group A, which typically consist of less than 10 percent clay and more than 90 percent sand or gravel. The program would not involve ground disturbance of soils in their native context such that substantial loss of topsoil would occur; areas disturbed by project implementation have generally been previously disturbed through implementation of the Reclamation's Ventura River Project. Ground-disturbing activities including grading would not occur when there is flowing water present, and a suite of BMPs for erosion and sediment control would be implemented during all applicable program activities.

Erosion within the Ventura River channel is a natural process that the R&M Program has been designed specifically to account for. For instance, Activity 1A would restore the forebay's operational volume each year by removing accumulated sediment and debris, returning the forebay ~~closer~~ to its ~~historical~~ operational ~~grade~~ volume; in turn, Activity 1B would also restore intended channel conditions downstream by relocating sediment from the forebay in storm-eroded areas within 1,100 linear feet of downstream channel. This topic is additionally addressed under Section (10), *Hydrology and Water Quality,* item (c)(i). BMPs included in the Project Description (see Project Description Section 10) would also minimize or avoid soil erosion associated with program activities as discussed below.

- BMP-14, *Tracking Loose Material*, requires site cleaning activities such as street sweeping, vacuuming, and rumble plates for active construction areas, to avoid tracking loose construction material and disturbed soils off site.
- BMP-15, *Stabilize Exposed Soil*, applies to Activities 1, 4, 6A, and 6E to minimize ground-disturbing activities in channels and basins by limiting such activities to areas that can be stabilized prior to rain events. Activity 1 involves sediment removal and relocation; Activity 4 also involves sediment removal from the entrance pool to maintain the energy-dissipating hydraulic jump, allow proper fish entrance gate operation, and ensure overall uniform hydraulic flow patterns. Activity 6A, *Timber Cut-off Wall Repair and Maintenance,* would also involve sediment movement, consisting of the replacement of timbers and rock riprap where washed out by large storms, and restoration of the downstream channel to the desired slope. Finally,

Activity 6E would provide road maintenance on an as-needed basis. BMP-15 would be implemented for all these activities to minimize or avoid potential adverse effects associated with erosion and sedimentation.

- BMP-16, *Avoid Road Base Discharge*, applies to Activities 1 and 6E, and prohibits the placement of road base, fill, or sediments beyond the previously established roadbed when working adjacent to the river channel, thereby minimizing or avoiding potential for disturbed sediments to discharge into surface waters.
- BMP-21, *Best Management Practice to Prevent Erosion,* applies to all program activities except Activity 1B which will place excavated sediments in the primary placement area, and requires spoils are spread in a manner to avoid or minimize erosion risk.

As discussed in the Project Description, Section 11, *Annual Monitoring and Reporting Program*, Casitas will prepare a maintenance and repair plan for work planned to be conducted during dry conditions within the work period in the upcoming ~~each Spring for the next~~ fiscal year (July 1 – June 30). The plan may be updated during the year as field conditions change. Under the proposed R&M Program, Casitas will identify the proposed maintenance and repair work for the year, including BMPs to implement with the planned maintenance work, such as any seasonal or geographic restrictions affecting the timing, methods, and limits of the planned work. With the implementation of applicable BMPs for erosion control, implementation of the R&M Program would not result in substantial soil erosion or the loss of topsoil, and potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project 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?

As discussed above for criterion (a), the Facility is located within a Liquefaction Zone, and hillsides surrounding the site are located within Earthquake-Induced Landslide Zones. Implementation of the R&M Program would not introduce or exacerbate existing seismic-related hazards in the area, including as related to landslide, lateral spreading, subsidence, liquefaction, and collapse. The Facility's location within the Ventura River bed is characterized by more than 90 percent sand and gravel, as described above for criterion (b); this soil type is not susceptible to lateral spreading, subsidence, or collapse. If the Facility is affected by sediment and debris flows associated with a geologic event such as liquefaction or landslide, regular operation and maintenance of the Facility would clear accumulated materials to avoid adverse impact. Potential impacts associated with the stability of geologic units or soils would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

e. Would the project 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?

As described above for criterion (b), soils at the Facility are primarily characterized as stony sandy loam; this soil type is not subject to expansive characteristics, as it is generally less than 10 percent clay. No impact associated with expansive soil would occur.

Implementation of the R&M Program would not include a new septic tank or alternative wastewater disposal system. The program would not introduce a new wastewater stream. No impact associated with wastewater disposal would occur.

NO IMPACT

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Proposed maintenance activities associated with the Facility 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 would also include concrete work within the existing footprint of the Facility and replacement of wood timbers (timber cut-off wall and debris fence). Given the nature of the proposed improvements, project-related ground disturbance (i.e., excavations) is not anticipated to include ground disturbance of greater than three feet in previously undisturbed areas and is thus unlikely to impact fossiliferous deposits or result in significant impacts to paleontological resources. Impacts to paleontological resources would only occur in the unlikely situation of sensitive geologic units occurring at depths of less than three feet.

Mitigation Measures GEO-1 and GEO-2 are required in the case of unanticipated fossil discoveries if high sensitivity units occur at depths of less than three feet, and to provide training to maintenance crews to identify fossils if they are encountered. Mitigation Measures GEO-1 and GEO-2 would apply to all phases of project construction and would ensure that potential impacts to paleontological resources would be less than significant by providing for the recovery, identification and curation of previously unrecovered fossils.

Mitigation Measures

GEO-1 Worker's Environmental Awareness Program

Prior to any project ground disturbance, a WEAP will be prepared and used to train all site personnel prior to the start of work. The WEAP training will include at a minimum the following information:

- Review of local and state laws and regulations pertaining to paleontological resources
- Types of fossils that could be encountered during ground disturbing activity
- Photos of example fossils that could occur on site for reference
- Instructions on the procedures to be implemented should unanticipated fossils be encountered during construction, including stopping work in the vicinity of the find and contacting a qualified professional paleontologist

GEO-2 Unanticipated Discovery of Paleontological Resources

In the event an unanticipated fossil discovery is made during the course of project development, construction activity should be halted in the immediate vicinity of the fossil, and a qualified professional paleontologist shall be notified and retained to evaluate the discovery, determine its significance, and determine if additional mitigation or treatment is warranted. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction work. Any significant paleontological resources found during construction monitoring shall be prepared, identified, analyzed, and permanently curated in an approved regional museum repository under the oversight of the qualified paleontologist.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

8 Greenhouse Gas Emissions

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

Background

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. Climate change is the result of numerous, cumulative sources of GHGs contributing to the "greenhouse effect," a natural occurrence which takes place in Earth's atmosphere to help regulate the temperature of the planet. Most of the radiation from the sun hits Earth's surface and warms it. The surface, in turn, radiates heat back towards the atmosphere in the form of infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions, but anthropogenic activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere which trap heat. Emissions resulting from human activities thereby contribute to an average increase in Earth's temperature.

GHGs occur both naturally and as a result of human activities, such as fossil fuel burning, methane generated by landfill wastes and raising livestock, deforestation activities, and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). Since 1750, estimated concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased over by 36 percent, 148 percent, and 18 percent, respectively, primarily due to human activity. Potential climate change impacts in California may include loss of snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (State of California 2018).

In response to climate change, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 requires the reduction of statewide GHG emissions to 1990 emissions levels (essentially a 15 percent reduction below 2005 emission levels) and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. ~~On September 8, 2016, the governor signed SB 32 into law, extending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping~~

~~Plan, which provides a framework for achieving the 2030 target. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends local governments adopt policies and locally appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) of CO_2e by 2030 and two MT of CO_2e by 2050 (CARB 2017).~~ On September 16, 2022, California passed AB 1279, which declared the State would achieve net zero GHG emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter. In addition, the bill states that the State would reduce GHG emissions by 85 percent below 1990 levels no later than 2045. In response to AB 1279, CARB published the Final 2022 Climate Change Scoping Plan in November 2022 which includes policies to achieve a substantial reduction in fossil fuel combustion, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands (NWL) to reduce emissions and sequester carbon, and the capture and storage of carbon (CARB 2022).

Significance Thresholds

Most individual projects do not generate sufficient GHG emissions to influence climate change directly. Physical changes caused by a project can contribute incrementally to significant cumulative effects, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]).

According to CEQA Guidelines Section 15183.5(b), projects can tier from a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (2016) in its white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions. Casitas does not currently have a formal CAP or GHG reduction plan. Thus, this approach is not currently feasible for this analysis.

To evaluate whether a project may generate a quantity of GHG emissions with the potential to have a significant impact on the environment, local air districts developed a number of bright-line significance thresholds. Significance thresholds are numeric mass emissions thresholds that identify the level at which additional analysis of project GHG emissions is necessary. If project emissions are equal to or below the significance threshold, with or without mitigation, the project's GHG emissions would be less than significant.

VCAPCD has not established quantitative significance thresholds for evaluating GHG emissions in CEQA analyses, but it recommends using the California Air Pollution Control Officers Association (2008) *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act* white paper and other resources when developing GHG evaluations (VCAPCD 2006). The *CEQA and Climate Change* paper provides a common platform of information and tools to support local governments and was prepared as a resource, not as a guidance document. CEQA Guidelines Section 15064.4 expressly provides a "lead agency shall have discretion to determine, in the context of a particular project," whether to "[u]se a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use." A lead agency also has discretion under the CEQA Guidelines to "[r]ely on a qualitative analysis or [quantitative] performance-based standards."

Considering the lack of a specific GHG threshold from VCAPCD, it is appropriate to refer to guidance from other agencies when discussing GHG emissions. SCAQMD's thresholds of significance were established based on achieving the 2020 GHG emission reduction targets set forth in the AB 32 Scoping Plan. For developments that would occur beyond 2020, the mass emissions or bright-line threshold of significance (3,000 MT of CO_2e per year) is adjusted to a "substantial progress" threshold calculated based on the SB 32 target of a 40 percent reduction in GHG emissions below 1990 levels (Association of Environmental Professionals 2016). Because the 2020 GHG targets in the AB 32 Scoping Plan are designed to reduce GHG emissions to 1990 levels, it follows that the threshold of SCAQMD threshold of 3,000 MT of CO_2e per year must decrease by 40 percent by 2030 to meet the statewide 2030 GHG emission reduction targets. Therefore, for the purposes of this analysis, the proposed R&M Program's year 2030 GHG emissions would be significant if they would exceed 1,800 MT of CO_2e per year.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

The proposed R&M activities would generate GHG emissions from operation of heavy machinery as well as equipment and materials haul truck trips and worker trips to and from the project site. GHG emissions generated by the proposed program were estimated using CalEEMod version 2016.3.2 and the conservative, "worst-case" scenario assumptions for program activities described in Section 3, *Air Quality*. For the purposes of the GHG analysis, it was conservatively assumed that each program activity would occur annually. In reality, it is unlikely all activities would occur in any given year due to weather, fiscal, and need constraints.

Table 8 shows the breakdown of annual GHG emissions generated by implementation of the proposed program.

Table 8 Estimated Annual GHG Emissions

Activity	Emissions (MT of CO_2e per year)
Activity No. 1 Forebay Sediment	199.1
Activity No. 2 Fish Ladder, Screenbay, High-flow Bypass	2.9
Activity No. 3 Rock Weir and Measurement Weir	1.0
Activity No. 4 Entrance Pool	6.3
Activity No. 5 Concrete Structures	17.7
Activity No. 6 Routine Maintenance	
Timber Cut-Off Wall	37.3
Debris Fence	1.5
Radial Gates	0.8
Instrumentation	0.1
Road Maintenance	5.8
Total Annual Emissions	**272.5**

Significance Threshold	1,800
Threshold Exceeded?	**No**

CO_2e = carbon dioxide equivalent; MT = metric tons; SCAQMD = South Coast Air Quality Management District
See Appendix G for CalEEMod results. Values are approximations and have been rounded to nearest tenth. This table shows "mitigated" results from the unmitigated CalEEMod model, which does not incorporate Mitigation Measures AQ-1 through -3.

As shown in Table 8, the proposed R&M Program's total annual emissions of 272.5 MT of CO_2e fall below the bright-line significance threshold of 1,800 MT of CO_2e per year. Therefore, impacts related to GHG emissions would be less than significant. In addition, this emissions estimate does not account for Mitigation Measure AQ-2, which would further reduce GHG emissions by reducing the number of haul truck trips.

LESS THAN SIGNIFICANT IMPACT

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

The VCAPCD and Casitas have not adopted any plans, policies, or regulations for the purpose of reducing GHG emissions. Accordingly, the most directly applicable adopted regulatory plan to reduce GHG emissions is CARB's 2022 Scoping Plan. The 2022 Scoping Plan identifies priority GHG reduction strategies related to transportation electrification, building decarbonization, and VMT reduction, which are inapplicable to the project (CARB 2022). ~~However, b~~Because the proposed R&M Program would not result in a significant increase in GHG emissions, it would not conflict with any applicable plans, policies, or regulations for the purpose of reducing GHG emissions within the 2022 Scoping Plan. Therefore, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
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 0.25 mile of an existing or proposed school?	☐	☐	■	☐
d. Be located on a site that is included on a list of hazardous material 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 in 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 or excessive noise for people residing or working in the project area?	☐	☐	☐	■
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	■	☐

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b. Would the project 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?

R&M Program activities would temporarily increase the transport, use, and storage of hazardous materials in the project area using heavy-duty vehicles and equipment. Such hazardous materials include diesel fuel, oil, solvents, and other similar materials. Such materials would be properly handled and disposed of in accordance with applicable laws and regulations. In addition, the Project Description, Section 10, identifies multiple BMPs to address the handling, use, and disposal of hazardous materials, as discussed below.

- BMP-11, *Pollutant Management*, requires that all vehicles and equipment are in good working condition and free of leaks. Stationary equipment located within or adjacent to the river will be positioned over drip pans to avoid the discharge of accidentally leaked fluids onto the riverbed.
- BMP-12, *Pollution Prevention,* requires the placement of sediment control features such as silt barriers, sandbags, and straw wattles or bales as appropriate to prevent the discharge of silt or pollutants off the project site.
- BMP-13, *Material Storage,* requires that materials are stored on impervious surfaces or plastic ground covers to prevent accidental spill or discharge of potentially hazardous materials into the Ventura River. In addition, perimeter barriers including but not limited to berms, silt fences, fiber rolls, sand/gravel bags, and straw bale barriers, will be applied to active construction sites to prevent the discharge of construction materials and spoils.
- BMP-18, *Site Materials and Refuse Management,* requires that at project completion, all debris, vehicles, building materials, and rubbish be removed from the area.
- BMP-19, *Re-fueling and Maintenance*, requires that all re-fueling, cleaning, or maintenance of equipment will occur at least 100 feet from the Ventura River. BMP-11, *Pollutant Management*, implemented concurrently with BMP-19, would also employ the use of plastic sheeting or impervious surfaces and perimeter runoff control during re-fueling activities, thereby minimizing potential for fuels to spill and discharge from the site.
- BMP-20, *Responding to Spilled Materials*, requires the development and implementation of a Spill Prevention Plan during all program activities.

The BMPs provided above are applicable to all R&M Program activities, but would be most prevalent during Activities 1A and 1B, due to the use of heavy equipment and machinery to remove accumulated sediment from the forebay and relocate it within the downstream placement area in the Ventura River channel downstream of the timber wall, as shown on Figure 3.

In addition, during Activity 5, which would implement concrete repairs at the spillway, the concrete protective rip-rap, the measurement weir, and the baffled apron as needed, BMP-17, *Concrete Washout Protocol*, would require the use of a vacuum system when sandblasting or jackhammering concrete occurs, to avoid release of materials to surface waters. Figure 7 shows where concrete work within the Facility would occur under Activity 5; all concrete work would be limited to the existing disturbance area. BMP-17 would also implement other measures as applicable to contain concrete work areas and safely stockpile concrete wastes separately from sediment and with erosion control measures to prevent discharge to the Ventura River.

With the implementation of BMPs included in all R&M Program activities, the program would not create a significant hazard to the public or the environmental due to the transport, use, disposal, or accidental release of hazardous materials. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The closest school to the Facility is Meiners Oaks Elementary School, located more than several miles away, in the community of Meiners Oaks. Implementation of the R&M Program would not emit hazardous emissions or handle acutely hazardous materials, substance, or waste within 0.25 mile of an existing or proposed school. Sediment removal activities would temporarily increase the transport, use, and storage of hazardous materials in the project area using heavy-duty vehicles and equipment. Such hazardous materials include diesel fuel, oil, solvents, and other similar materials that are typical of the operation and maintenance activities presently occurring at the Facility.

During Activity No. 1B, sediment removed from the forebay would be relocated to the downstream placement area which would allow sediment to remain in the Ventura River and be transported downstream as it would naturally. ~~until the planned channel contours and elevation is accomplished.~~ Excess sediment would be stored in on-site stockpile areas or transported to an approved off-site disposal location if needed. Off-site sediment disposal would involve the use of heavy trucks transporting excavated sediment from the Facility site to a nearby approved waste disposal site. These trucks would likely travel within 0.25 of an existing or proposed school; however, such presence would be transitory and limited to the execution of Activity 1B, when needed. Furthermore, the presence of heavy trucks on local roadways is consistent with existing conditions for Facility operation and maintenance. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project be located on a site that is included on a list of hazardous material 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 in 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 or excessive noise for people residing or working in the project area?

Neither the Facility nor the surrounding area has been identified on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5, and implementation of the program would not result in a significant hazard to the public or the environment due to a hazardous material site. In addition, the Facility is not within an airport land use plan area or within two miles of a public airport. No impact associated with a public airport or public use airport would occur.

NO IMPACT

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Continued implementation of the R&M Program would not require roadway/lane closures or detours on roadways used for an adopted emergency response plan or emergency evacuation plan. Access roads to the Facility are shown on Figure 8, and include a southern access road that begins at

the entrance gate to the Facility at the terminus of North Rice Road and continues southwest across the Ventura River, as well as a northern access road which traverses the Ventura River upstream of the forebay. These roads are located on Reclamation lands and are generally used by contractors to complete the forebay restoration project (Activity 1) annually under existing conditions, which would persist under the R&M Program. Activity 6E, *Road Maintenance,* would include the annual grading and shaping of Facility access roads on an as-needed basis. This activity would occur over approximately two to three weeks and may include temporary access restrictions; however, such restrictions would be temporary, planned, and of short duration, and would not impair the implementation of an adopted emergency response plan or emergency evacuation plan. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Please see Section 20, *Wildfire*. The Facility is located along the Ventura River, in a High Fire Hazard Severity Zone. However, the R&M Program would not introduce or alter any structures, and would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Accordingly, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	■	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	■	☐
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 through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	■	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	■	☐
(iii) 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; or	☐	☐	■	☐
(iv) Impede or redirect flood flows?	☐	☐	■	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	■	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	■

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The Project Description identifies that multiple regulatory approvals are required for operation and maintenance of the Facility; Figure 9 (Annual Monitoring and Reporting Flow Diagram) identifies how the R&M Program regulatory approvals will be addressed on an annual basis.

R&M Program activities would comply with the requirements of the NPDES Construction General Permit and the applicable General NPDES Permits for Discharges of Groundwater from Construction. The NPDES Construction General Permit requires preparation and implementation of a project specific SWPPP, which requires operators to implement pollution prevention controls to minimize the discharge of pollutants from stormwater and spilled or leaked materials. Such controls include installation of silt fencing and sandbag barriers, covering of stockpiles, use of desilting basins, and post-construction revegetation and drainage requirements. In addition, compliance with the County of Ventura's MS4 Permit would require the implementation of an effective combination of erosion and sediment control BMPs, such as hydraulic mulch and hydroseeding, spill prevention and control, soil binders, and street sweeping, as needed. In addition, the General NPDES Permit for Discharges of Groundwater from Construction in coastal watersheds of Ventura County requires compliance with effluent limitations for reportable pollutants, discharge prohibitions, and a project-specific Monitoring and Reporting Program.

As described in the Project Description, *Introduction*, maintenance and repair activities for the Facility would be planned on an annual basis, and a list of planned work would be submitted to regulatory agencies with permitting authority over the program, including the Los Angeles RWQCB, which is responsible for implementing the NPDES Construction General Permit. ~~Casitas expects all regulatory agencies to issue an NTP for program activities within 30 days of receiving the list of planned maintenance and repair activities.~~ Work will commence in accordance with the R&M Program's permits and authorizations. Casitas will coordinate the implementation of the environmental BMPs identified in the Project Description, Section 10, and permit conditions during the year. At the end of the year, an annual report documenting all work performed and the successful use of the BMPs will be submitted to the regulatory agencies including the RWQCB for their records. The R&M Program's annual monitoring and reporting program is discussed in the Project Description, Section 11, *Annual Monitoring and Reporting Program.*

As previously discussed in Section (4), *Biological Resources*, construction-related materials (e.g., stockpiled materials, construction equipment, and trash) stored on the project site during construction could adversely affect water quality (e.g., increased turbidity, altered pH, decreased dissolved oxygen levels, etc.) within the Ventura River if runoff were to occur during storm events; however, ground-disturbing activities would occur during dry conditions, and multiple BMPs would be implemented to avoid or minimize the potential for water quality degradation to occur. In addition, as discussed for Section (9), *Hazards and Hazardous Materials,* the R&M Program also includes implementation of multiple BMPs to minimize the potential for accidental upset or release of potentially hazardous materials, such as vehicle fuels and fluids, to occur during program activities.

Compliance with applicable erosion and sediment control permitting and regulatory requirements would minimize potential surface water quality impacts associated with project construction and compliance with applicable effluent limitations for reportable pollutants, discharge prohibitions, and a project-specific Monitoring and Reporting Program for groundwater discharge would minimize potential construction groundwater quality impacts. As such, the program is designed to provide compliance with water quality standards and waste discharge requirements. With the

implementation of project-specific BMPs to minimize or avoid potential impacts associated with accident or upset conditions as described in Section (4), *Biological Resources*, and Section (9), *Hazards and Hazardous Materials*, potential impacts associated with water quality standards, waste discharge requirements, and water quality degradation would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Groundwater supplies could be affected through directly pumping groundwater, or indirectly through interfering with groundwater recharge. Groundwater may be used as a water supply during program implementation because Casitas' water supply is provided as local surface water in Lake Casitas, and local groundwater obtained from Casitas' Mira Monte Well. Program activities that would require a water supply include dust suppression during ground disturbance and sediment removal and disposal activities. The program would also require an occasional water source for the manufacture of concrete, when needed for instance during Activity 5, for maintenance of the concrete structures. Casitas' water supplies are managed per the direction of an Urban Water Management Plan (UWMP) that is updated every five years in accordance with the law (Casitas ~~2016~~ 2021). In addition, water uses associated with implementation of the R&M Program would be consistent with existing water uses to operate and maintain the Facility, and the program would not introduce a new water demand.

Interference with groundwater recharge rates or patterns can occur if substantial new areas of impermeable surfaces are introduced and redirect surface runoff or inhibit infiltration to the subsurface. Implementation of the R&M Program would not introduce substantial new areas of impermeable surfaces, which most commonly occur as concrete, asphalt, or a comparable material. Program activities (Activity 1B) would include the placement of removed sediment at downstream locations within the existing channel; such sediment placement activities are authorized via existing regulatory permits issued by the RWQCB, the CDFW, and the USACE. The sediment placement activities would restore intended channel conditions downstream by relocating sediment from storm-eroded areas of the forebay to downstream channel areas where active flow would not be impeded. In addition, the placed sediment would shore up the channel banks downstream of the timber cut-off wall, where the channel banks have been eroded by heavy storms. These areas naturally experience erosion in response to storm events, which would continue to occur with implementation of the R&M Program. Sediment would remain in the Ventura River and be transported downstream as it would naturally. The in-channel placement of removed sediment under Activity 1B would not result in indirect adverse impacts to groundwater resources, including but not limited to the rate or pattern of groundwater infiltration and replenishment.

Potential impacts to groundwater supply would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c.(i) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?

The Ventura River was altered as a result of the Ventura River Project, of which the Facility is a primary component; please see the Project Description, *Introduction* for a background discussion of

previous development of the Ventura River Project. The R&M Program would not alter the course of the Ventura River or any other stream or river and would not introduce new impervious surfaces. Implementation of the R&M Program would restore and maintain the planned capacity of the Facility, restoring site-specific drainage patterns both upstream and downstream of the Facility. Activity 1A would restore the forebay's operational volume each year by removing accumulated sediment and debris, returning the forebay closer to its historical operational grade. In turn, Activity 1B would also restore intended channel conditions downstream by relocating sediment from the forebay in storm-eroded areas within 1,100 linear feet of downstream channel. The sediment would be placed where active flow within the channel would not be impeded; sediment would remain in the Ventura River and be transported downstream as it would naturally. Additionally, the downstream placement of removed sediment would shore up the channel banks downstream of the timber cut-off wall, where the channel banks have been eroded by heavy storms. These areas naturally experience erosion in response to storm events, which would continue to occur with implementation of the R&M Program.

As described in the Project Description, Section 9.2, *Activity No. 1 Forebay Sediment*, Casitas has conducted extensive study of the sediment placement area downstream of the timber cut-off wall, including the completion of a photogrammetric aerial survey of the area. Casitas has also developed a fill design for the downstream placement area, which defines the desired contours and elevation of the streambed. Ongoing operation and maintenance of the Facility requires that Casitas will evaluate the sediment placement area on a continual basis, using both the photogrammetric aerial survey and the fill design plans in conjunction with one another, to customize fill placement plans on an annual basis. As described in the Project Description, the placement of fill under Activity 1B will be consistent with Casitas' annual fill design plans. Depending on annual storm conditions, during any given year the amount of sediment relocated to the placement area will vary. If there is sediment leftover after the desired contours and elevation of the streambed in the placement area is achieved, it will be stockpiled outside of the Ventura River in designated soil disposal areas or exported off site. Stockpiled sediment will be evaluated on an annual basis to determine whether it can be placed back into the river each year. In summary, Activity 1B would only place relocated sediment within the Ventura River channel to the extent that the planned channel contours and elevations are achieved.

The sediment removal and placement components of the R&M Program have been designed to have a beneficial effect on localized drainage patterns within the Ventura River, both upstream and downstream of the Facility, by restoring the intended capacity of the forebay through sediment removal, as well as by providing the planned contours and elevation of the downstream channel through sediment placement, consistent with extensive and ongoing study of in-channel drainage patterns associated with the Facility. Other components of the R&M Program would have no effect on drainage pattern alterations, as work would be conducted during dry periods and when there is no flow present, and all work would be conducted with the implementation of applicable BMPs for erosion and sediment control, as discussed in Section (8), *Geology and Soils,* under criterion (b).

Implementation of the R&M Program would ultimately have positive effects on localized drainage patterns within the Ventura River, by restoring and/or providing the intended and planned channel conditions. With implementation of the BMPs identified in the Project Description, Section 10 and discussed above, potential impacts associated with drainage pattern alterations during R&M Program activities, including the potential for erosion or siltation on or off site would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c.(ii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

c.(iii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would 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?

c.(iv) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

As discussed above, implementation of the R&M Program would not alter the course of a stream or river and would not adversely affect the existing drainage pattern within the Ventura River or the surrounding area. Drainage pattern alterations within the Ventura River would occur in accordance with planned contours and elevation for the channel, which account for flood events, and would not cause flooding on or off the site. Implementation of the R&M Program does not include discharges to an existing or planned stormwater drainage system. In addition, as described above for criterion (a) regarding water quality, the proposed program would not introduce substantial polluted runoff. Potential impacts associated with on- or off-site flooding, runoff water, polluted runoff, and impeding or redirecting flood flows would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

The Facility is in a Special Flood Hazard Area (FEMA 2010) and would be inundated during a flood event. The Facility is also subject to inundation by tsunami or seiche. All the coastal and near coastal river areas in Ventura County are susceptible to tsunamis, which are series of waves caused by an undersea disturbance such as an earthquake. Although tsunamis initiate off the coast, they can proceed up rivers for many miles if the gradient of the river is shallow (County of Ventura ~~2013~~ 2020). The effects of tsunami waves on a river system such as the Ventura River could alter the river channel and modify coastal landforms (County of Ventura ~~2013~~ 2020). Most deaths during a tsunami are a result of drowning; associated risks include flooding, polluted water supplies, and damaged gas lines (County of Ventura ~~2013~~ 2020). A seiche has similar wave-generating effects as a tsunami, except that seiches affect enclosed bodies of water such as lakes and reservoirs. There is presently no record of a major seiche event occurring in Ventura County (County of Ventura ~~2013~~ 2020). The Facility is located approximately two miles downstream of the Matilija Dam; however, the reservoir entrained by Matilija Dam is highly sedimented, and there is minimal water present such that a seiche is considered unlikely. In addition, the dam is planned for removal by the USACE, which would remove the potential for seiche to occur at this location in future.

The likelihood of either a tsunami or seiche resulting in inundation at the Facility is considered low. With respect to flood hazards associated with being located within a Special Flood Hazard Area, the R&M Program would not exacerbate existing flood hazards at the Facility, and in fact would continue operation and maintenance of the Facility such that flood conveyance capacity of the existing Facility is maintained to appropriately convey flows within the Ventura River. Program

activities would generally be completed during dry conditions, and implementation of the R&M Program would enable the Facility to operate as designed. In addition, implementation of the R&M Program would not introduce new hazards or hazardous conditions to the area and would not alter the existing potential for release of pollutants to occur as a result of inundation from a flood, tsunami, or seiche. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As described above, Casitas manages its water supply in accordance with an UWMP that is updated every five years (Casitas ~~2016~~ 2021). Surface water and groundwater resources are addressed in the UWMP. The R&M Program would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. No impact would occur.

NO IMPACT

11 Land Use and 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. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	■

a. Would the project physically divide an established community?

The project involves work within the existing Facility. The project would not include construction of new structures and would not physically divide an established community. No impact would occur.

NO IMPACT

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The project site is in unincorporated Ventura County. The Ventura County General Plan designates the land use on the project site as Open Space (County of Ventura ~~2016~~ 2020). The project site is also zoned as Open Space (OS-80 ac) and is in the Dark Sky (DKS) Overlay Zone area and Temporary Rental Unit Regulation (TRU) Overlay Zone area. The project is generally consistent with the Ventura County General Plan, the Ojai Valley Area Plan, and the Ventura County Non-Coastal Zoning Ordinance. The project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Accordingly, no impact would occur.

NO IMPACT

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12 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 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?	☐	☐	☐	■

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

b. Would the project 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?

The project site is in Mineral Resource Zone 3 (MRZ-3), which indicates an area containing mineral deposits, the significance of which cannot be evaluated from available data (County of Ventura ~~2019~~ 2020). No mineral resource extraction is currently occurring on site. The project site is previously developed and is not zoned for mineral extraction. In addition, the project site is not located in a Mineral Resources Protection overlay zone as designated by the County of Ventura. Therefore, no impact to mineral resources would occur.

NO IMPACT

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13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c. For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	■

Noise Overview

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs (e.g., the human ear). Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Crocker 2007).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz (Hz) and less sensitive to frequencies around and below 100 Hz (Kinsler et al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as a doubling of traffic volume, would increase the noise level by 3 dB; similarly, dividing the energy in half would result in a decrease of 3 dB (Crocker 2007).

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two equivalent noise sources combined do not sound twice as loud as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease; that a change of 5 dBA is readily

perceptible; and that an increase (decrease) of 10 dBA sounds twice (half) as loud (California Department of Transportation [Caltrans] 2013).

The impact of noise is not a function of loudness alone. The time of day when noise occurs, and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this analysis are the one-hour equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL).

- The L_{eq} is the level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound. For example, $L_{eq(1h)}$ is the equivalent noise level over a 1-hour period, and $L_{eq(8h)}$ is the equivalent noise level over an 8-hour period. $L_{eq(1h)}$ is a common metric for limiting nuisance noise whereas $L_{eq(8h)}$ is a common metric for evaluating construction noise.
- The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5-dBA penalty to noise occurring during evening hours (i.e., 7:00 p.m. to 10:00 p.m.) and an additional 10-dBA penalty is added to noise occurring during nighttime hours (i.e., 10:00 p.m. to 7:00 a.m.). These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

Sound from a small, localized source (approximating a “point” source) decreases or drops off at a rate of 6 dBA for each doubling of the distance. However, traffic is not a single, stationary point source of sound. Over some time interval, the movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point. The drop-off rate for a line source is 3 dBA for each doubling of distance.

Vibration Overview

While people have varying sensitivities to vibrations at different frequencies, they are generally most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses (Federal Transit Administration [FTA] 2018).

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or RMS vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2020).

Vibration significance ranges from approximately 50 vibration decibels (VdB), which is the typical background vibration-velocity level, to 100 VdB, the general threshold where minor damage can occur in fragile buildings (FTA 2018). The general human response to different levels of groundborne vibration velocity levels is described in Table 9.

Table 9 Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible (many people find that transportation-related vibration at this level is unacceptable)
85 VdB	Vibration acceptable only if there are an infrequent number of events per day

Source: FTA. 2018.

Project Site Setting

The primary sources of noise in the project site vicinity are vehicular traffic on local roadways and agricultural operations. Rural and suburban residential areas generally experience lower ambient noise levels while areas in highly urbanized regions, along high-volume roadways, and near industrial development generally experience higher ambient noise levels. Quiet rural and suburban areas, like those adjacent to the project site, typically have noise levels in the range of 25 to 50 dBA (Caltrans 2013). Rice Road runs northwest-southeast near the project site and is adjacent to the project site at its northwestern terminus and approximately 1,500 feet east of the southernmost portion of the project site. As discussed in Section 17, *Transportation*, traffic volumes on Rice Road in ~~2018~~ 2015 were approximately ~~2,000~~ 2,100 vehicles per day (County of Ventura ~~2018~~ 2020a); therefore, noise levels within 80 feet of Rice Road are approximately 50 CNEL (Appendix ~~H~~ I). Typical agricultural operations on Ventura County farms that use tractors and similar mechanized equipment for cultivation and harvesting produce noise levels of approximately 75 to 85 dBA at 50 feet. In addition, water pumps produce noise levels of 50 to 65 dBA at 50 feet (County of Ventura 2013). Agricultural operations in the project site vicinity generate similar noise levels when these types of equipment are in use.

Noise exposure goals for different types of land uses reflect the varying noise sensitivities associated with those uses. The County of Ventura General Plan Noise Element defines noise-sensitive receivers as residences, schools, hospitals, nursing homes, churches, and libraries (County of Ventura 2019). Noise-sensitive receivers in the project site vicinity include residences along Oso Road approximately 100 feet east of the project site and a residence off SR 33 approximately 370 feet west of the project site.

Regulatory Setting

Ventura County General Plan

Section ~~2.16~~ 7.9 of the County of Ventura General Plan (~~2019~~ 2020b) contains the ~~County's Noise Element~~ noise section for the County's Hazards and Safety Element. The ~~Noise~~ Hazards and Safety Element identifies primary noise sources in the county, develops noise contours for existing transportation, industrial, and miscellaneous sources, and provides mitigation strategies to reduce noise impacts in the county through ~~2020~~ 2040. The ~~Noise~~ Hazards and Safety Element also contains policies related to noise exposure and emission. However, none of the policies are applicable to the proposed R&M Program because the policies are focused on ensuring noise/land use compatibility of new noise-sensitive land uses and restricting noise levels from continuous stationary noise sources such as heating, ventilation and air conditioning equipment and industrial processes.

Ventura County Code of Ordinances

Section 6299-1 of the Ventura County Code of Ordinances prohibits loud or raucous noise within any residential zone which is audible to the human ear during the hours of 9:00 p.m. to 7:00 a.m. at a distance of 50 feet from the property line of the noise source or 50 feet from any such noise source if the source is in a public right-of-way. Although the ordinance indicates "loud or raucous noise" can include operation of riding tractors or other mechanical or electrical devices or hand tools, which could be used during construction activities, Section 6299-2(a) exempts any government entity or public utility, such as Casitas, from complying with the provisions of the ordinance.

Ventura County Construction Noise Threshold Criteria and Control Plan

The County of Ventura Construction Noise Threshold Criteria and Control Plan establishes thresholds for temporary construction-generated noise at sensitive receptors. Construction noise thresholds are divided into daytime hours (7:00 a.m. to 7:00 p.m.), evening hours (7:00 p.m. to 10:00 p.m.), and nighttime hours (10:00 p.m. to 7:00 a.m.). Per the Construction Noise Threshold Criteria and Control Plan, hospitals and nursing homes are sensitive receptors at all hours, single- and multi-family residences as well as hotels/motels are sensitive receptors during evening and nighttime hours, and schools, churches and libraries are sensitive receptors during daytime and evening hours when in use. Noise threshold criteria for daytime construction apply only to receptors that are sensitive to noise impacts during the daytime (i.e., hospitals, nursing homes, schools, churches, and libraries). No daytime noise-sensitive receptors are in the vicinity of the project site.

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Noise generated by activities under the R&M Program was estimated using the Federal Highway Administration Roadway Construction Noise Model version 1.1 (RCNM 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, noise levels produced by R&M activities were estimated at noise-sensitive receivers near the project site. RCNM provides reference noise levels for standard heavy-duty equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment.

For noise assessment, heavy-duty equipment can be considered to operate in two modes: stationary and mobile. As a rule, stationary equipment operates in a single location for one or more days at a time, with either fixed-power operation (e.g., pumps, generators, and compressors) or variable-power operation (e.g., pile drivers, rock drills, and pavement breakers). Mobile equipment moves around the site with power applied in cyclic fashion, such as bulldozers, graders, and loaders (FTA 2018). Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts from mobile equipment are assessed from the center of the equipment activity area (i.e., R&M Program activity site).

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle, or percent of operational time, of the activity to determine the L_{eq} of the operation (FTA 2018).

Each R&M Program activity has a specific equipment mix, depending on the work to be accomplished during that activity. Each R&M Program activity also has its own noise characteristics; some will have higher continuous noise levels than others, and some may have high instantaneous noise levels. The maximum hourly L_{eq} of each activity is determined by combining the L_{eq} contributions from each piece of equipment used in that phase (FTA 2018).

Given the nature of R&M Program activities and site constraints, it was assumed that only three pieces of mobile heavy-duty equipment and all pieces of stationary equipment would be operating simultaneously at any given time. To provide a conservative assessment, it was assumed that the three loudest pieces of mobile equipment would be operating simultaneously for those activities that would require more than three pieces of mobile equipment. Table 10 lists the anticipated heavy-duty equipment mix for each R&M Program activity and the estimated noise level at 50 feet. For activities in which there are several options for equipment, the loudest equipment was modeled to provide a conservative estimate of noise impacts.

Table 10 Noise Levels by R&M Program Activity at 50 Feet

R&M Program Activity		Equipment	Noise Level at 50 Feet (dBA L_{eq})
1	Forebay Sediment	Grader, bulldozer, and dump truck	83
2	Fish Ladder, Screenbay, High-flow Bypass	Excavator, loader, and water pumps (2)	83
3	Rock Weir and Measurement Weir	Excavator	77
4	Entrance Pool	Bulldozer, excavator, and one dump truck	81
5	Concrete Structures	Dump truck, excavator, concrete mixer, and concrete pump	82
6A	Timber Cut-off Wall Repair and Maintenance	Excavator, dump truck, and vibratory compactor	80
6B	Debris Fence	Backhoe, light trucks (2)	77
6C	Radial Gates	Aerial lift, light trucks (2)	75
6D	Instrumentation	No heavy-duty equipment	n/a
6E	Road Maintenance	Grader	81

dBA = A-weighted decibel; L_{eq} = average equivalent noise level; n/a = not applicable

On-site Noise

Noise generated by R&M Program activities on site would be primarily associated with the use of heavy-duty off-road equipment. Casitas has not adopted thresholds for evaluating the significance of noise impacts, and none of the County of Ventura's General Plan Noise Element policies, County Code requirements, or construction noise threshold criteria are applicable to the proposed R&M Program, because the project activities would only occur during daytime hours near receivers that are not considered to be sensitive to daytime construction noise by the County of Ventura's Construction Noise Threshold Criteria and Control Plan (County of Ventura 2010). Casitas has therefore used the FTA (2018) *Transit Noise and Vibration Impact Assessment* criteria for the purposes of this analysis. The FTA provides criteria for assessing construction noise impacts based on the potential for adverse community reaction. The project's R&M activities would use heavy-duty equipment and activities (e.g., grading, concrete pouring, material movement) similar in nature to those of FTA construction activities. Therefore, the FTA threshold is appropriate to use in evaluating the project's on-site noise impacts.

For residential uses, the daytime noise threshold is 80 dBA L_{eq} for an 8-hour period (FTA 2018).

Table 11 summarizes noise levels generated by each individual R&M Program activity at the sensitive receiver nearest to the associated activity area. As shown therein, noise levels produced by individual R&M Program activities would not exceed the threshold of 80 dBA L_{eq} at the nearest sensitive receivers.

Table 11 R&M Noise Levels by Activity at Nearest Sensitive Receivers

Activity		Distance to Nearest Sensitive Receiver (feet)[1]	Noise Level at Nearest Sensitive Receiver (dBA L_{eq})	Threshold (dBA L_{eq})	Threshold Exceeded?
1	Forebay Sediment	525	63	80	No
2	Fish Ladder, Screenbay, High-flow Bypass	725	60	80	No
3	Rock Weir and Measurement Weir	450	58	80	No
4	Entrance Pool	550	60	80	No
5	Concrete Structures	675	59	80	No
6A	Timber Cut-off Wall Repair and Maintenance	525	60	80	No
6B	Debris Fence	725	54	80	No
6C	Radial Gates	670	53	80	No
6E	Road Maintenance	300	65	80	No

dBA = A-weighted decibel; L_{eq} = average hourly equivalent noise level

[1] Distance measured from the property boundary of the nearest sensitive receiver to the center of the program activity area.

Notes: Assumes a standard distance attenuation rate for point sources of 6 dBA per doubling of distance. See Appendix H for RCNM outputs.

Some activities may occur simultaneously, which would result in higher combined noise levels than for each individual activity. The “reasonable worst-case scenario” of overlapping activities would be simultaneous implementation of Activity Nos. 1 and 6E because Activity No. 1 requires use of certain heavy equipment that generates relatively high noise levels (i.e., dump truck, grader, bulldozer) and because these activities would impact the same noise-sensitive receiver (i.e., residences along Oso Road). Table 12 shows combined noise levels during simultaneous occurrence of Activity Nos. 1 and 6E, the “reasonable worst-case scenario.”

Table 12 Combined R&M Noise Levels during Simultaneous Activities at Nearest Sensitive Receivers

Activity		Distance to Nearest Sensitive Receiver (feet)	Noise Level at Nearest Sensitive Receiver (dBA L_{eq})[2]	Threshold (dBA L_{eq})	Threshold Exceeded?
1	Forebay Sediment	525	63	80	No
6E	Road Maintenance	300	65	80	No
Combined Noise Level			67	80	No

[1] Distance measured from the property boundary of the nearest sensitive receiver to the center of the program activity area.

[2] See Table 11.

dBA = A-weighted decibel; L_{eq} = average hourly equivalent noise level

Note: Assumes a standard distance attenuation rate for point sources of 6 dBA per doubling of distance. See Appendix H for summed noise calculations.

Table 12 shows that the "reasonable worst-case scenario" would not exceed the threshold of 80 dBA L_{eq} at the nearest sensitive receivers. Noise generated by simultaneous occurrence of other overlapping activities would be less than that generated by Activity Nos. 1 and 6E and would also not exceed the threshold of 80 dBA L_{eq}. Therefore, on-site noise impacts would be less than significant.

Off-Site Traffic Noise

The R&M Program would add vehicle trips from worker commutes, water trucks, material deliveries, and haul trucks to local and regional roadways, which would generate increased traffic noise. The greatest volume of project-related trips would occur during Activity No. 1, which would require approximately 20 daily one-way worker trips, six daily one-way material delivery and water truck trips, and 10 to 12 daily one-way haul truck trips.[5] In total, Activity No. 1 would require approximately 36 to 38 daily one-way trips. Haul trucks would utilize North Rice Road and Fairview Road to access the project site from SR 33 and would therefore travel past several residences, which are noise-sensitive receivers. Off-site traffic noise impacts would be significant if traffic would result in a 3-dBA increase in traffic noise, which would be a barely perceptible increase for the average healthy ear (Caltrans 2013). A doubling of traffic volumes would be necessary to cause a 3-dBA increase (Crocker 2007).

Rice Road experiences daily traffic volumes of approximately ~~2,000~~ 2,100 vehicles, and Fairview Road experiences daily traffic volumes of approximately ~~900~~ 800 vehicles (County of Ventura ~~2018~~ 2020a). Therefore, the increase in daily traffic volumes of approximately 36 to 38 trips as a result of the proposed R&M Program would not double existing traffic volumes and therefore would not result in a 3-dBA increase in traffic noise levels. Therefore, off-site traffic noise impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

[5] Approximately 626 one-way haul trips would occur over the course of 60 working days, which would equate to approximately 10 to 12 one-way haul trips per day

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

A quantitative assessment of potential vibration impacts from the R&M Program, such as vibratory compaction and grading, was conducted using the estimates and equations developed by Caltrans and the FTA (Caltrans 2020; FTA 2018). Table 13 shows typical vibration levels for various pieces of heavy-duty equipment used in the assessment of construction vibration (FTA 2018). These pieces of heavy-duty equipment are anticipated to be used during R&M Program activities and would generate the highest levels of vibration as compared to heavy-duty equipment not included in this analysis.

Table 13 Vibration Levels for Heavy-Duty Equipment

Equipment	PPV at 25 feet (in/sec)	Approximate L_v VdB at 25 feet
Vibratory Roller	0.210	94
Large Bulldozer	0.089	87
Small bulldozer	0.003	58
Loaded trucks	0.076	83

PPV = peak particle velocity; in/sec = inches per second; L_v = vibration velocity level; VdB = vibration decibel

Source: FTA 2018

In particular, Activity Nos. 1, 4, 5, and 6A would utilize vibration-generating equipment such as bulldozers, loaded trucks, and vibratory compactors. Neither Casitas nor the County of Ventura has adopted a significance threshold to assess vibration impacts during construction and operation. Therefore, for this analysis Casitas has determined that used the FTA guidelines set forth in the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018) to evaluate potential vibration impacts related to both potential building damage and human annoyance. Based on the FTA criteria, vibration impacts would be significant if vibration levels exceed 100 VdB, which is the general threshold where damage can occur to fragile buildings, or 78 VdB at residences during daytime hours, which is the general threshold for human annoyance at this land use (FTA 2018). Table 14 summarizes estimated vibration levels at the nearest sensitive receivers.

Table 14 Vibration Levels by R&M Program Activity at Nearest Sensitive Receivers

Equipment	Activity	Distance to Nearest Sensitive Receiver (feet)[1]	Vibration Level at Nearest Sensitive Receiver (VdB)	Daytime Residential Human Annoyance Threshold (VdB)	Structural Damage Threshold (VdB)	Thresholds Exceeded?
Large bulldozer	1. Forebay Sediment	200	67	78	100	No
Small bulldozer	1. Forebay Sediment 4. Entrance Pool	200	38	78	100	No
Vibratory compactor	6A. Timber Cut-off Wall	600	64	78	100	No
Loaded trucks	1. Forebay Sediment 4. Entrance Pool 5. Concrete Structures 6A. Timber Cut-off Wall	200	63	78	100	No

VdB = vibration decibel

[1] Distance measured from the structure of the nearest sensitive receiver to the edge of the R&M Program activity area.

Note: See Appendix H for vibration calculations.

As shown above, vibration levels generated by the R&M Program would not exceed the thresholds for daytime residential human annoyance or structural damage at the nearest sensitive receivers. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. For a project located within the vicinity of a private airstrip or 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?

As discussed in Section 9, *Hazards and Hazardous Materials*, the closest public airport to the project site is the Santa Paula Airport, located approximately 15 miles southeast of the project site. The project site is not located within an airport land use plan or within two miles of a public airport or private airstrip (Ventura County Airport Land Use Commission 2000). Therefore, the project would not expose people working in the project area to excessive noise levels due to proximity to an airport. No impact would occur.

NO IMPACT

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14 Population and Housing

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

a. Would the project induce substantial unplanned 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. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The R&M Program would not involve construction of new housing, would not require additional Casitas staff for operation, and would not increase available water supplies. Therefore, the project would not induce population growth directly or indirectly, nor conflict with growth projections in the area. The project would not displace any people or existing housing and would not necessitate construction of housing elsewhere. No impact to population and housing would occur.

NO IMPACT

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15 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, or the 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:				
	1 Fire protection?	☐	☐	■	☐
	2 Police protection?	☐	☐	■	☐
	3 Schools?	☐	☐	☐	■
	4 Parks?	☐	☐	☐	■
	5 Other public facilities?	☐	☐	☐	■

Public services include fire protection, police protection, schools, parks, and other public facilities and resources. The proposed program activities would occur at the existing Facility along the Ventura River.

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Fire protection services to the Facility site and surrounding area are provided by Ventura County Fire Department Station 22, located at 466 South La Luna Avenue in Ojai. Implementation of the proposed program would comply with Fire Code standards, including provision of adequate emergency access to the site. As discussed in Section 20, *Wildfire*, the program would not introduce or exacerbate existing wildfire risk. In addition, as discussed in Section 14, *Population and Housing*, the proposed program would not directly or indirectly induce population growth; therefore, the program would not increase the Ventura County Fire Department Station service populations.

Operation of the project would constitute a continuation of existing conditions, in that the R&M Program would continue to operate and maintain the Facility. Potential impacts associated with fire protection services would be less than significant, with no mitigation required.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Police protection services to the Facility and surrounding area are provided by the Ojai Station of the Ventura County Police Department, located at 402 South Ventura Street in Ojai. As noted above, the proposed program would neither directly nor indirectly induce population change or growth in the area. Therefore, the project would not increase the service population for the Ojai Police Station, or the Ventura County Police Department overall. Potential impacts associated with police protection services would be less than significant, with no mitigation required.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The proposed R&M Program would not directly or indirectly affect population in the area, and therefore would not affect service ratios for public services such as schools, parks, or libraries. The project also would not directly affect such public services, as all project-related activities would occur at the existing Facility. No impact would occur.

NO IMPACT

16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	■

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?

As discussed in Section 14, *Population and Housing*, the proposed R&M Program would not directly or indirectly support population growth. Therefore, it would not increase the use of existing neighborhood and regional parks or other recreational facilities so as to cause or accelerate a substantial physical deterioration of the facility. No impact would occur.

NO IMPACT

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 proposed R&M Program does not propose recreational facilities and would not require the construction or expansion of any recreational facilities. As such, no impact would occur.

NO IMPACT

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17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	■	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	■	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	☐	■
d. Result in inadequate emergency access?	☐	☐	☐	■

a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Access to the Facility would be 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 from Cooper Canyon Road. Potential transportation impacts during R&M activities would be associated primarily with the presence of worker vehicles and haul trucks; however, these potential transportation impacts would be short-term, temporary, intermittent, and limited to the unincorporated County roadways at the project site. Therefore, project construction would not substantially interfere with traffic on Rice Road or Fairview Road. No lane closures would be required for the proposed program. The proposed program would not generate bus, pedestrian, or bicycle traffic, or otherwise interfere with the operation of existing bus routes and stations, sidewalks and other pedestrian infrastructure, or bicycle lanes.

~~The County of Ventura's Initial Study Assessment Guidelines document bases the determination of the significance of traffic impacts to a road segment or intersection "Levels of Service" (LOS) on policies 4.2.2-4 and 4.2.2-5 of the Ventura County General Plan. A potentially significant adverse project-specific traffic impact is assumed to occur on any road segment: 1) if the project would cause the existing LOS on a roadway segment to fall to an unacceptable level, or 2) if the project will add one or more Peak-Hour Trip to a roadway segment that is currently operating at an unacceptable LOS (County of Ventura 2010).~~

~~Rice Road, located directly east of the Facility, is a County-maintained local road. As such, the minimum acceptable LOS is C, which is defined as: "Stable flow but with speed and maneuverability restricted by higher traffic volumes. Satisfactory operating speed for urban locations with some delays at signals." Rice Road is a Class I roadway, defined as a rural two-lane or multi-lane roads of~~

~~essentially level terrain, where the road section has been improved to meet current road standard criteria (County of Ventura 2005). This means the road segment has an average daily traffic LOS threshold of 10,000 vehicles (County of Ventura 2010). In 2018, traffic volumes on Rice Road were 2,000 vehicles per day, with an AM peak of 180 and a PM peak of 190 (County of Ventura 2017).~~

~~Anticipated vehicle trips include construction workers traveling to and from the project work areas, haul trucks (including for export of sediment, as needed), and other trucks associated with equipment and material deliveries. The traffic generated by workers would vary depending on which activity is being implemented. Any program-related traffic occurring between 7:00 a.m. and 9:00 a.m. or between 4:00 p.m. and 6:00 p.m. would coincide with peak hour traffic and could temporarily impede traffic and transit flow. Travel during these timeframes would primarily consist of workers traveling to and from the project area, because deliveries and haul trips would likely occur throughout the day. The increased traffic could result in a reduction of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles. Conservatively assuming all program-related traffic accesses the project site on Rice Road, worker and haul trips associated with project construction would temporarily increase daily traffic along this roadway by a maximum of approximately 50 vehicle trips per day. In addition, realistically, these trips would be spread across the three access routes to the project site. The County's LOS threshold would not be exceeded.~~

Traffic impacts would only occur during active R&M activities. The proposed program would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3(b) identifies criteria for evaluating transportation impacts. Specifically, the guidelines state vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact. According to CEQA Guidelines Section 15064.3(b)(3), a lead agency may include a qualitative analysis of operational and construction traffic. ~~Pursuant to CEQA Guidelines Section 15064.3(c), the provisions of this section do not apply statewide until July 1, 2020, although a lead agency may elect to immediately apply the provisions of the updated guidelines. Currently, official measures and significance thresholds related to VMT have not been adopted by Casitas or the County of Ventura. However, as discussed below, the project is not expected to permanently affect VMT in the study area.~~

The Governor's Office of Planning and Research *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018) states, "Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant VMT impact." As discussed ~~under~~ in Section 13, *Noise,* the project would generate ~~up to a maximum~~ an increase of approximately 36-38 vehicle trips per day, which falls below the recommended screening threshold of 110 trips per day. As such the impact associated with VMT would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

R&M Program activities would take place at the existing Facility and would not increase hazards on adjacent roadways due to a geometric design feature or incompatible use. The proposed program would not include alterations to existing public roadway alignments or intersections and therefore would not include sharp curves or unsafe designs that would increase traffic hazards.

On-site road maintenance and repair would occur as needed (estimated annually) on Reclamation property during dry conditions. The purpose of the road maintenance activities would be to improve the safety of the roads, which are primarily used by contractors to complete the forebay restoration project. The program would therefore have a beneficial impact related to road hazards on the project site. No adverse impact related to traffic hazards would occur.

NO IMPACT

d. Would the project result in inadequate emergency access?

Program implementation would not block public roadways or driveways. Emergency access to the Facility and surrounding land uses would not be impeded. As discussed in Section 9, *Hazards and Hazardous Materials*, and in Section 20, *Wildfire,* road maintenance that would occur under Activity 6E would be planned and of short duration, and limited to Reclamation roadways providing access to the Facility within the Ventura River; this activity would not substantially impede the implementation of emergency response or evacuation plans. Therefore, the program would not result in inadequate emergency access.

NO IMPACT

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18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	■	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

Casitas Municipal Water District (Casitas) is the lead agency for this project and is therefore responsible for AB 52 notification. Casitas sent AB 52 consultation letters on July 2, 2020, to the following tribes: Barbareño/Ventureño Band of Mission Indians, Chumash Council of Bakersfield, Coastal Band of the Chumash Nation, Northern Chumash Tribal Council, San Luis Obispo County Chumash Council, and Santa Ynez Band of Chumash Indians. Follow-up consultation undertaken on August 19, 2020 resulted in Julie Tumamait-Stenslie, Chairperson of the Barbareño/Ventureño Band of Mission Indians, requesting Native American monitoring during project-related ground disturbance associated with Activities 1A and 1B. Mitigation Measures TCR-1, *Avoidance of Tribal Cultural Resources,* TCR-2, *Tribal Cultural Resources Treatment Plan,* and TCR-3, *Native American Monitoring,* as presented below, would be implemented for the proposed project~~, and would include Native American monitoring during project-related ground disturbing activities~~. On November 15, 2024, proposed revisions to TCR-2 and TCR-3 were discussed and reviewed with Matthew Vestuto, current Chairperson of the on Barbareño/Ventureño Band of Mission Indians.

Mitigation Measures

TCR-1 Avoidance of Tribal Cultural Resources

When feasible, project construction shall avoid tribal cultural resources.

TCR-2 Tribal Cultural Resources Treatment Plan

Prior to construction of the project, Casitas shall prepare a tribal cultural resources treatment plan. ~~to be implemented in the event an unanticipated archaeological resource that may be considered a tribal cultural resource is identified during construction, subject to review and acceptance by Casitas~~. The plan would include suspension of all earth-disturbing work in the vicinity of the find, avoidance of the resource or, if avoidance of the resource is infeasible, the plan would outline the appropriate treatment of the resource in coordination with the affiliated tribe and, if applicable, a qualified archaeologist. Examples of appropriate treatment for tribal cultural resources include, but are not limited to, protecting the cultural character and integrity of the resource, protecting traditional use of the resource, protecting the confidentiality of the resource, or heritage recovery.

TCR-3 Native American Monitoring

~~All~~ For all earth-disturbing work during Activities 1A, 1B, and 6E associated with the project, Casitas shall provide tribes the opportunity to conduct a Worker Environmental Awareness Training prior to beginning work activities, as well as opportunity for ~~shall be observed by a local~~ Native American monitoring during the work activities. Native American monitoring may be reduced to spot-checking or eliminated at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of rough grading. If Native American monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the APE and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Sediment already monitored during removal does not require monitoring during subsequent placement unless excavation is occurring as part of that activity. In

the event of a discovery of tribal cultural resources, the steps identified in the tribal cultural resources plan prepared under measure TCR-2 shall be implemented.

Significance After Mitigation

Implementation of Mitigation Measure TCR-1 would provide that project activities would avoid tribal cultural resources to the extent feasible. Mitigation Measure TCR-2 would provide for the implementation of a project-specific tribal cultural resources treatment plan, which will designate procedures for response to an unanticipated discovery of tribal cultural resources. Mitigation Measure TCR-3 would provide for the opportunity to provide a Native American monitor during earth-disturbing work associated with proposed project Activities 1A, 1B, and 6E. With implementation of these mitigation measures, potential impacts of the project to tribal cultural resources would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

There are no known tribal cultural resources at the project site. However, as described under impact threshold (a) above, the potential for previously undiscovered tribal cultural resources to be uncovered during ground-disturbing activities, while unlikely, cannot be completely ruled out. If such resources are found and are determined to be significant under PRC Section 5024.1, the project could result in significant impacts to such resources if they are disturbed, destroyed, or otherwise improperly treated. Therefore, previously identified mitigation measures would be implemented as directed below.

Mitigation Measures

CR-1 Archaeological Monitoring

Please see Section 5, *Cultural Resources*, impact threshold (b) for the full text of this mitigation measure.

TCR-1 Avoidance of Tribal Cultural Resources

Please see impact threshold (a) above for the full text of this mitigation measure.

Significance After Mitigation

Implementation of Mitigation Measure CR-1 would provide for archaeological monitoring during all project-related ground disturbance under Activities 1A, 1B, and 6E, with monitors having the authority to stop work in the vicinity of a find of archaeological resources, should one occur. Mitigation Measure CR-1 also allows for monitoring reduction to spot-checking, or monitoring cessation, if it is determined to be unnecessary based on site-specific work conditions. In addition, Mitigation Measure TCR-1 would provide for the avoidance of tribal cultural resources to the extent feasible. With the implementation of these measures, potential impacts associated with causing a change in the significance of a tribal cultural resource would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	■
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	■	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	■
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	■	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	■	☐

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The project consists of R&M activities at the Facility in order to maintain its intended design capacity. The project would not expand the capacity of the Facility beyond its intended design. As discussed in Section 14, *Population and Housing*, the project would not directly or indirectly increase population. As such, the project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. No impact would occur.

NO IMPACT

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

The project would not introduce a new demand for water supplies. Occasional water use would be required for dust suppression purposes (all program activities) and for concrete manufacturing (Activity No. 5, *Concrete Structures*); this water use would be consistent with ongoing operation and maintenance of the Facility. As such, required water supply would be provided by Casitas from existing sources, which include surface water from Lake Casitas and groundwater from Casitas' existing Mira Monte Well. Because the R&M Program would not introduce a new water demand, and water use would only be conducted on an as-needed basis depending upon the activities identified for any given year, potential impacts associated with sufficient water supplies would be less than significant. This topic is further discussed under Section 10, *Hydrology and Water Quality.*

LESS THAN SIGNIFICANT IMPACT

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

The project would not generate sanitary wastewater or otherwise contribute to an increase in wastewater treatment requirements. As such, no impact would occur.

NO IMPACT

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

R&M activities would generate minimal solid waste. Removed sediment from the forebay would be used to shore up the channel banks downstream of the timber cut-off wall which have been eroded by heavy storms. It is anticipated that this sediment would be placed or stockpiled on site. However, it is possible that in some years, there may not be on-site capacity to store the removed sediment. Under this scenario, up to 25,000 cubic yards of sediment could be exported from the project site. Casitas would try to identify a receiver agency to beneficially use the excess sediment in the watershed. However, if no receiver agency is willing to take the excess sediment, it is possible the sediment could be disposed of as solid waste.

E.J. Harrison and Sons provides waste and recycling services in the city of Ojai and the surrounding unincorporated areas of Ventura County. Solid waste is directed by E.J. Harrison and Sons to the Gold Coast Recycling and Transfer Station, a privately-operated diversion and recycling station. The remaining waste is then transferred to the Toland Road Landfill, a Class III landfill operated by the Ventura Regional Sanitation District. The Toland Road Landfill is in Santa Paula, a 30-mile drive from the project site. According to the California Department of Resources Recycling and Recovery, the Toland Road Landfill has a permitted capacity of 30 million cubic yards and a maximum disposal capacity of ~~1,500~~ 2,864 tons per day. As of ~~January 2016~~ December 2018, the remaining capacity at the landfill was approximately ~~10.5~~ 16 million cubic yards. The landfill solid waste permit lists an estimated closure date of ~~2027~~ 2033. Toland Road Landfill accepts a variety of materials, including construction and demolition materials, agricultural waste, industrial waste, sludge (biosolids), and mixed municipal waste (CalRecycle ~~2020a~~ 2024a).

Waste Management, Inc. operates the Simi Valley Landfill and Recycling Center, located in the city of Simi Valley, a 50-mile drive from the project site. The Simi Valley Landfill and Recycling Center has a permitted capacity of 119,600,000 cubic yards and a maximum disposal capacity of 9,250 tons per day. As of ~~February 2017~~ January 2019, the remaining capacity was approximately ~~88.3~~ 82.9 million cubic yards. The landfill solid waste permit lists an estimated closure date of ~~2052~~ 2063. The landfill accepts a variety of materials including construction and demolition materials, industrial waste, sludge (biosolids), and mixed municipal waste (CalRecycle ~~2020b~~ 2024b).

Construction activities may temporarily generate solid waste, which would be disposed of in accordance with all applicable federal, State, and local statutes and regulations. As described above, local solid waste infrastructure has the capacity to accept solid waste generated by project construction activities. Once constructed, project operation would not generate solid waste. The project would not impair the attainment of solid waste reduction goals. Potential impacts would therefore be less than significant.

LESS THAN SIGNIFICANT IMPACT

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20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	■
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	■
d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	■

The project site is in unincorporated Ventura County, on the Ventura River approximately two miles downstream of Matilija Dam, near the community of Ojai. This area is a designated Very High Fire Hazard Severity Zone in the State Responsibility Area (SRA) and Local Responsibility Area (LRA) (CAL FIRE ~~2007, 2010~~ 2024), particularly for open space surrounding this portion of the Ventura River. The project area has been subject to recent fires, including the 282-acre Chorro Fire in August 2015, the 2,304-acre Pine Fire, and the 281,893-acre Thomas Fire in 2017.

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

As discussed in Section 9, *Hazards and Hazardous Materials*, construction activities associated with the proposed R&M Program may require temporary access restrictions during implementation of Activity 6E, Road Maintenance. However, such restrictions would be limited to the Facility access roads on Reclamation land and would be planned and of short duration; program activities would not impede the implementation of an adopted emergency response plan or emergency evacuation

plan, including as related to wildfire. Traffic-related impacts of the R&M Program would primarily be associated with individual worker trips to and from the Facility; this also would not impede the implementation of an adopted emergency response plan or emergency evacuation plan. Therefore, potential impacts associated with emergency access and evacuation relative to the area's Very High Fire Hazard Severity Zone would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

California PRC Section 4442 mandates the use of spark arrestors, which prevent the emission of flammable debris from exhaust, on earth-moving and portable construction equipment with internal combustion engines operating on any forest-covered, brush-covered, or grass-covered land. In addition, PRC Sections 4427 and 4431 specify standards for conducting construction activities on days when a burning permit is required, and PRC Section 4428 requires construction contractors to maintain fire suppression equipment during the highest fire danger period (April 1 to December 1) when operating on or near any forest-covered, brush-covered, or grass-covered land. All R&M Program activities would occur in compliance with fire safety requirements, and program activities would therefore not introduce or exacerbate existing wildfire risk. The project would continue existing operation and maintenance activities of the Facility and not include the installation or maintenance of facilities or infrastructure that could exacerbate fire risk. No impact would occur.

NO IMPACT

d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

As stated above, the Facility area is classified as a Very High Fire Hazard Severity Zone. The Facility is located along the Ventura River, and the proposed program would provide ongoing operation and maintenance of the Facility, which would enable restoration of the Ventura River channel to its planned contours and elevation. Implementation of the R&M Program would not alter or disturb slopes or hillsides in the area and would not expose people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes.

As discussed in the Project Description, Sections 11 and 12, annual monitoring and reporting would be conducted for the R&M Program to address constantly fluctuating conditions in the river and implement the most appropriate R&M activities and BMPs during any given year. Also as described in the Project Description, Section 9.1, *Routine versus Emergency Maintenance,* emergency actions which require immediate repair to protect life and property are covered under emergency state and federal authorizations on a case-by-case basis and are not part of the project assessed herein. If the Facility receives a heavy deposit of sediment and debris resulting from post-fire slope instability that

was not anticipated as part of a given year's R&M Program activities, and that requires immediate attention to protect life and property, such response may be covered under an emergency authorization rather than as part of regular R&M Program activities. This is consistent with ongoing operation and maintenance of the Facility. No impact would occur.

NO IMPACT

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21 Mandatory Findings of Significance

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

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

Potential impacts to biological resources are addressed in Section 4, *Biological Resources*. As described therein, implementation of the R&M Program would include the use of multiple project specific BMPs that are identified in the Project Description, Section 10 and discussed throughout the impact analysis as applicable. The specific R&M Program activities and associated BMPs that would occur during any given year would be identified by Casitas and submitted to regulatory agencies for review and approval prior to activity implementation. Although potential temporary impacts may occur as a result of site disturbance during R&M Program activities, such impacts would be less than

significant with the implementation of the BMPs discussed in Section 4, *Biological Resources*. In addition, continued implementation of the R&M Program would ultimately benefit fish habitat by providing the planned operational capacity of the Facility. Accordingly, the project would not 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, or substantially reduce or restrict the range of a rare or endangered plant or animal.

As further discussed in Section 5, *Cultural Resources*, no archaeological resources have been identified in the project area and the R&M Program would result in a less than significant impact to nearby built-environment resources. As such, the program would not eliminate important examples of the major periods of California history or prehistory. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

Cumulative impacts are defined as two or more individual project effects which, when considered together or in concert with other projects, combine to result in a significant impact within an identified geographic area. In order for a project to contribute to cumulative impacts, it must result in some level of impact on a project-specific level. As described in the impact analyses provided in Sections 1 through 20 of this IS-MND, a number of the environmental topic areas would experience "No Impact" as a result of the R&M Program; in other words, none of the significance criteria identified for these environmental topic areas would result in impacts. These environmental topics include the following: Agricultura and Forestry Resources; Energy; Land Use and Planning; Mineral Resources; Population and Housing; Recreation; and Tribal Cultural Resources. These topic areas are not addressed further for cumulative impacts, because they would have no impact and therefore would not contribute to the cumulative scenario for cumulative impacts.

The following analysis of cumulative impacts addresses those effects for which some level of potential impact was identified, which includes topics for which a "Less than Significant Impact" was identified, as well as those for which the threshold question assumed some level of impact (i.e., those for which consideration of a potential "significant" effect was considered, per *CEQA Guidelines* Section 15382; in this case, threshold questions which assumed impacts would be "Less than Significant with Mitigation Incorporated"). Potential regional cumulative effects were considered for the environmental topics which would result in less than significant impacts from implementation of the R&M Program (without or with project mitigation).

- **Aesthetics:** Temporary aesthetic impacts associated with the presence and use of equipment and machinery at and around the Facility would occur during implementation of the R&M Program, particularly the sediment placement included under Activity No. 1B, which would include hauling sediment from the forebay to the downstream placement area, which may be visible to land uses immediately east of the Ventura River. These effects would be temporary in duration, and specific to the project site. Therefore, no contribution to a cumulative impact would occur.
- **Air Quality:** Air pollutant and GHG emissions disperse from their original source and can affect the entire air basin (or, with global warming, potentially the entire Earth). For air quality, the baseline analysis addresses the cumulative condition, or the project's contribution to the larger

picture which is assessed in analyses of consistency with regional air quality strategies and pollutant dispersal. Air pollutant emissions associated with the R&M Program correlate with the equipment and machinery used during implementation of Activity Nos. 1 through 6, as well as the traffic generated by these activities. Based on the air quality and GHG emissions modeling completed for analysis of the R&M Program, mitigation measures were developed to reduce R&M Program emissions to levels below applicable emissions thresholds. In this scenario, the region is in non-attainment for criteria pollutant standards for ozone and PM_{10}, which means that cumulative air quality impacts are inherently significant. However, VCAPCD's significance thresholds are intended to determine whether a project would individually or cumulatively jeopardize attainment of the federal standards. Mitigation measures for the R&M Program reduce emissions to below the VCAPCD thresholds. Therefore, air quality impacts of the R&M Program would not individually jeopardize attainment of the federal standards. Therefore, the project's contribution to cumulative impacts would not be considerable.

- **Biological Resources**: As described in Section 4, *Biological Resources*, the R&M Program could result in temporary impacts to biological resources associated with disturbance to habitat on and around the Facility. Implementation of BMPs that are included in the R&M Program, as listed in the Project Description, Section 10 and discussed throughout the analysis of biological resources provided in Section 4, would reduce biological resources impacts to less-than-significant levels. Other projects in the region would also be required to comply with federal, State, regional, and local regulations and laws put in place to minimize impacts to biological resources. Therefore, cumulative impacts would be less than significant.
- **Cultural Resources:** Ground-disturbing activities during project construction could potentially result in the accidental discovery of unknown archaeological resources. However, due to the disturbed nature of the Ventura River where the Facility is located and the R&M Program would occur, the project, in combination with other projects in the area, would not result in significant cumulative impacts to archaeological resources. In addition, the project would not result in a substantial adverse change to a built environment resource listed or eligible for listing in the NRHP or the CRHR. Therefore, no contribution to cumulative impacts, significant or otherwise, would occur.
- **Geology and Soils:** Impacts associated with geology and soils, including paleontological resources, are inherently restricted to the location of the project activities. Mitigation measures are identified in Section 7, *Geology and Soils*, and include the implementation of a worker awareness program for paleontological resources, as well as specified procedures for handling the unanticipated discovery of paleontological resources, as applicable. Due to the site-specific nature of impacts and the implementation of appropriate mitigation, the R&M Program would not contribute to cumulative impacts associated with other future developments.
- **GHG Emissions:** Refer to the discussion within the *Air Quality* bullet above.
- **Hazards and Hazardous Materials:** Regarding hazards and hazardous materials, no regional concern is identified (i.e., no significant cumulative impact). In the event the project would result in accidental discharge associated with transport, use, storage, and/or disposal of hazardous materials during construction or operation of the project, prescribed activities to be conducted in accordance with the NPDES Construction General Permit and BMPs provided in the Project Description, Section 10 would reduce potential impacts associated with the discharge of contaminants to a less-than-significant level. The project would also comply with applicable federal, State, and local laws and regulations regarding hazardous materials. Therefore, no contribution to cumulative impacts, significant or otherwise, would occur.

- **Hydrology and Water Quality:** Potential water quality impacts associated with the R&M Program would generally be limited to short-term construction-related erosion/sedimentation, as the program would not result in an appreciable increase in impervious surface area or substantial alteration of drainage patterns. Implementation of BMPs, as part of project conformance with NPDES permit conditions, would effectively eliminate the potential for drainage- and water quality-related impacts. Therefore, no contribution to cumulative impacts would occur.
- **Noise:** The Facility site is within a rural residential area. Noise impacts are inherently restricted to the project area and would not contribute to cumulative impacts associated with other future developments. Furthermore, given the rural residential environment of the Facility site and attenuation of noise, future development would not be anticipated to occur close enough to the immediate vicinity of the Facility to result in cumulative noise impacts. No contribution to a cumulative impact would occur.
- **Public Services:** Any potential impacts to public services would be associated with temporary demand for police or fire protection services during project construction. As concluded in Section 15, *Public Services*, such impacts would be less than significant. The project would not induce population growth and thereby would not, directly or indirectly, contribute to cumulative impacts to public services.
- **Transportation:** The project would result in a temporary increase in traffic associated with the implementation of R&M Program activities, which are comparable to existing conditions. No substantial long-term transportation impacts would occur as a result of the R&M Program. Given the temporary nature of construction-related traffic impacts and the fact the R&M Program would not generate a substantial amount of operational traffic, the contribution to cumulative transportation impact would not be cumulatively considerable.
- **Utilities and Service Systems:** The project would not induce population growth and therefore would not, directly or indirectly, contribute to cumulative impacts to utilities and service systems.
- **Wildfire:** As described in Section 20, *Wildfire*, potential wildfire impacts associated with the project would be limited to short-term construction-related impacts to emergency response, which would be less than significant. The R&M Program would not result in long-term wildfire impacts. Given there would be no long-term operational wildfire impacts and the short-term nature of any construction-related wildfire impacts, the program's contribution to any cumulative impact would not be considerable.

For these reasons, the project would not result in a considerable contribution to any cumulative effects significant or otherwise.

LESS THAN SIGNIFICANT IMPACT

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

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed under Section 3, *Air Quality*, three mitigation measures have been developed for implementation with the R&M Program, to minimize emissions associated with the use of vehicles and equipment during the identified activities. These mitigation measures include AQ-1, *Tier 4 Equipment,* AQ-2, *Increased Dump Truck Capacity,* and AQ-3, *Haul Trip Timing*.

With the implementation of these mitigation measures, as needed, the R&M Program would not result in significant impacts from air quality or greenhouse gas emissions. In addition, as detailed under Section 13, *Noise,* and Section 9, *Hazards and Hazardous Materials,* potential impacts of the R&M Program to these environmental topic areas would be less than significant with the implementation of BMPs included as part of the R&M Program, as listed in the Project Description, Section 10 and discussed throughout the impact analyses as applicable.

As summarized above, the R&M Program would not result in significant impacts associated with air quality, hazards and hazardous materials, and noise; therefore, impacts to human beings would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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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

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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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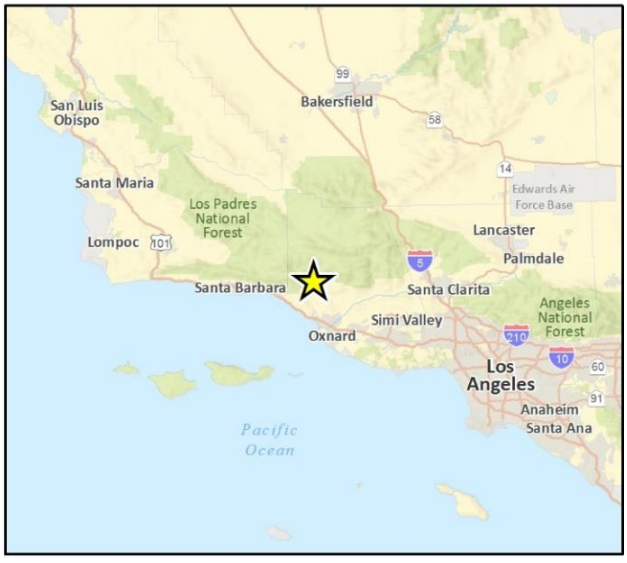

existing footprint of the Facility, and replacement of wood timbers to maintain the structural integrity of the timber cut-off wall and debris fence. Most recently, in 2019, Casitas acquired permits and authorizations for the Robles Forebay Restoration Project, which involves the removal and relocation 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

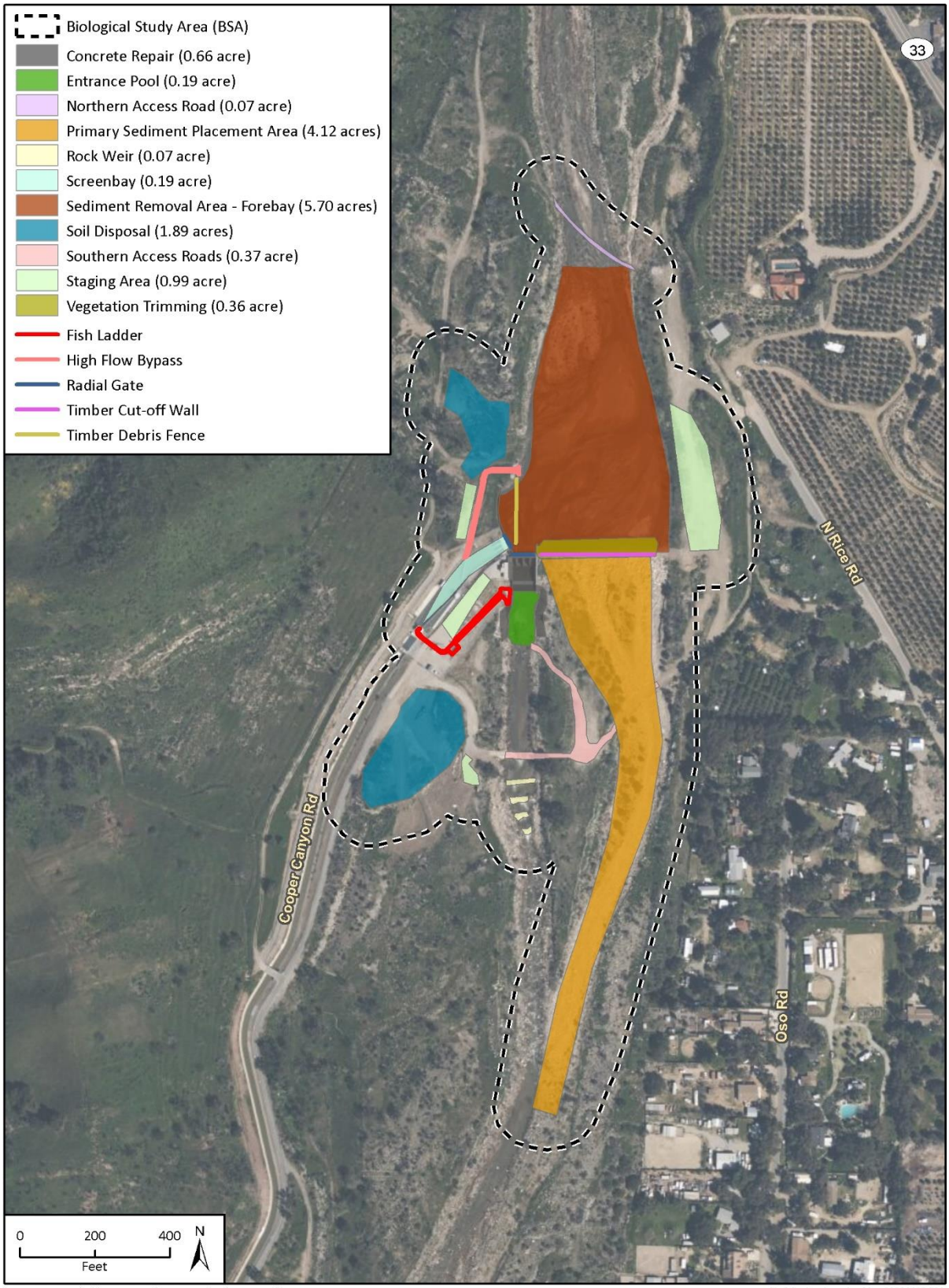

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Fig 2 Project Location Map 20201113 BSA

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

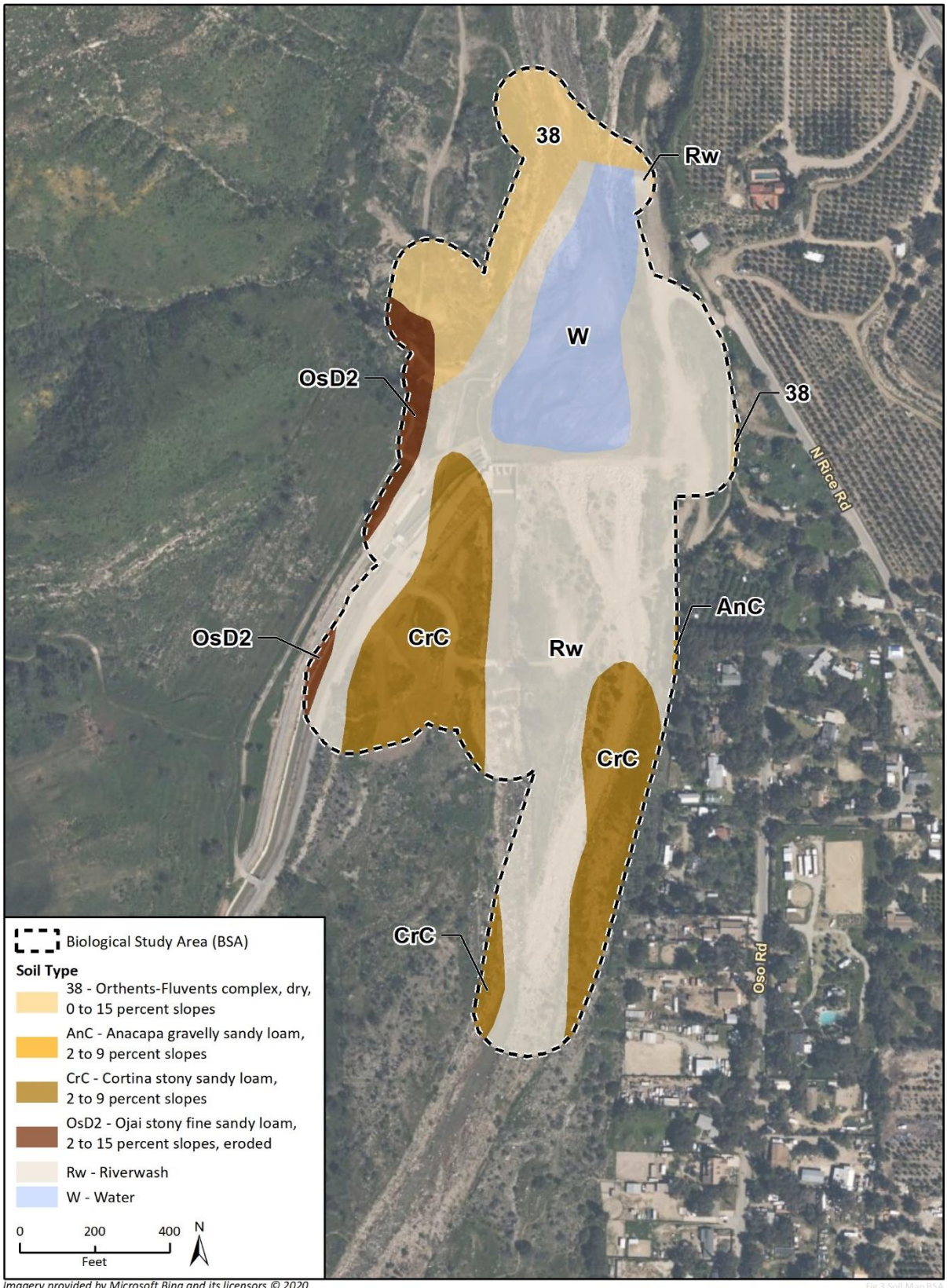
The BSA occurs between 724 to 790 feet above mean sea level (USGS Topographic Quadrangle Maps, Google Earth 2018). The USDA NRCS Web Soil Survey delineates four soil map units within the BSA. According to the NRCS Web Soil Survey, the BSA is dominated by Water (W), Riverwash (Rw), Orthents-Fluvents complex (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

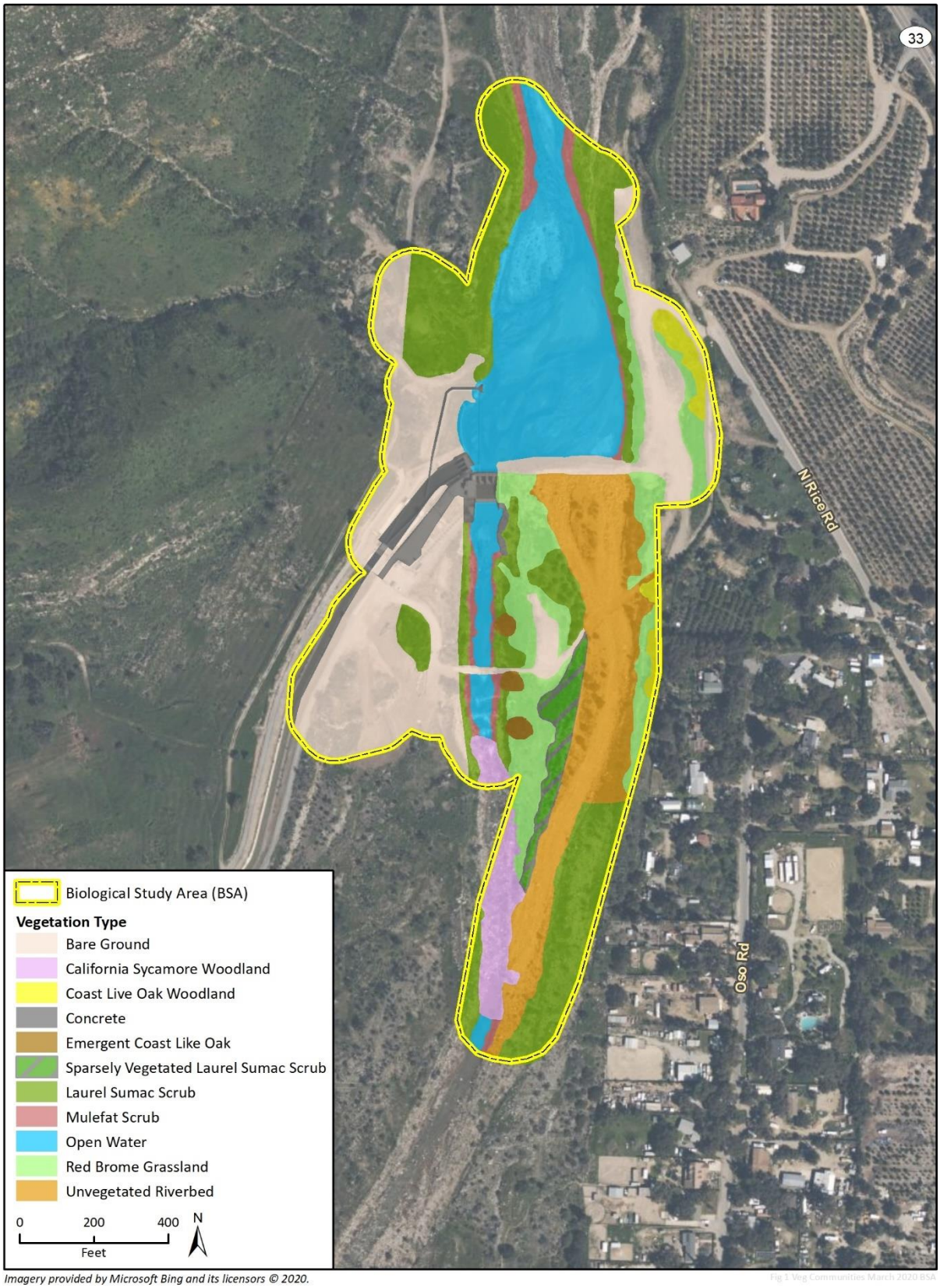
Several plant communities and land cover types occur within the BSA (Figure 4). Portions of the Facility are hardscaped with concrete and metal (e.g. radial gates) and surrounded with a chain-link fence. The Facility is surrounded by gravel base and disturbed bare ground. The forebay is predominately 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



Imagery provided by Microsoft Bing and its licensors © 2020.
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.

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Appendix A to BRA (Appendix A to IS-MND)

Annual Maintenance and Repair Program Project Description

Refer to Section 9 of this IS-MND which provides a description of the Annual Maintenance and Repair Program for the Robles Diversion and Fish Passage Facility.

Appendix B of BRA (Appendix A of IS-MND)

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 of BRA (Appendix A of IS-MND)

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 of BRA (Appendix A of IS-MND)

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

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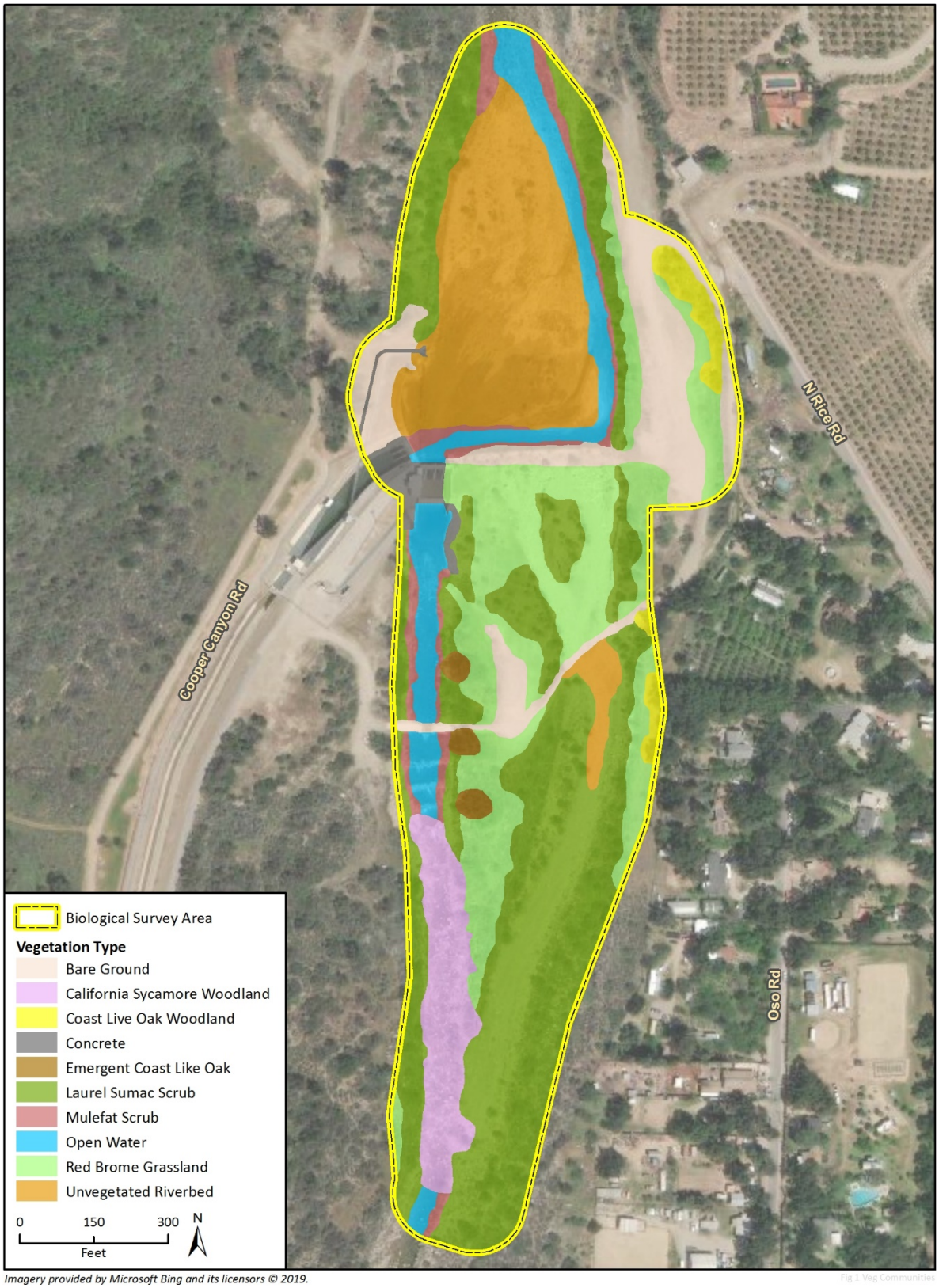
Attachment A

Figures

Figure 1 Vegetation Communities



Imagery provided by Microsoft Bing and its licensors © 2019.

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 of BRA (Appendix A of IS-MND)

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

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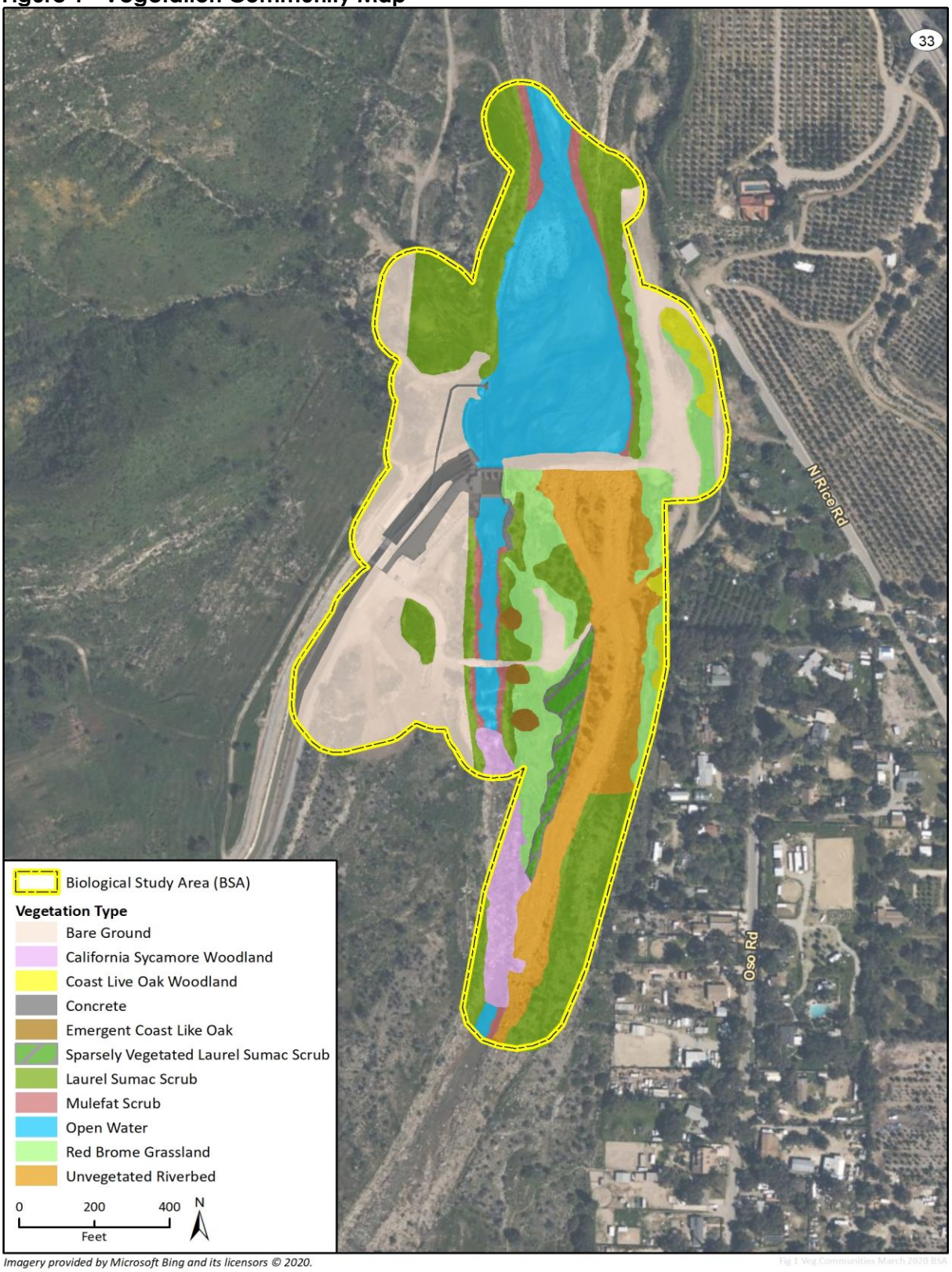
Figure 1 Vegetation Community Map



Imagery provided by Microsoft Bing and its licensors © 2020.

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 of BRA (Appendix A of IS-MND)

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 of BRA (Appendix A of IS-MND)

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.

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Appendix A - Figures

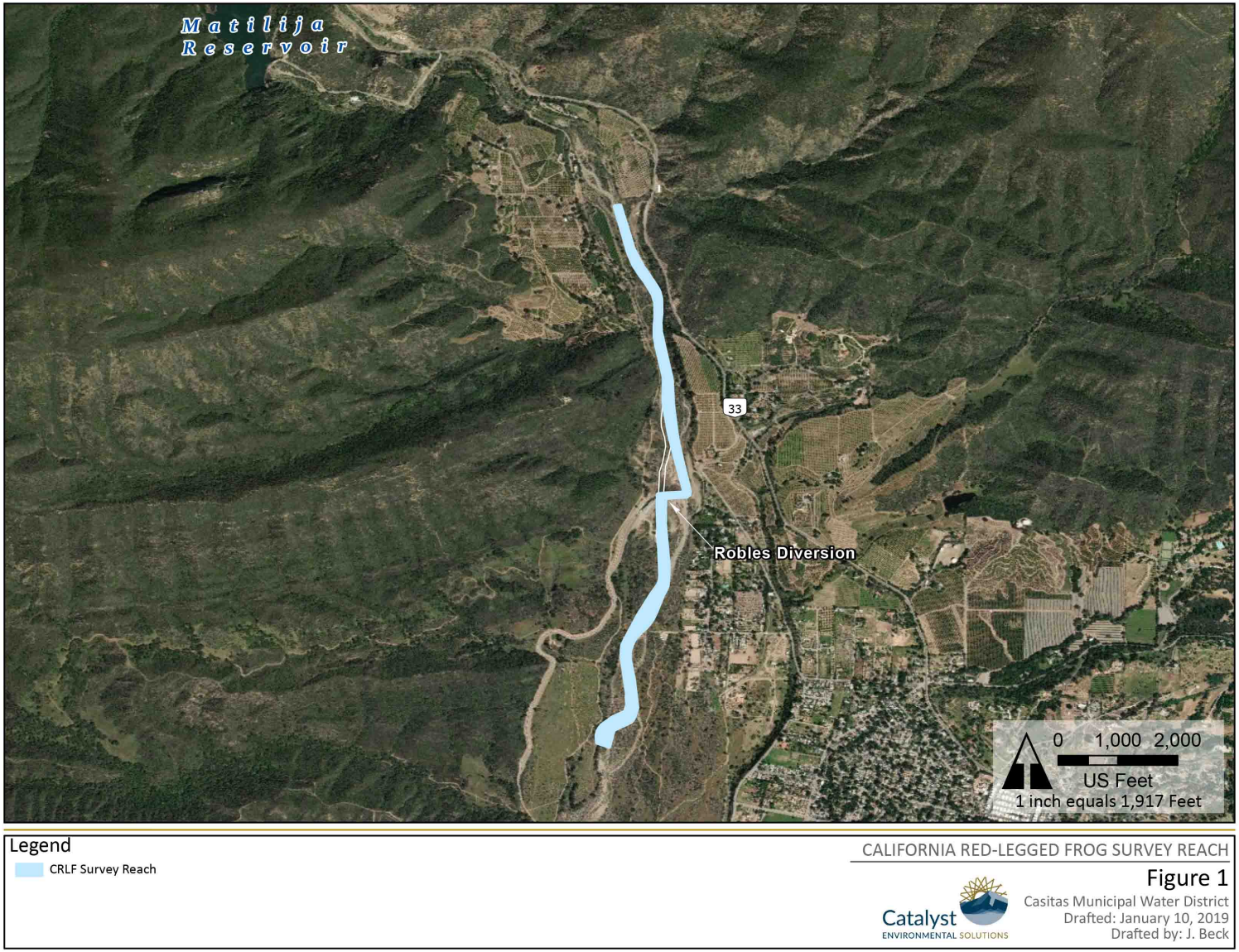

Figure 1 – California Red-legged frog survey reach

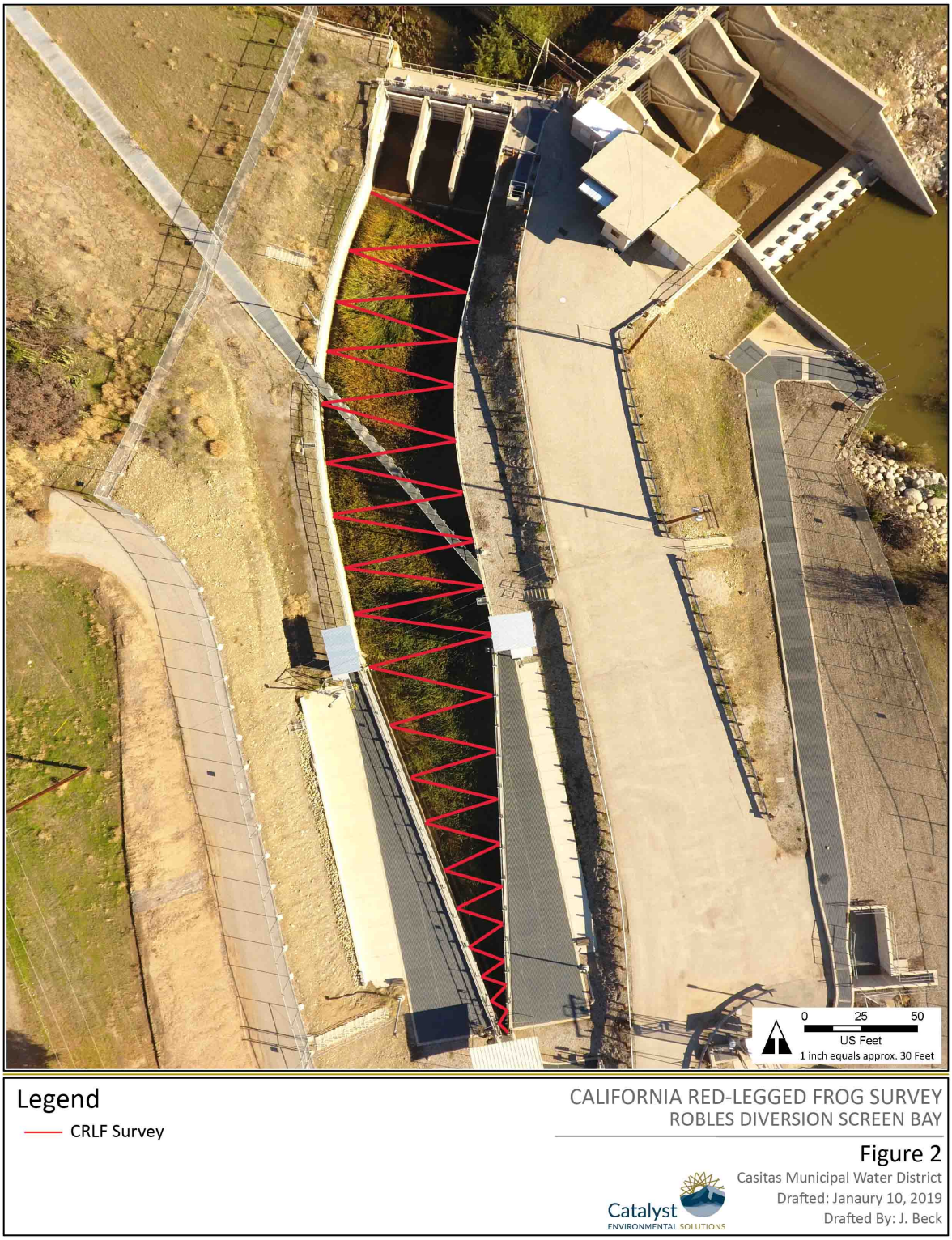

Figure 2 – California Red-legged frog survey transects in Robles Diversion screenbay

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

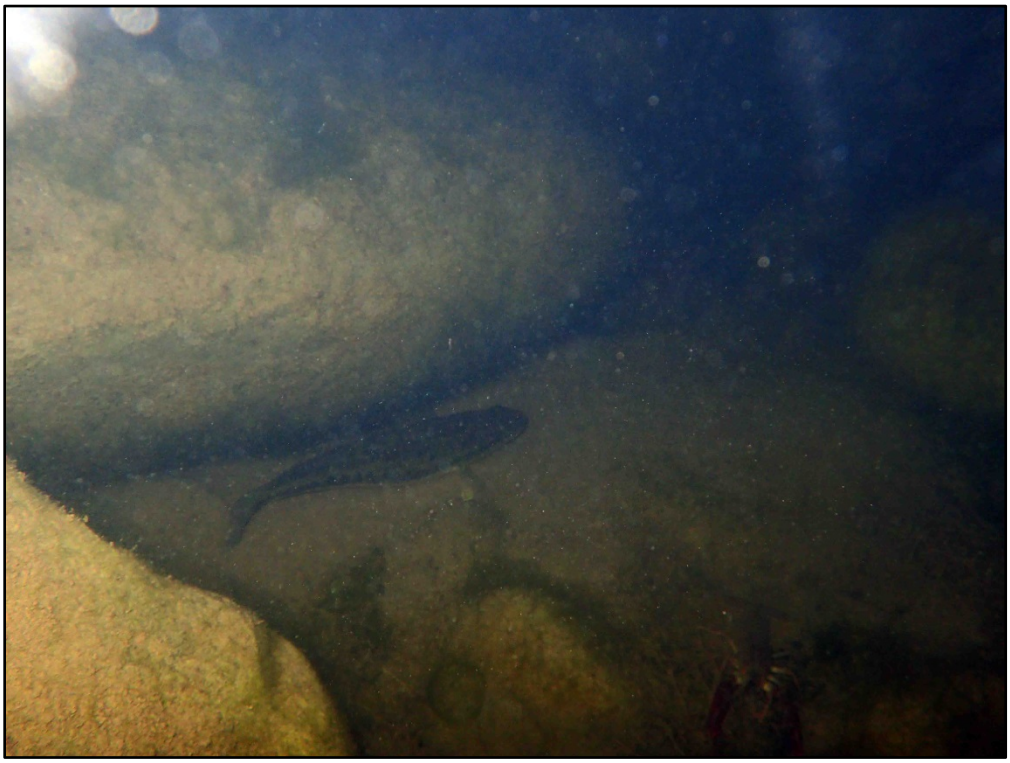

Photo 6 – Largemouth bass

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.

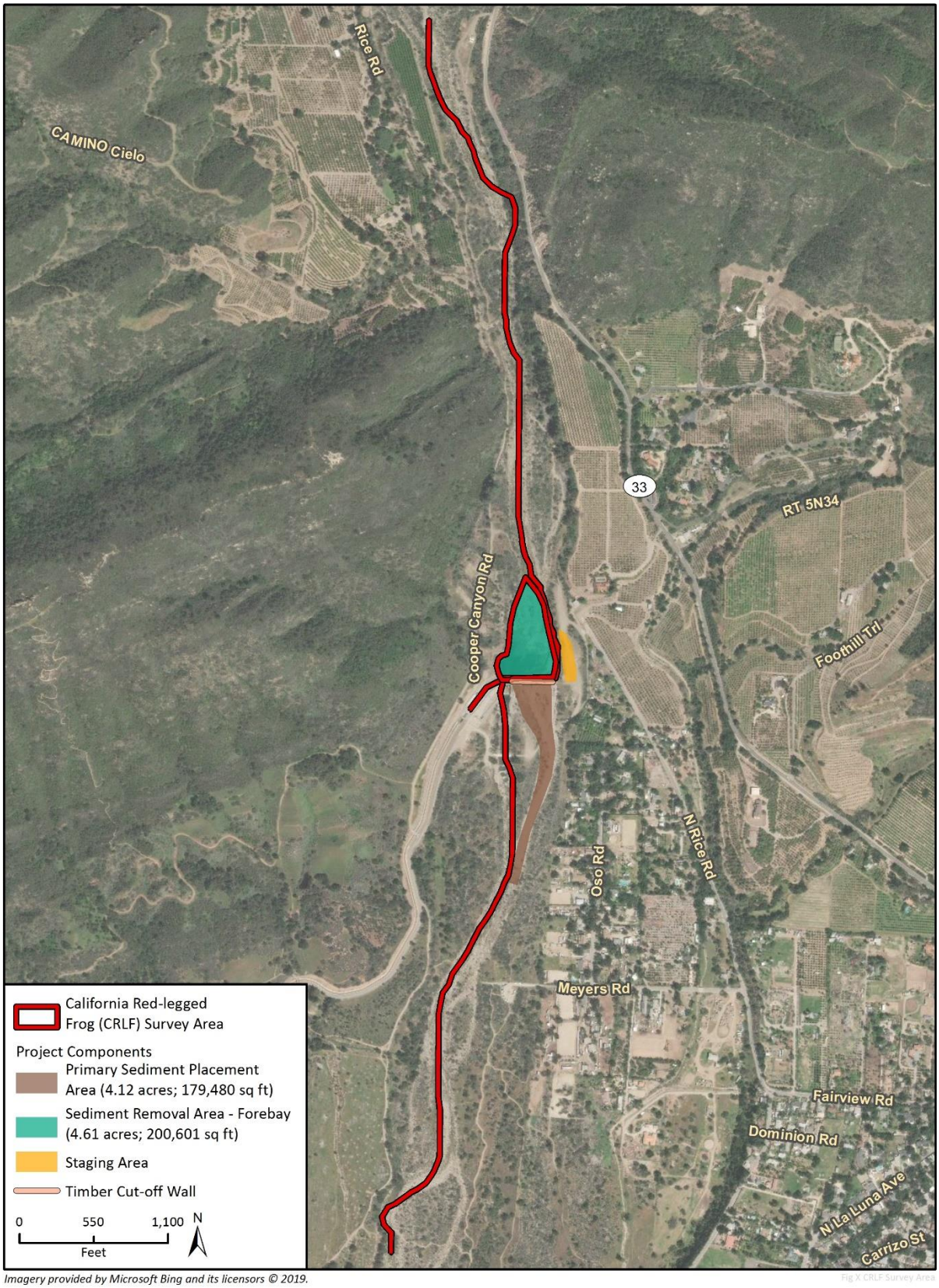
California red-legged frog surveys were required pursuant to the United States Fish and Wildlife Service (USFWS) Biological Opinion (SCC-432,2.2.1.06) and California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement (1600-2019-0145-R5) for the Robles Forebay Restoration Project. The 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

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 Baja California chorus frogs (*Hyla regilla* now *Pseudacris hypochondriaca*) 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 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 CRLF including raccoons, garter snakes, bass, sunfish, mosquito fish, herons, egrets, cats, foxes, coyotes, and most importantly, the introduced American bullfrog (*Lithobates catesbeianus*). Bullfrogs are considered one of the main threats to the persistence of CRLF and are one reason why the species are found more often in intermittent or seasonal aquatic habitat rather than in permanent waters. While CRLF 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.

2.1 CRLF Distribution and Habitat in the Robles Reach

The Robles reach surveyed by Rincon was formerly surveyed for CRLF presence in 2007 and 2018. The 2007 surveys described habitat in the reach between the California State Route 150 bridge and the Facility as non-suitable for CRLF. 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). One documented sighting of CRLF in the survey reach was during steelhead (*Oncorhynchus mykiss*) 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). In 2018 Catalyst (2018) surveyed the same reach of river as this 2019 survey in preparation for sediment cleanout activities in the diversion screenbay. Due to the similarity of this project, same survey biologist and report author, and close proximal timing to the 2018 surveys, the 2019 survey protocol is the same as the 2018 survey.

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).

2.3 Temperature Preference and Tolerance

Frogs are poikilothermic (cannot 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 CRLF frog behaviors, no empirical data are available on the topic (Rathbun 2012).

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.

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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.

Appendix B

Robles Diversion Fish Passage Facility Permits and Agreements (2003)

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
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☐ ☐ 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
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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.

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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

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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

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California Department of Fish and Game
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John Markham
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Regulatory Branch, Ventura Field Office
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Aaron Setran (WTR-8)
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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
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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.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

In reply refer to:
151422SWR02PR6168:FR

MAR 31 2003

ACT	INFO	
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Mr. Bill Luce
U.S. Bureau of Reclamation
South-Central California Area Office
1243 N Street
Fresno, California 93721-1813

Dear Mr. Luce:

Enclosed with this letter is the National Marine Fisheries Service's (NOAA Fisheries) Biological Opinion for the proposed Robles Diversion Fish Passage Facility project. The Biological Opinion addresses effects from the construction and operation of the diversion and Fish Passage Facility on endangered steelhead in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U. S. C. 1531 *et seq.*).

The Biological Opinion concludes the Bureau of Reclamation's (Reclamation) construction and operation of the Robles Diversion Fish Passage Facility are not likely to jeopardize the continued existence of the federally endangered Southern California Evolutionarily Significant Unit (ESU) of steelhead. NOAA Fisheries believes the proposed action may result in take of steelhead and therefore an Incidental Take Statement is attached to the Biological Opinion. The Incidental Take Statement includes Reasonable and Prudent Measures that are necessary and appropriate to minimize the incidental take of steelhead. Rick Rogers is the principal contact for this specific consultation. Please call him at (562) 980-4199 if you have a question concerning the Biological Opinion or if you would like additional information.

Sincerely,

for Rodney R. McInnis
Acting Regional Administrator

Enclosure

BIOLOGICAL OPINION

Agency: United States Bureau of Reclamation

Action: Authorization for the construction and future operation of the Robles Diversion Fish Passage Facility

Consultation Conducted by: National Marine Fisheries Service, Southwest Region

Date Issued: MAR. 31 2003

I. CONSULTATION HISTORY

Subsequent to the federal listing of southern California steelhead (*Oncorhynchus mykiss*) as endangered in 1997, and in response to a 60-day letter of intent-to-sue by California Trout, Inc., the Casitas Municipal Water District (Casitas) embarked on an effort in 1999 to provide fish passage at the Robles Diversion Facility, located on the Ventura River near the town of Ojai, Ventura County, California (CalTrout 1998; KMZ Rosenman 2002). In a letter dated March 8, 1999, the Bureau of Reclamation (Reclamation) requested initiation of informal consultation on the design and engineering of a future fish pass at the diversion site. National Marine Fisheries Service (NOAA Fisheries) engineers and biologists, as well as qualified personnel from other resource agencies and non-governmental organizations, participated within a Technical Advisory Group (TAG) over the course of the next two years, meeting on a regular basis to discuss and guide the design of the Fish Passage Facility. After the design of the proposed Fish Passage Facility was 90% complete, Reclamation submitted a preliminary draft Biological Assessment (BA) on December 15, 2000, to NOAA Fisheries.

Issues concerning future operation and downstream flow release below the diversion structure were not fully addressed during the TAG design meetings. Therefore, NOAA Fisheries commented on both the December 15, 2000, preliminary draft BA and subsequent September 14, 2001, draft BA requesting acceptable diversion operations ensuring successful upstream and downstream migration between the Ventura River estuary and the Robles facility be crafted and included within any future BA. A Final BA was submitted to NOAA Fisheries from Reclamation on November 20, 2001. However, the Final BA proposed diversion and Fish Passage Facility operations that were deemed insufficient to ensure successful upstream and downstream steelhead migration and/or maintain spawning and rearing habitat below the Robles Diversion Facility. Other key information was also not included within the BA, such as a description of the interrelated and interdependent facilities linked to the Robles Diversion Facility. These omissions were described in detail within a February 26, 2002, NOAA Fisheries comment letter to Reclamation. Included within the Final BA comment letter were recommended operating criteria and downstream releases deemed sufficient, based upon the best

available scientific and commercial information, to ensure successful steelhead migration through the lower river below the diversion, as well as between storm flows to sustain available spawning and rearing habitat within the lower river. Following several months of discussion between NOAA Fisheries and Reclamation/Casitas, suitable operating criteria were developed and agreed upon in February, 2003. A revised BA was submitted to NOAA Fisheries by Reclamation on February 24, 2003, along with a request for formal consultation (U.S. Bureau of Reclamation 2003). Further revisions to the proposed Cooperative Decision Making Process, Interim Operations, and Low Reservoir Storage Protection Measures were received by NOAA Fisheries from Reclamation by letter dated March 27, 2003. A complete administrative record of this consultation is on file at the NOAA Fisheries Southwest Regional Office in Long Beach, California.

II. DESCRIPTION OF THE PROPOSED ACTION

Reclamation proposes to authorize Casitas to modify the design and operation of the Robles Diversion to allow fish passage through the facility and maintain downstream steelhead habitat. Casitas intends to implement the following actions at the Robles Diversion Facility: 1) fish passage facility construction; 2) future operation of the diversion and Fish Passage Facility; 3) diversion and Fish Passage Facility maintenance; 4) interim diversion operations for the 2003 steelhead migration season; 5) implementation of a monitoring and evaluation program for the diversion and Fish Passage Facility; and 6) formation of a Cooperative Decision Making Process. Each of the six proposed actions noted above are described in greater detail below, followed by a summary of three interrelated and interdependent actions linked with the proposed action. In-channel construction activities will occur seasonally between June 1 and October 31, and are expected to last two summer seasons (2003 and 2004). The design and function of the proposed fish ladder is fully described within the BA (U.S. Bureau of Reclamation 2003).

The area affected by the proposed action includes the following sections of the Ventura River watershed outlined below (Figure 1). See Appendix A for photographs of representative stream sections.

- the 16 miles of mainstem Ventura River from the confluence of NF Matilija Creek and Matilija Creek to the Pacific Ocean;
- the 2 miles of Matilija Creek between its confluence with NF Matilija Creek and the Matilija Dam;
- the 4 miles of lower NF Matilija Creek below the Wheeler Gorge Campground crossing;
- the San Antonio Creek watershed (approximately 8 miles of habitat);

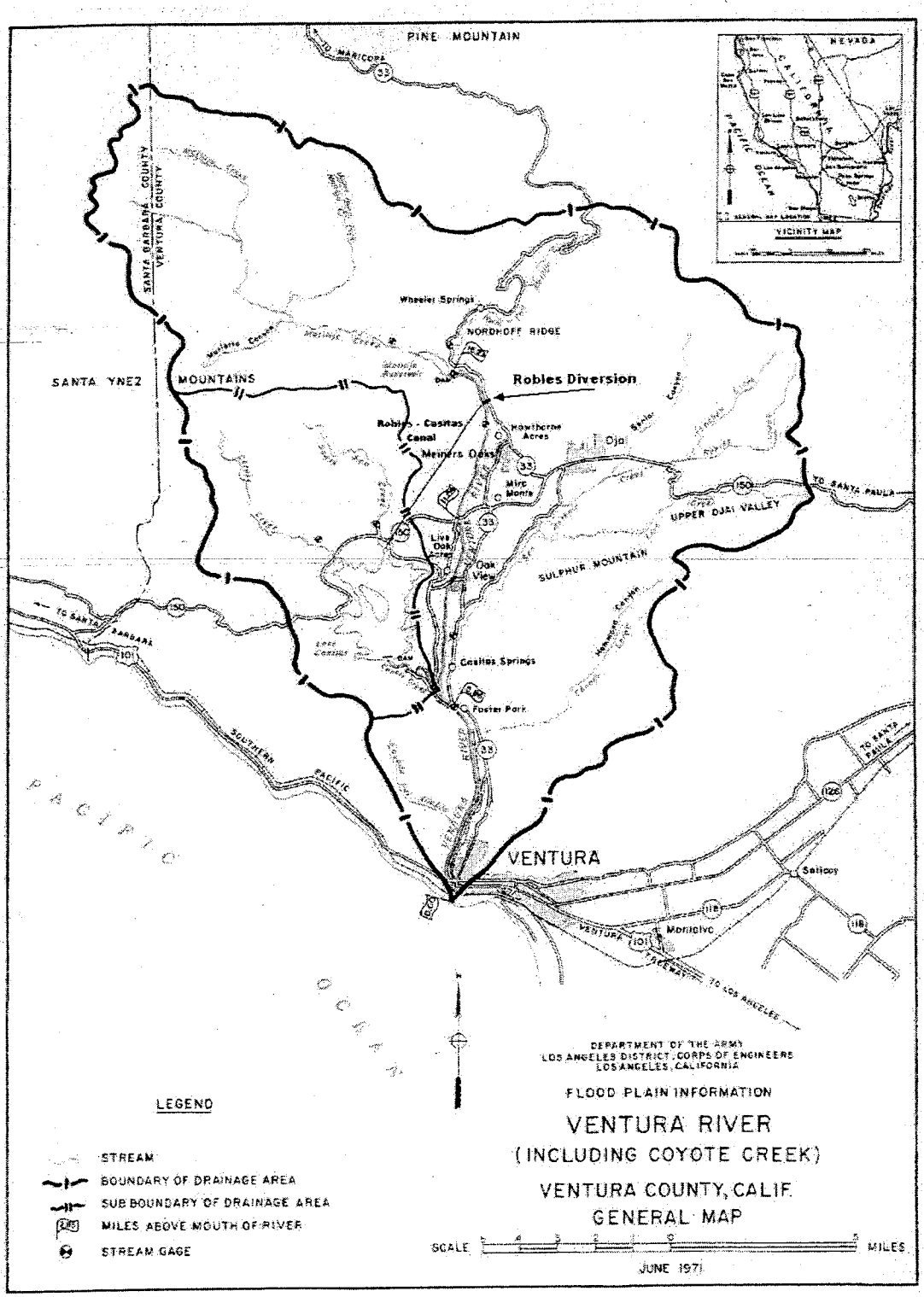

Figure 1. Ventura River Watershed

- the lower 3 miles of Coyote Creek below Casitas Dam and the 11 miles of inaccessible spawning and rearing habitat (7 miles in Coyote Creek and 4 miles in Santa Ana Creek) located above the dam.

1) Construction of the Fish Passage Facility

Earth movement 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 prevent leaks of fuels, lubricants or other fluids into the river and to ensure that exhaust is minimized. No hazardous materials will be stored on site. Refueling of heavy equipment and vehicles will occur only within a designated, paved area where potential spills can be readily contained. All equipment, while not in use, will be stored at two staging areas, one on each side of the river.

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. Some vegetation (grasses and scrub) exists on the staging areas and could be damaged or destroyed by staging activities. It is anticipated that the natural recovery process will lead to a rapid re-colonization of this area after the end of construction activities. Limited riparian vegetation also exists along the banks of the channel which will likely be damaged or destroyed during installation of the low-head weirs and construction of features on the channel banks. 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 willows (*Salix* spp.), mulefat (*Baccharis salicifolia*), sycamore (*Platanus racemosa*) or cottonwood (*Populus fremonti*). Revegetated areas will be monitored for five years.

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 construction project will be spoiled on-site, at the existing spoil area located on the west bank approximately 500 feet upstream from the Robles Diversion Facility. This spoil area 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 local construction contractors at a later time for construction of roads and/or slope and embankment maintenance, and will not affect the capacity of the existing spoil area.

Work within or adjacent to the waterway includes the fish exit structure on the west bank approximately 200 feet upstream of the existing spillway structure, the low-flow fish exit in the forebay, excavation for construction of the fish ladder entrance on the west 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.

In-channel work will occur during the low flow season, typically June 1st through October 31st. It is anticipated that work within the forebay or spillway channel, downstream of the existing spillway structure, will be performed during periods of no flow, when no steelhead are present. This would also ensure that water quality is not adversely impacted and that erosion is minimized. The start date of construction and the likelihood that the channel will be dry when construction starts will depend on the runoff this winter. As in-channel construction is estimated to take four months, construction should begin during July, if possible, to allow for completion during the low-flow season which ends in November. If drier conditions occur next year, construction may begin as early as June.

Should water continue to flow when in-channel work commences, then the following provisions will be implemented. Reclamation, Casitas and their contractor would first consider potentially delaying the start date for the in-channel work. Casitas would discuss this option with NOAA Fisheries and CDFG to determine if this is an appropriate action to minimize or avoid potential adverse effects on steelhead. If postponement is not an option, then the measures described below will be executed to minimize potential steelhead take.

If the contractor cannot avoid construction when surface flow is present below the diversion, a temporary diversion structure would be installed upstream of the work site prior to initiation of construction activities in the river channel. A coffer dam would be installed using native materials that accumulate in the diversion forebay and would require heavy equipment to construct. The isolation area would extend from just upstream of the high-flow fish exit downstream approximately 1,000 feet. The Casitas fisheries biologist and the construction contractor would determine the specific site. The height of the coffer dam would 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 would 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 would be minimized to the maximum extent practicable while still maintaining functionality.

Prior to passing water around the in-channel construction zone, the Casitas fisheries biologist would make observations to determine if there are any fish inhabiting the river channel. CDFG and NOAA Fisheries staff would be invited to participate in this survey process. If steelhead are observed, then a fish rescue would be initiated. The Casitas fisheries biologist would contact Reclamation, NOAA Fisheries and CDFG to notify them of the need to initiate a fish rescue. The protocol for the fish rescue would be developed by Reclamation and Casitas and approved by NOAA Fisheries and CDFG prior to implementation. NOAA Fisheries and CDFG staff would be invited to participate in the fish rescue operations. 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. After this effort, the reach would be fished using 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 NOAA Fisheries and CDFG biologists.

After the fish rescue, water would be routed around the in-channel construction zone. The Casitas fisheries biologist would be onsite when the re-routing is initiated to continually survey the reach for any steelhead that may have been missed during the rescue activities. Any steelhead sighted would be rescued and transferred to perennial habitat. Casitas would prepare a report summarizing the results of the fish rescue operation including the number of fish rescued, the location of their release, and any mortalities that occurred.

A storm water pollution and prevention plan will be prepared and implemented for construction activities. In addition, 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 biological contact if suspected sensitive species are located. This plan would provide specific measures that would minimize potential sediment erosion into the channel and may include installation of silt fences, hay bales, straw roles and other methods. Prior to restoring flow in the work reach, all debris that has been deposited in the in-channel construction zone during construction would be removed. After all in-channel construction activities are completed, the temporary diversion dam would be removed.

Fish Passage Facility construction is anticipated to take 2 years to complete. Due to funding and timing constraints, the downstream weirs may not be constructed along with the rest of the project if construction begins in summer, 2003. If ladder construction does begin in summer 2003, then downstream weir construction would likely take place the following summer, assuming funding is available.

2) Future Diversion and Fish Passage Facility Operation

Fish passage augmentation parameters

Described below are the fish passage augmentation operations proposed by Reclamation for implementation upon the completed construction of the Fish Passage Facility. The operations described in this section will be revisited at a time not sooner than five years after the initiation of fish passage operations.

Fish passage augmentation season: The fish passage augmentation season will be January 1 through June 30 each year. Operations outside the fish passage augmentation season will revert back to the historic Trial Operating Criteria (Casitas Municipal Water District, 1959), meaning flows up to 20 cfs are generally released downstream.[1] To ensure that migrating fish are in the

[1] According to the water rights permit/license issued by the State Water Resources Control Board (SWRCB) to the Casitas, the sole purpose of the current "Trial Operation Criteria for Robles-Casitas Diversion Facilities" is to "prevent the unreasonable interference with the prior rights to the use of underground water." The by-pass flows were not intended to, nor do they have the effect of, facilitating migration through or protecting historic spawning and rearing habitat in the lower river. NOAA Fisheries previously addressed this issue in a February

system and benefitting from the increased flow, the fish passage augmentation season will commence after the sand bar has breached at least once during the current year's fish flow operations season.

Definition of a storm event: Storm events during the months of January through June are considered potential migration events if the resulting peak discharge rate (a) exceeds 149 cfs as measured at the Robles Diversion, and (b) results in at least double the flow of any of the three days preceding the storm peak. Storm events satisfying the above storm event definition will augment stream flows as described below.

Minimum fish migration flow: The *minimum* flow rate providing successful steelhead migration through the lower river is 50 cfs. Therefore, downstream released flows at the diversion must be maintained at or above 50 cfs during the first 10 days of each migratory storm event (i.e., storms generating flows 150 cfs or greater, as measured at the Robles Diversion). If the natural inflow at the diversion drops below 50 cfs during the first 10 days, then downstream flows will be ramped down as on Day 11 and 12 of Table 1 in order to smoothly close the migration window.

Between storm flow: During the fish passage augmentation season, downstream flow releases between storm events will be maintained at 30 cfs as long as incoming flows at the diversion are greater than 30 cfs. The 30 cfs flow between storm events will commence following the initial storm event of the migration season.

Fish passage augmentation flow release scenario: Following each storm event which generates a peak flow greater than 150 cfs (measured at the diversion), downstream release flows will be maintained over a 12-day window according to the ramp down schedule outlined in Table 1. Downstream flows during a storm migration window must be maintained at or above 50 cfs for the first 10 days of the 12-day period. The flow rates on Days 11 and 12 (40 and 30 cfs, respectively) will ramp down to the between storm flow of 30 cfs to smoothly close the migration window.

2002 letter to Reclamation (see NMFS 2002a).

Table 1. Ramp-down Flows for Initial Storm Events

Day After Peak	Downstream Release (cfs)	Inflows to Determine the Initial Downstream Release to Start Ramp-Down
1	171	334 to < 671
2	100	274 to < 334
3	82	247 to < 274
4	74	227 to < 247
5	68	207 to < 227
6	62	187 to < 207
7	56	167 to < 187
8	56	NA
9	50	50 to < 167
10	50	NA
11	40	NA
12	30	NA

The required downstream flow release on the first day of flow augmentation will be determined from Table 1. For example, a storm event with a peak flow of 1500 cfs, followed by 800 cfs and 300 cfs on Day 1 and 2 following the peak would be treated as follows: The first *potential* augmentation day would be Day 1 (i.e., the first day following the peak day of the storm) with a flow of 800 cfs. However, since the 300 cfs naturally spilling downstream (800 cfs minus the 500 cfs maximum diversion volume) is greater than the maximum potential Day 1 augmentation of 171 cfs, no augmentation is needed for this day. Examining the second day following the peak, the 300 cfs inflow fits within the Table 1 inflow range so augmentation releases for this hypothetical storm would start on the second day following the storm peak at 100 cfs and continue regressing downward according to Table 1. Days 11 and 12 flows will be 40 cfs and 30 cfs, respectively, to close out the migration event and ramp down flows to the between storm flow of 30 cfs[2]. Note that additional days at 50 cfs may need to be added at the back-end of the recession curve to ensure that minimum fish migration flows are maintained for 10 days following a storm peak (in the example above, one extra day of 50 cfs would be added). If natural inflow drops below 50 cfs during the initial 10 days of the migration window, then downstream flows will be ramped down to 30 cfs to smoothly close the shortened migration window.

[2] The Day 11 flow will be either 40 cfs or the midpoint between the day 10 flow and 30 cfs. Ramping down in this manner allows for a smoother tailing off of the migration window should Day 10 flows be appreciably higher than 50 cfs.

Operations for Back-to-Back Storm Events: Back-to-back storms are a series of storms closely spaced in time. For the purpose of this Biological Opinion, a back-to-back storm event arises when a second storm peak occurs between Day 6 and Day 12 of an initial storm event. Also, to be recognized as a back-to-back storm event, peak flows resulting from the second or any subsequent storm event must be greater than 149 cfs and at least double the largest flow measurement from the previous three days. When a back-to-back storm event occurs between Day 6 and Day 12 of the initial storm event, the ramp down schedule outlined in Table 2 will be used in the same manner as the original flow release scenario. Flows at or above 50 cfs will again be maintained throughout the first 8 days following the peak of the second storm, assuming inflow into the diversion is at or above 50 cfs. If inflows drop below 50 cfs prior to completion of the end of the second 8 day window, then flows can be ramped down as on Days 9 and 10 in order to close the migration window.

Table 2. Ramp-down Flows for Overlapping Storm Events

Day After Peak	Downstream Release (cfs)	Inflows to Determine the Initial Downstream Release to Start Ramp-Down
1	100	247 to < 600
2	74	204 to < 247
3	61	181 to < 204
4	54	150 to < 181
5	50	NA
6	50	NA
7	50	NA
8	50	NA
9	40	NA
10	30	NA

Consult the BA (U.S. Bureau of Reclamation 2003) for a more detailed explanation of the proposed fish augmentation protocol, complete with numerous flow rampdown tables to guide diversion operations.

Flow Routing Through the Robles Facility

Inflows into the Robles Diversion forebay are not constant and therefore operations will change as inflows change over the course of a storm event. The following sections present a description of the magnitude and pathways for flow during facility operations over a range of inflows.

Diversion Operations Within the Fish Flow Operations Season

To commence diversion operations, the radial gates are closed to begin ponding water. During smaller storm events, the gates will typically be closed to begin diversion operations as soon as inflow is greater than the minimum post-storm flow. During larger storm events, which may carry a larger debris load, the diversion and Fish Passage Facility may remain closed to protect the facilities until the majority of the debris has passed through.

Six new structures have been designed to facilitate fish passage: the high-flow fish exit structure, a fish screen, fishway and fish bypass channel, fish guidance device, an auxiliary water supply pipeline, and a low-flow fish exit. At the beginning of diversion activities, the low-flow fish exit will be closed to allow the forebay to fill to elevation 764.5 feet above mean sea level. Once the forebay has reached the necessary elevation, the headworks of the diversion structure will be opened. At inflow ranges of 10 to 671 cfs, fish will move up- and downstream through the diversion structures via the fishway, fish bypass channel and the diversion headworks gate. The fishway is designed to meet established fish passage criteria at flows of 20 cfs. Passage may be possible at lower flows.

The fish screen is designed to direct the downstream migrants and up to 50 cfs of flow into the fish bypass channel, which conducts water to the fishway and into the Ventura River. Downstream releases above 50 cfs will first be routed through the auxiliary water supply pipeline up to a total release of 121 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. Water not released downstream for fish will be diverted to Lake Casitas up to the canal capacity of 500 cfs. Diverted water will pass through the fish screen, the water level flow control gate, and into the Robles-Casitas canal. Thus, the Robles Diversion and Fish Passage Facility would operate at flows up to 671 cfs without opening the radial gates (50 cfs through the fishway, 121 cfs through the auxiliary pipeline, and 500 cfs diverted to Lake Casitas).

The radial gates will be opened when the system capacity is exceeded (i.e. flow greater than 671 cfs). At flows above the system capacity, the radial gates must be opened to release the excess flow directly downstream. Prior to opening the radial gates, the high-flow exit channel will be opened, and the fish guidance device will be activated to direct up-migrants to the high-flow exit. This will provide a more suitable upstream migration route for adult steelhead and minimize fall-back downstream over the spillway. Downstream migrants may move downstream through the high flow fish exit, by entering the diversion headworks, or by going over the spillway. The fish guidance device is designed to allow downstream migrants, both adult and juvenile, to negotiate around the end and into the fish bypass channel. Flow will enter the high flow fish exit through the upstream end located about 200 feet upstream of the spillway in the forebay. This exit channel has been designed to operate at flow rates of 30 to 50 cfs. When the radial gates are open and water is passing under them, the high flow fish exit structure and the fish guidance device will be functional unless the facilities are likely to be damaged.

Once the radial gates are open, inflows into the Robles facility may continue to increase during peak storm runoff periods. The capacity of the Robles Diversion Dam spillway is 7,000 cfs. Therefore, the maximum theoretical capacity of the facility, before water overtops the earthen dam, is 7,650cfs. If flows continue to increase, then the earthen dam will be overtopped and flow will move downstream into the overflow channel which returns shortly to the main Ventura River.

Diversion Operations Outside the Fish Flow Operations Season

Diversion operations can also occur during July through December, which is outside the fish flow operations season. During this time, operations are governed by the Trial Operating Criteria (Casitas 1954) and downstream release requirements are typically 20 cfs or lower. No releases designed to augment steelhead passage or maintain downstream habitat will occur during the July through December period. Any downstream release required under the Trial Operating Criteria will flow downstream past the fish screen and into the fishway. Any additional inflow, once Trial Operating Criteria releases are met and diversions are taken (up to 500 cfs), will also be bypassed downstream. Under this latter scenario, the fish passage structures will be engaged, as necessary, to route any excess flow downstream.

Under these conditions, the radial gates will be lowered to pond water in anticipation of diversion activities. The downstream release requirements, established by the Trial Operating Criteria, will be met through water channeled into the diversion headworks, fish bypass channel, fishway, and ultimately to the Ventura River downstream of the dam. This will provide a pathway for any fish that are present to move past the diversion dam. Diverted water will continue to be screened prior to entering the diversion canal for transport to Lake Casitas. As inflow increases beyond approximately 520 cfs (20 cfs for Trial Operating Criteria and 500 cfs for diversion), additional inflow will be routed through the fishway. As inflow increases beyond approximately 550 cfs (500 cfs diversion, 50 cfs fishway), the auxiliary supply line will be operated to carry up to 121 cfs downstream. Once the diversion, the fishway, and the auxiliary supply line capacities have been exhausted, then the radial gates will be opened, as necessary, to accommodate additional inflow. Both the high flow fish exit and the fish guidance device will be activated once the radial gate is open.

Non-Diversion Operations

There are three conditions under which diversion operations may be terminated: (1) too little flow in the river to allow diversion operations, (2) sufficient flow levels for diversion operations but the diversion is not needed to achieve full pool at Lake Casitas (i.e., there is no available storage in Lake Casitas), and (3) unforeseen or emergency conditions.

During diversion operations, the radial gates are lowered to create a forebay pool. In order to avoid trapping steelhead in the forebay pool after diversions have ended, a low-flow fish exit pathway will be installed in the forebay just downstream of the diversion headworks structure. The low flow fish exit can be used to drain the forebay or to provide an exit for fish under, as the

name suggests, low flow conditions. The use of the low flow fish exit will be based on flow conditions within the watershed, predictions of near-term precipitation, and anticipated diversions. If it is likely that diversions will commence again within the near-term, then the forebay pool will be maintained, while inflow is released downstream through the low flow fish exit. If diversions have ended for the season or for a substantial period of time, then the forebay pool will be drained through releases through the low flow fish exit. The low flow fish exit will remain open until inflow levels increase enough so that diversions can commence. The low-flow fish exit channel will empty into the diversion flume downstream of the diversion headworks. Fish and downstream flow will be channeled into the fish bypass channel and fishway. Thus, under low flow, non-diversion conditions, all inflows to the forebay will be passed around the Robles Dam and into the Ventura River downstream.

During the majority of the year, lower flow conditions persist and the type of operation described above will be in effect. However, in addition to releasing these lower inflows, water is not diverted during every storm event. As mentioned above, when there is no storage available in Lake Casitas, diversion operations cease. Under higher flow conditions without diversions, the water level control gate at the head of the diversion canal can be closed while the diversion headworks gates will remain open, allowing the Fish Passage Facility to continue to operate without diversions occurring. Whenever these conditions are present, the diversion headworks gate(s) will be open to allow up to 50 cfs to move down the fishway thus providing a pathway for fish around Robles Dam. Up to 121 cfs would then be released downstream through the auxiliary water supply pipeline (the low-flow fish exit will be closed). If inflows are greater than 171 cfs, the remaining inflow will be passed downstream through the opened radial gates. If the radial gates are opened and water is moving downstream through them, then the high flow fish exit will also be opened and the fish guidance device activated. At least 30 to 50 cfs will move down the high flow fish exit so that it operates properly under these conditions. Thus, even under these higher flow, but non-diversion conditions, the Fish Passage Facility will remain operational to provide passage opportunities.

Critical Drought Protection Measures

Reservoir protection measures have been developed to ensure that fish operations at the Robles facility "minimize" effects on Lake Casitas water storage during a critical long-term drought period (i.e., a drought period in which Casitas implements conservation measures as defined within their Water Efficiency and Allocation Program [WEAP])[3]. The measures are designed to prevent storage from dropping below a critical level (17,000 AF) and facilitate the re-filling of the reservoir should it drop to a level where increased water charges and reduced allocations are imposed upon Casitas water customers. The measures include:

[3] The Casitas Water Efficiency and Allocation Program was adopted by the Casitas Board of Directors on January 9, 1992 (Ordinance 92-1). The purpose of the plan is to "establish, through a staged process, Casitas' customer allocation program and associated rate schedules which will result in a balance between supplies and demand through an equitable distribution of the existing supplies". The second and fifth stages of the program serve as triggers for the Critical Drought Protection Measures outlined above.

1) On an annual basis, Casitas will summarize all water diversions from Robles, water releases downstream of Robles, water deliveries to the conveyance system, Lake Casitas storage, and water allocations to customers. Based on this information, Casitas will determine what actions precipitated the reservoir draw down. All of this information would be presented to the Management and Biology committees.

2) If Lake Casitas reaches a water storage volume of approximately 127,000 AF, and in the event that Casitas implements Stage 2 of the WEAP, Casitas would evaluate the effectiveness of the conservation measures on an annual basis. This information would be presented to the Management and Biology committees.

In preparation for the need to implement fish flow operations reductions, the Biology Committee would begin meeting to investigate how fish flow operations may be modified to address anticipated reduction needs once Casitas implements Stage 2 of the WEAP. This would allow for implementation of modified fish flow operations targeted at achieving release reductions upon approval by Reclamation once the reservoir reached 100,000 AF.

3) If Lake Casitas reaches a water storage volume of 100,000 AF, the Management Committee would review the analysis and recommendations provided by the Biology Committee, which would include an analysis of drought specific data and a discussion of temporary options to protect the Ventura River Project water supply. After considering input from the Management Committee, Reclamation would then advise or direct Casitas to implement any changes or other actions. Any flow reduction resulting from modification to the fish flow operations would be based upon an equitable sharing of the temporary reduction in water allocations to customers, as identified in an assessment by Reclamation and Casitas of the WEAP.

4) If Lake Casitas reaches a water storage volume, which triggers implementation of Stage 5 of the WEAP (65,000 AF of water storage), the Biology Committee would again prepare a recommendation for a temporary reduction to the volume of water provided for fish flow operations for review by the Management Committee. The Biology Committee would again be tasked with recommending to the Management Committee how the fish flow operations should be temporarily revised to achieve the necessary reduction in fish flow releases. After considering input from the Management Committee, Reclamation would then advise or direct Casitas to implement any changes or other actions. Any flow reduction resulting from modification to the fish flow operations would be based upon an equitable sharing of the temporary reduction in water allocations to customers, as identified in an assessment by Reclamation and Casitas of the WEAP.

If Lake Casitas reaches a water storage volume of 17,000 AF, all fish flow operations would cease until the reservoir refills to 65,000 AF. Once the lake refills to above 65,000 AF, the temporary fish flow operations suspension would be terminated, and fish flow operations would revert to the operations previously established for lake levels between 100,000 and 65,000 AF.

When the lake refills above 100,000 AF, any temporary fish flow reductions would be terminated, and full fish flows would be re-initiated based upon the proposed Fish Passage Facility Operations outlined above.

3) Diversion and Fish Passage Facility Maintenance

A number of maintenance operations are conducted on the facilities at the Robles Diversion Dam to ensure that it functions properly. The addition of the Fish Passage Facility will increase the maintenance requirements. Anticipated types and levels of maintenance are described below.

A shallow channel is often created at the Robles Diversion 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. In addition, excess sediment that accumulates along the upstream face of the earthen dam is periodically removed. This effort occurs approximately every three years but varies depending on stormflow and sediment load. The creation of the shallow channel and removal of excess sediment is accomplished by heavy equipment when the channel is dry. When flows are sufficiently high to overtop the cut-off wall, erosion of the 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. Any remaining sediment from the maintenance operations will then be deposited at an on-site spoil area located completely outside the high-flow channel and separated from the river channel by a raised berm. Sediment stored at the spoil area is later used by Casitas for road and other maintenance activities and by construction contractors for offsite construction projects through an agreement with Casitas.

In addition to maintaining the volume of the forebay for effective diversion and fish ladder operations, the earthen dam, sides of the forebay basin, road, road embankments, trash rack, and spillway abutments also require periodic maintenance. Maintenance involves using heavy equipment to shore up locations that have been eroded by heavy storms and involves the placement of sediment and rock by heavy equipment. This type of effort is conducted on an as-needed basis during dry conditions. Typically this maintenance work occurs after wet years when large storms have passed through the facility and may have caused some erosion of the earth dam and forebay wall when large spill events occurred.

Timber Cutoff Wall Restoration and Repairs

The timber wall is an original feature of the Robles Diversion Dam that traverses the Ventura River from the diversion gates structure to the east embankment of the river. The timber wall is lined with impervious compacted backfill and protected by a surface rock layer. The timber wall has been damaged in the past by extremely high river flows and will occasionally need maintenance repairs to exposed timber and protective rock surface.

The maintenance of the timber wall is generally performed on an as-needed basis during the summer or fall months, or during restoration of the Robles Diversion basin. The work usually

includes the replacement of surface exposed timbers and replacement of rock rip-rap where washed out, and the downstream channel surface restored to desired slope.

As noted above, the timber wall has been severely damaged by extremely heavy river flows (e.g., 1969 event). This type of damage can be expected in the future with similar storm events. The recovery of the timber wall may require the natural recession of stream flows in order to access and reconstruct the timber wall. The reconstruction may require the excavation of the timber wall to the foundation elevation, replacement of timbers in the damaged section, straightening of the wall, placement and re-compaction of the impervious backfill and replacement of the protective rock layer. If work must occur in a flowing channel in order to restore the timber cut-off wall, and thereby make the Robles facilities functional again, best management practices would be applied to control water entering the work site and limit turbidity leaving the work site. Equipment that may be used includes an excavator, dozer(s), dump trucks, and backhoe(s). The probable duration of the work is dependent on the extent of damage and the required remedy. The restoration work could last as long as ninety days.

Fish Passage Facility Debris Removal

During the fish flow operations season, January through June, the Robles Diversion Facility will be monitored for large debris by on-site staff. The high-flow fish exit entrance will be fitted with a sloped trash rack. The diversion headworks already has a sloped trash rack that will remain in place. In addition, upstream of the diversion headworks in the forebay there is a wooden debris fence. The racks and fence will collect large woody debris and allow the debris to be removed. The low-flow fish exit is not fitted with a trash rack and it will need to be monitored when in use and cleared if necessary. The low flow fish exit is downstream of the existing debris fence.

Because of the trash racks/debris fence, it is not anticipated that large debris will be a problem for diversion and fish passage facility maintenance. However, these facilities have been designed to provide easy access for any needed maintenance activities. The fish guidance device will be removable for maintenance. Any accumulated debris will be removed using a rake by personnel standing on the walkway above. The fish screens will be frequently swept clean by automated brushes. The fishway will be monitored regularly for debris and sediment accumulation. Small debris will be removed by hand via the access grate above the fishway. The facilities have been designed to minimize the potential for damage and for easy maintenance. It is anticipated that the facility can operate throughout a single fish passage season without the need for any extensive repairs or maintenance. Depending on flow conditions, sediment may need to be removed mechanically from the fishway. Whenever possible, extensive maintenance or repairs will be performed during the dry season when the fishway is not in operation. The potential still exists, however, for substantial damage to result from debris accumulation. Should this happen during the fish flow operations season, the portion of the facilities requiring repair or maintenance will be 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.

Streambed Structures Maintenance

The spillway baffle apron, the low-head stone weirs and the low-flow road crossing will be periodically monitored during and following large storm events. Maintenance should be minimal and limited to debris removal, and will occur only during dry conditions when the channel is dewatered. Inspections will be conducted early in the service life of the system and on an ongoing basis following significant flood events. The inspections will examine the weirs for undercutting or flanking around the weirs and will evaluate the steps for repair, as necessary. To the extent possible large and medium sized woody debris will be removed by hand however heavy equipment may be required. The cut into the bank at the low-flow road crossing must also be periodically maintained.

Radial Gate Maintenance

The radial gates are painted periodically to prevent deterioration (rusting). Painting is anticipated to occur approximately once every three years. This effort will occur when the spillway area is dry. Care is taken during this maintenance work to minimize deposition of debris (i.e. paint chips) and other materials into the Ventura River.

Low-Flow Road Crossing

An existing low-flow concrete measuring weir, that doubles as a road crossing, will be removed and replaced with the low-head stone weirs. Road crossing will continue to occur at this site during low-flow conditions to access the Robles facility for maintenance and operations. This crossing will typically be used by light trucks and passenger vehicles at flows under 15 cfs. In the past, vehicle crossings have occurred, on average, one time per day. However, the maintenance and monitoring requirements of the new Fish Passage Facility are uncertain and therefore substantially more crossings may be required during these periods.

4) <u>Interim diversion operations prior to project completion</u>

On March 27, 2003, NOAA Fisheries received a letter from Reclamation amending their proposed interim operations for the Robles Fish Passage Facility project. Per the March 27, 2003 letter, Reclamation will provide 50 cfs, if available, during the ten days following a storm peak at the Robles Diversion Dam, followed by a two day ramp-down to a between storm release of 30 cfs, if available. The definition of a storm peak is the same as that outlined in the "Future Diversion and Fish Passage Facility Operations" detailed earlier in the proposed action. These operations would likewise occur from January 1st through June 30th. The post-storm downstream release requirement will commence after the first storm peak within the January 1st through June 30th time-frame; prior to this first storm peak, the downstream release requirement will be 20 cfs.

During interim operations, when downstream flows drop below 50 cfs and transition to the between storm flow of 30 cfs, Reclamation will conduct field surveys to determine if steelhead

are stranded or may become stranded below in the Robles Reach below the diversion. If steelhead are observed, Reclamation will contact both NOAA Fisheries and CDFG to determine if relocation is necessary. If relocation is necessary, NOAA Fisheries and CDFG will assist Reclamation in establishing and carrying out the fish rescue operations.

5) Monitoring and research of the diversion and Fish Passage Facility

Modifications to the Robles Diversion Facility and associated operating criteria have been targeted at improving fish passage conditions within the Robles Reach of the Ventura River while maintaining suitable conditions through the Fish Passage Facility. Therefore, the proposed evaluation and monitoring activities have been developed to achieve the following objectives:

I. Monitor Fish Passage Facility operations and performance
II. Determine if the Fish Passage Facility functions and operates in such a fashion that migrating steelhead:
    a. Successfully navigate into and through the facility, and
    b. Move through the facility in good physical condition.
III. Determine if the operations at the Robles Diversion are enhancing the opportunity for:
    a. Adult steelhead to migrate upstream to the Robles facility, and
    b. Smolts and kelts to migrate downstream through the Robles Reach.

Initial (5-Year) Operating Period Evaluations

Initiation of the proposed evaluation activities would occur in 2004 and would continue until 5 years after construction was completed. The evaluation activities would be implemented concurrently with the proposed Cooperative Decision Making Process. The Biological and Management Committees will recommend to Casitas the date upon which research and monitoring is deemed complete. Evaluations outlined below include both assessments of physical conditions in the Ventura River and evaluation of biological response. It must be noted that the latter are subject to fish being present within the system which, given the small population size for this watershed, may affect the success of these efforts. Depending on the results of the initial evaluations, evaluation protocols, strategies for obtaining the information, or other approaches may be necessary.

Within the 5-year period, on a year-to-year basis, all relevant data gathered during the previous year would be reviewed, evaluated, and ultimately recommended to continue or discontinue through the Cooperative Decision Making Process. In the event all of the evaluations could not be completed within the five year time frame, Reclamation would make a recommendation on whether or not the information is critical to establishing long-term fish flow operating criteria, establish a defined process for obtaining any required information, and implement the process in subsequent years.

Upstream Fish Migration Impediment Evaluation (Physical Evaluation)

River conditions, during the upstream fish migration season, would be evaluated for up to a five-year period to assess factors that may impede the ability of fish to migrate to the Robles Diversion and Fish Passage Facility. The first year of evaluation would be initiated in 2003 to provide some of information on upstream fish migration conditions prior to initiation of the Robles Fish Passage Facility operational criteria. The ability of fish to migrate upstream can be reduced at low river flows and therefore these conditions would be the focus of this evaluation. However, observations would be made at a range of flow conditions.

All locations that are potential impediments to upstream fish migration would be identified and monitored closely during the fish migration season to better understand fish passage limitations at these sites. Information collected at these sites would include levels of flow, velocity, depth, and width of the passage channel. Additionally, observations would be made of other factors that influence upstream fish migration such as instream or riparian cover, and resting/holding areas. Flow information at these transects would be collected at a range of watershed conditions and Robles bypass flows to better understand the relationship between releases at the Robles facility and flows in the downstream river.

A number of potential low-flow passage impediments have already been identified (ENTRIX 1999) and these sites would be re-visited to determine their current status. The assessment of upstream fish migration impediments under the proposed operating criteria would focus on the Robles Reach. Conditions in this reach have the greatest potential for low flows to impede upstream fish passage. It should be noted that results of this evaluation could be influenced by the ability of the investigator to access study locations. The results of this monitoring component would be provided to NOAA Fisheries and CDFG on an annual basis.

Observations would also be made of the sand bar at the mouth of the Ventura River to determine the timing and frequency of sand bar breaching during the current fish flow operations season. This information would be collected to determine if the criteria established for initiation of the fish flow operations has been met. These observations, or a similar indicator of the status of the sand bar, would be ongoing to provide information on the initiation of the fish flow operational criteria.

Evaluate Fish Movement Through The Passage Facility

Water Velocity and Depth Validation Evaluation (Physical Evaluation)

Water velocities and depths would be monitored inside the fish passage facility for a one to two-year period. The purpose of this program component is to determine if conditions throughout the fish passage facility are suitable for upstream migration of adult steelhead and downstream migration of smolts and kelts. It is anticipated that this program would include monitoring flow

velocities and depths throughout the structure at a variety of flow levels. The results of this monitoring component would be reported to NOAA Fisheries and CDFG on an annual basis.

Fish Attraction Evaluation (Biological Evaluation)

Snorkel surveys and/or bank surveys would be conducted in the area immediately downstream of the diversion dam. It is anticipated that this component may need from one to five years to evaluate an appropriate range of flow patterns. If adequate flows occur, it is possible that all of the required information could be collected within one year. The purpose of these surveys is to determine if migrants are holding immediately downstream of the Robles Dam during the period of time that downstream releases are provided to enhance fish migration. It is anticipated that upstream migrants would be attracted into the fishway. The proposed snorkel/bank surveys in the area in question would allow for confirmation of this assumption. Similarly, there is a possibility that some downstream migrants may congregate in this area towards the end of the out-migration season when flows are declining. Snorkel/bank surveys of this reach would determine if this is a problem. The results of this monitoring component would be provided to NOAA Fisheries and CDFG on an annual basis.

Downstream Fish Passage Evaluation (Biological Evaluation)

The number of downstream migrants passing through the Robles Fish Passage Facility would be evaluated for a two to five-year period depending upon discharge patterns. A trap would be placed in the area immediately downstream from the fish passage facility. The purpose of the trap would be two-fold. First, the trapping activity could assess if downstream migrants are successfully navigating through the facility. Second, smolts and kelts captured at this trap could be examined to determine if there are any abrasions or other indications that these fish are being hurt during passage through the facilities. The results of this monitoring component would be provided to NOAA Fisheries and CDFG on an annual basis.

As noted above, additional discussions are necessary to work out the details of the migrant-trapping program. Migrant trapping has several potential drawbacks that must be addressed to fully understand the data that would result from the trapping program and to therefore, understand how to utilize the results of the monitoring program to assess operational performance and potentially propose operational changes to the Robles facility. Points to address in the final protocols for this component of the monitoring program include: a) capture methodology; b) capture efficiency and related stress on fish due to warm water conditions, predators, etc.; c) analysis of data (i.e., sampling size for statistical analysis); and d) number and source of fish to evaluate.

Evaluate Downstream Fish Migration Through the Robles Reach (Biological Evaluation)

The number of downstream migrants passing through the Robles Reach would be evaluated annually for a two to five-year period. A trap would be placed at a location in the lower end of

the Robles Reach. The purpose of this trap would be to develop an understanding of the number of fish that are successfully migrating through the reach. A comparison of the number of downstream migrants captured immediately below the Robles Fish Passage Facilities and the number of downstream migrants captured at this location may provide a relative estimate of the numbers of downstream migrants successfully migrating through the Robles Reach. The results of this monitoring component would be provided to NOAA Fisheries and CDFG on an annual basis.

As with the other evaluation programs, additional discussions are necessary to work out the details of the migrant-trapping program. Further, the same constraints and considerations apply to this downstream migrant trap as those identified above for the downstream migrant trap immediately downstream of the Robles Fish Passage Facility. Namely, migrant trapping has several potential drawbacks that must be addressed to fully understand the data that would result from the trapping program and to therefore, understand how to apply the results of the monitoring program to propose operational changes to the Robles facility. Points to address in the final protocols for this component of the monitoring program include:

1) Type of trap to use given the geomorphology, hydrology, and storm flow conditions in the mainstem,
2) Trapping efficiency (i.e., is trap "fishing" enough of the flow to provide useful information),
3) Location of the trap (e.g., finding suitable locations to install the traps; access issues; potential for vandalism of the traps and take of captured steelhead; safety for monitoring crew),
4) Stress on fish due to warm water conditions, predators, double-trapping, etc.,
5) Analysis of data (i.e., sampling size for statistical analysis), and
6) Associated data collection to assess operational implications (e.g., other water extraction activities in the river, unimpaired runoff, status of upper basin aquifer, rainfall, and runoff)

Long-Term Monitoring Components

Long-term monitoring components are anticipated to occur for the life of the proposed action, or until such time as Reclamation, with the agreement of NOAA Fisheries and CDFG, determine through the Cooperative Decision Making Process that such efforts are no longer necessary. These efforts are targeted at (1) providing a long-term index of the steelhead population in the Ventura River (through annual fish counts at the Robles Fish Passage Facility) and (2) providing data to show that the Robles facility has been operated in compliance with the operations approved through this consultation.

Monitor Robles Facility Operations

Data would be collected to document that the Robles Diversion Dam and Fish Passage Facility

are being operated in compliance with the operations approved by NOAA Fisheries through this consultation. This monitoring component would continue annually for as long a period of time as participants of the Cooperative Decision Making Process recommend. It is currently anticipated that the sensory equipment proposed for installation during construction of the facilities would provide suitable information to allow for calculation of inflow into the Robles forebay, diversion amount, and flow routed through the fishway, auxiliary water supply pipeline, and the spillway. Information collected for this monitoring program component would be provided to NOAA Fisheries and CDFG on an annual basis.

Fish Passage Monitoring

A Vaki Riverwatcher would be installed in the fish passage facility and operated to monitor fish passage through the facility. This monitoring component would continue annually for as long as recommended by the Cooperative Decision Making Process. The equipment would be operated whenever flows through the fish bypass channel are greater than 10 cfs. It would be located in the fish bypass channel, midway between the downstream end of the fish screens and the upstream end of the fishway. The Riverwatcher would count upstream migrants as they move through the fish passage structures. The Riverwatcher would also count kelts as they move downstream should they pass through the fish passage structures rather than over the spillway. The Riverwatcher has the capability of counting smaller, smolt-sized fish, however there are some concerns as to how well the Riverwatcher would be able to discern a smolt from debris in the system.

The Riverwatcher counts fish using infra-red and therefore does not function as effectively in extremely turbid waters. Vaki has not tested the Riverwatcher to determine, in NTUs, the turbidity at which the system no longer reliably counts fish (Vaki-DNG 2000). Monitoring on the Thorsa River (Iceland) suggests that the Riverwatcher would function suitably at least to a secchi depth of 4 inches (Vaki-DNG 2000). While there is no direct correlation between secchi depth and NTU, a secchi depth of 4 inches corresponds to highly turbid water. During high flow events, the Ventura River can be highly turbid. Therefore, it is anticipated that at peak stormflow, the Riverwatcher may not accurately count adult steelhead migrants.

It is currently unknown how frequently this would be a problem, however using the 4-inch secchi depth criteria, it is anticipated that this problem would be limited to peak flows of large storms when migrating steelhead frequently hold in rivers. Therefore, it is anticipated that the Riverwatcher would count the vast majority of adult steelhead that migrate through the fish passage facilities. However, an evaluation of the accuracy of the information obtained from the Riverwatcher would be needed. Further, monitoring devices such as the Riverwatcher can experience downtime and calibration difficulties. Reclamation would work with Casitas, NOAA Fisheries and CDFG to evaluate and calibrate the Riverwatcher. This process would be designed to better understand the capabilities of the Riverwatcher including (1) whether adults and smolts can be successfully counted and (2) at what flows and/or turbidity levels the Riverwatcher counts

steelhead migrants. The results of this monitoring component would be provided to NOAA Fisheries and CDFG on an annual basis.

6) Implement Cooperative Decision Making Process

This section describes the cooperative process that will be used to make joint decisions and/or recommendations on any temporary or long-term modifications to the Robles operations (Figure 2). This section identifies participants, outlines the committee structure, and describes how the process will operate. The success of this endeavor will be dependent upon the commitment of each participant to rely upon the cooperative process as set forth herein. All participants recognize that each participant has statutory responsibilities that cannot be delegated. This cooperative process does not and is not intended to abrogate the statutory responsibility of any committee participant.

Cooperative Process Participants

The following parties are invited to participate in the Cooperative Decision Making Process: Reclamation, CDFG, and Casitas. Participants recognize that other entities, governments, associations, and individuals have an interest in water resources of the Ventura River basin and this cooperative process. Moreover, Reclamation recognizes that NOAA Fisheries and U.S. Fish and Wildlife Service (USFWS) can provide valuable technical information and therefore their expertise would be sought during the cooperative decision making process. Meaningful, constructive participation by such entities is encouraged as outlined below.

Three committees would be established for the cooperative process. The Management Committee governs the process, with Reclamation heading the committee and making final decisions or recommendations on all actions. The Biology Committeee provides technical evaluations and recommendations to the Management Committee.

Management Committee

The primary responsibility of the Management Committee is to oversee and administer the cooperative decision making process. Also, the committee would be responsible for guiding activities of technical-level staff participating in the Biological Committee. Reclamation shall serve as Chair of the Management Committee. Members include Casitas and CDFG. As Chair, Reclamation will receive information and recommendations from the Biological Committee and make a determination of whether a proposed action would trigger a "may affect" or "no affect" for any listed species. If a may affect is determined then Reclamation would consult with either NOAA Fisheries or USFWS. Reclamation will make final decisions and/or recommendations regarding Robles Operations. Reclamation will advise or direct Casitas to implement changes or other actions. Such changes are anticipated to be minor modifications to monitoring studies, data acquisition and analysis procedure, or minor changes to the timing, duration of flow releases or ramping schedules. These minor modifications are actions that would likely not trigger a "may

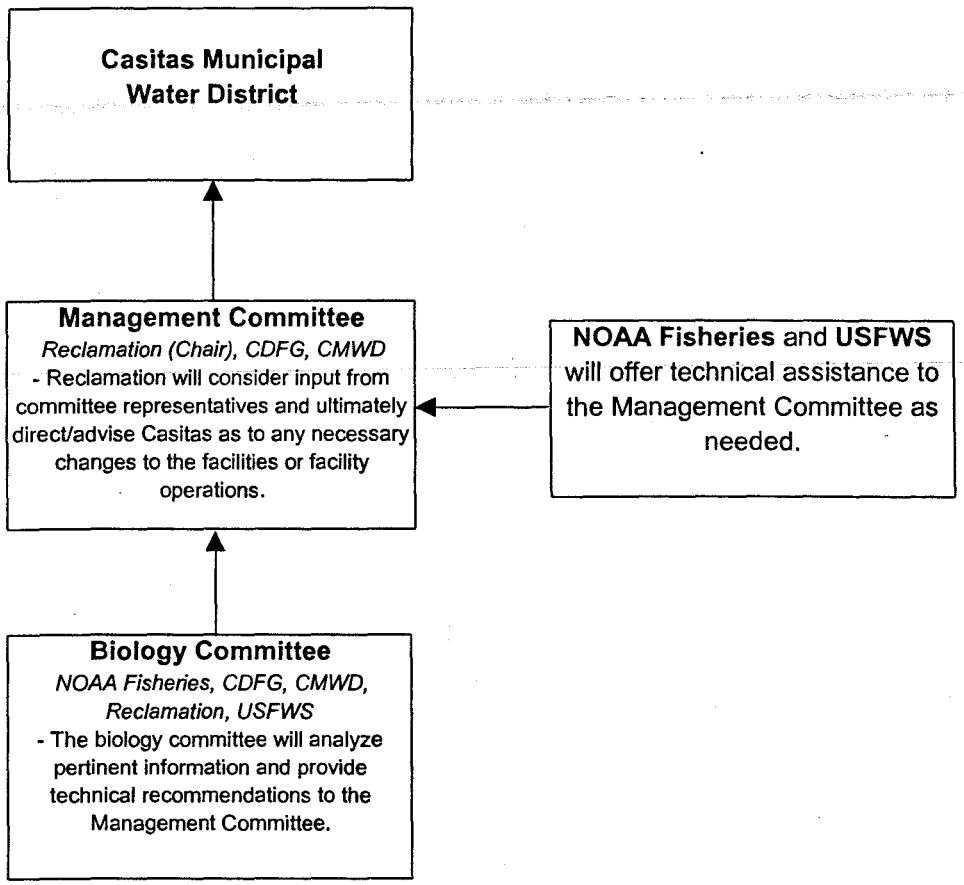

Figure 2: Cooperative Decision Making Process flowchart

affect" to steelhead. Accordingly, Reclamation would notify NOAA Fisheries in advance of those actions that we believe to be no affect.

Actions that "may affect" steelhead or any other listed species would require consultation with the NOAA Fisheries or FWS before implementation.

Biology Committee

The Biological Committee serves in an advisory role to the Management Committee and has primary responsibility of providing technical recommendations to the Management Committee on all steelhead issues. The Biological Committee consists of a representative from Reclamation, Casitas, NOAA Fisheries, USFWS and CDFG. Each member shall have one voice in the cooperative decision making process. Participation will not be restricted to one person from each participating groups; rather, professional expertise from different backgrounds (e.g., hydrology, engineering and water quality) will be sought. Reclamation will serve as Chair of the Biology Committee. The Biology Committee will meet annually each summer to review monitoring data from the preceding season's monitoring studies. Additional meetings will be scheduled based upon the need to evaluate new information.

Operations and Reports

Two reports will be generated annually to provide the necessary foundation for the Cooperative Decision Making Process: an annual work plan outlining what will be accomplished in the next year and a summary of what was accomplished in the previous year. These reports are outlined in more detail below and will be prepared for as long as the Management Committee recommends it necessary.

Annual Work Plan

An annual work plan will be developed and updated each year by Reclamation. Work plans will be developed prior to the year of implementation. The annual work plan will identify the monitoring and evaluation activities, or other activities associated with the fish passage facilities, to be accomplished for the year and the associated schedule. Reclamation will submit the draft work plan to the Biology committee for review on or before October 1 of each year. The committees will have 1 month to review the report and submit recommended changes to Casitas for elements of and amendments to the annual work plan. Based upon these recommendations, available funding, agency participation, and any other considerations which it may identify, the Management Committee will recommend which elements of the annual work plan to be completed. Reclamation will then finalize the annual work plan.

Annual Progress Report

In addition to the annual work plan, Reclamation will prepare an annual progress report on efforts to provide successful upstream and downstream migration of Southern California steelhead at the Robles Diversion. This report will include an update of the status of each activity (both operational and monitoring), costs associated with the activity, and an assessment of the effectiveness of these activities toward providing adequate fish passage at the Robles facility. This report will also include recommendations regarding prioritization of future activities as well as recommendations on any revisions deemed necessary to the operations. The annual progress report will be provided to the Biology Committee as a basis for any recommendations to the monitoring program or the operations the committee may deem necessary.

As needed, the annual progress report will also include an annual assessment of the effectiveness of the drought protection measures at meeting the need for providing adequate water supplies to sustain domestic, industrial, agricultural, recreational, and wildlife needs.

Based upon the annual progress report, evaluations, recommendations of the Biology Committee, and any other considerations it may identify, the Management Committee will finalize the annual progress report. This report will summarize the effectiveness of the facility, progress toward desired conditions, and whether revisions to operations are warranted. A draft report will be provided by September 1 and the final will be completed by November 1 of each year. This assessment report will cover the fish flow operations season for that year.

5-Year Re-Visitation of Initial Fish Flow Operations

The first five years of operation of the Robles Fish Passage Facility will be the primary period used for the adaptive management approach. Five specific evaluations have been proposed for completion during the first five years of operation. These include: 1) upstream fish migration impediment evaluation, 2) water velocity and depth validation evaluation, 3) fish attraction evaluation, 4) downstream fish passage evaluation, and 5) downstream fish migration evaluation.

Based on information obtained from these evaluations, information obtained from long-term monitoring activities, and any other pertinent information, the biology committee will recommend adjustments to the initial fish flow operating criteria to Casitas on an as needed basis. At the end of the five year period, the Management Committee will recommend to Casitas any changes to the initial-operating criteria. The operations resulting from this 5-Year Re-Visitation process will be termed the "long-term fish flow operations."

In the event that all proposed evaluations could not be completed within the five year time frame, the Biological Committee will recommend to Casitas whether or not the information is critical to establishing long-term fish flow operating criteria, and develop a study plan for obtaining any required information (i.e., evaluations to occur, and schedule for their completion and

evaluation). The study plan will include evaluations that need to occur, and a time frame for making a decision on the information. The Management Committee would then recommend to Casitas the appropriate manner in which to proceed.

Interrelated and Interdependent Actions

The Ventura River Project, which Casitas operates under contract from Reclamation, was completed in 1957 and includes the following three key components: 1) the Robles Diversion, which diverts surface flow from the Ventura River approximately 14 miles upstream of the ocean, 2) Casitas Reservoir, where streamflow diverted at the Robles Diversion is stored, and 3) the Robles-Casitas Canal, which conveys the diverted streamflow from the Robles Diversion to Casitas Reservoir, mainly by gravity feed (Figure 1).

Three interrelated/interdependent actions are associated with the proposed operation of the Robles Diversion Facility: 1) operation of Casitas Dam and reservoir, 2) operation of the Robles-Casitas Canal, and 3) operation of Matilija Dam. What follows is a general description of each of these project actions and their relationship with the Ventura River Project, of which the Robles Diversion is a key component.

Casitas Dam

Lake Casitas is a water supply reservoir created by Casitas Dam, located approximately two miles upstream from the Ventura River on Coyote Creek. The lake receives runoff from 34.3 square miles of direct drainage from Coyote and Santa Ana creeks, and from 74.3 square miles of indirect drainage from Matilija, North Fork Matilija, Upper North Fork Matilija, and Murietta creeks via the Robles Diversion Dam and Robles-Casitas Canal on the upper Ventura River. Water storage in Lake Casitas takes place under the Ventura River Project license (No. 11834) issued by the SWRCB in 1986. The license is based on the August 16, 1954 priority water right held by Casitas and provides for a combined diversion and storage of up to 107,800 AFY through (1) diversion of Ventura River water at the Robles facility to storage in Lake Casitas and (2) storage in Lake Casitas of runoff from Coyote Creek, Santa Ana Creeks, and other small tributary streams. The maximum storage in Lake Casitas permitted by this license is 254,000 AF.

Water leaves Lake Casitas through three pathways: 1) delivery of water through the conveyance system to meet local demand, 2) evaporation of water in the lake, and 3) water that goes over the spillway. The amount of water delivered each year through the conveyance system is measured by a gage at the treatment plant. Water leaving the reservoir through surface evaporation or through the spillway is estimated based on surface elevation, storage volume, and the amount of water flowing into the reservoir. Since operations began in 1959, inflow to Lake Casitas has averaged approximately 25,775 AF per year. Of this total, approximately 12,500 AF was water diverted at the Robles Diversion, 13,226 AF was natural inflow from lake tributaries, and 4,373 was direct rainfall on the lake. Total reservoir outflow has averaged approximately 25,122 AF over the same period and includes customer deliveries (14,494 AF), water spilling over Casitas

Dam (2,652 AF) and evaporative loss (7,976 AF). A more in-depth discussion of Lake Casitas operations can be found in the BA (U.S. Bureau of Reclamation 2003).

Vegetation and sediment are managed to maintain channel capacity in Coyote Creek from the Casitas Dam spillway to the property line (approximately 1,500 feet downstream of the dam). This requires infrequent maintenance to remove vegetation and sediment blocking the channel. This work has been performed three times since the construction of the dam. Casitas also removes debris and sediment from the stilling basin beyond the spillway periodically. Additionally, Casitas maintains pipes and control valves under the dam, and a trolley gate system on the water-side of the dam. Casitas maintains areas near the dam to be sure erosion and plant debris do not inhibit drainage or undermine dam facilities, in which case the material is removed or the facility reinforced.

Robles-Casitas Canal

The Robles-Casitas Canal connects the Robles Diversion Facility on the upper Ventura River to Lake Casitas (Figure 1). Since water year 1960, Robles Dam has diverted water via this canal to Lake Casitas. The canal enters Lake Casitas west of Highway 150 near where Santa Ana Creek enters the reservoir. The canal is concrete lined (typically 3 inches unreinforced). The canal prism is 7 feet wide at the bottom, approximately 27.5 feet wide at the top, has a water depth of 5.56 feet and a freeboard of 15 inches. The canal is approximately 27,500 feet long with an additional boxed inverted siphon that is approximately 5,400 feet long. No screens currently exist on the entrance to the canal at the Robles facility, however installation of a fish screen is proposed as part of the fish passage project. The capacity of the canal is 600 cfs. For the majority of its length, an access road parallels the canal and several small bridges provide locations for vehicles to travel over the canal.

Periodic maintenance to repair the concrete panels lining the canal is conducted. Additional minor maintenance activity is further explained within the BA (U.S. Bureau of Reclamation 2003).

Matilija Reservoir and Dam

Matilija Dam is a concrete arch structure located approximately 0.6 miles upstream of the confluence of Matilija Creek and approximately 18 miles upstream from the ocean (Figure 1). The Ventura County Watershed Protection District (VCWPD) constructed Matilija Dam in 1947 as a flood control reservoir. Matilija Reservoir initially had a storage capacity of about 7,000 AF. In 1965, the spillway crest was lowered (from 1,125 to 1,095 feet) to meet dam safety requirements. As a result of sediment deposition and lowering of the spillway crest, the active storage capacity had been reduced to approximately 3,350 AF by 1965. Sedimentation has continued to reduce the active storage in Matilija. Present active storage is estimated to be about 420 AF.

The maximum release through the valves at Matilija Dam is 250 cfs. Due to the high sediment loads experienced in the Matilija watershed, the release is operated at full capacity (250 cfs) during high runoff conditions. This operation is to prevent sediment deposits from building up in the valve/intake and closing the valve, hindering dam operation. During the low-flow season, lower releases (as low as 2-5 cfs) occur as sediment settles out in the reservoir and valve problems are unlikely.

Casitas has managed water releases from Matilija Reservoir under agreement with Ventura County since 1959, with Matilija Dam identified as the point of water diversion and the Robles Diversion Facility identified as the point of re-diversion. The agreement between the county and Casitas terminates on January 1, 2009. State Water Resources Control Board License No. 10133 issued to Casitas allows for up to 4,300 AFY to be collected from Matilija Creek between January 1 and December 31 of each year. The maximum annual withdrawal in any given year cannot exceed 4,570 AF, and maximum storage at any one time in Matilija Reservoir is limited to 2,470 AF under this license.

From Matilija Reservoir; water is released into Matilija Creek where it flows into the Ventura River. Depending on hydrologic and groundwater conditions, this water may either flow into the groundwater aquifer, be diverted to Lake Casitas at the Robles Diversion Dam, or be bypassed downstream at the Robles Diversion. Releases from the reservoir occur throughout the year and vary according to hydrologic events in the watershed. During wet phases in the Matilija watershed, Casitas will begin to increase releases from Matilija Dam as Matilija Reservoir begins to fill. Once the watershed runoff exceeds 250 cfs, the reservoir fills and spills over Matilija Dam in an uncontrolled manner. As the storm recession occurs, releases through the Matilija Dam valves are usually maintained at the maximum (250 cfs) until the spill condition has ceased. Once the spill condition has ceased, Casitas will adjust the valve releases to maintain a constant lake elevation.

During the low-flow season, typically late spring to fall, pass through operations occur at Matilija Dam such that any inflow is released downstream of the dam. Flow is released from Matilija Dam to balance reservoir inflow and outflow. Generally, the releases are less than 5 cfs, and more commonly less than 3 cfs.

III. STATUS OF THE LISTED SPECIES

Status

Steelhead, an ocean-going form of rainbow trout, are native to Pacific Coast streams from Alaska south to northwestern Mexico (Moyle 1976; National Marine Fisheries Service 1997). Wild steelhead populations in California have decreased significantly from their historic levels (Swift et al. 1993). This decline prompted listing of the Southern California ESU of steelhead as endangered on August 18, 1997 (National Marine Fisheries Service 1997), for naturally spawned populations of steelhead and their progeny residing below long-term impassible barriers.

Estimated run sizes for the major rivers in the Southern California ESU are listed below (Busby et. al., 1996).

Santa Ynez River.....< 100
Ventura River.....< 200
Santa Clara River.....< 100
Malibu Creek.....< 100

Extensive habitat loss due to water development, land use practices, and urbanization are largely responsible for the current population status. In addition, hatchery practices and rainbow trout planting may have led to genetic introgression, but adequate documentation is lacking to fully assess the situation (Hard et al. 1992; Nielsen 1994; Busby et. al. 1996; Nielsen et al. 1996; California Department of Fish and Game et al. 2002; Chilcote 2002; Zimmerman 2002).

Life History and Habitat Requirements

The major life history stages of steelhead, relative to this discussion, involve freshwater rearing and emigration of juveniles to the ocean, upstream migration of adults, spawning, and incubation of embryos (Shapovalov and Taft 1954; Moyle 1976; Cederholm and Martin 1983; Barnhart 1991; Meehan and Bjornn 1991; Busby et al. 1996; National Marine Fisheries Service 1997). Steelhead rear in freshwater for one to three years before migrating to the ocean, usually in the spring, where they may remain for up to four years. Steelhead grow and reach maturity at age two to four while in the ocean. Adults immigrate to natal streams for spawning during October through March, but some adults do not enter coastal streams until spring. Adults may migrate several miles, hundreds of miles in some watersheds, to reach their spawning grounds. Adult immigration appears to be associated with winter/spring storm events, with upstream migration triggered by changing flow conditions (Alabaster 1970). Although spawning may occur from December to June, the specific timing of spawning may vary among and between years, as well as streams, within a region. Migration and life history patterns of Southern California steelhead depend more strongly on rainfall and stream flow than is the case for steelhead populations farther north (Moore 1980a). Recent observations on the Santa Clara River suggest that spawning peaks in February and March, and smolt outmigration can continue into mid-June if sufficient flow persists (M. McEachern, United Water Conservation District, pers. comm., March 2003). Steelhead do not necessarily die after spawning and may return to the ocean, sometimes repeating their spawning migration one or more years. Female steelhead dig a nest (redd) in the stream and then deposit their eggs. After fertilization by the male, the female covers the nest with a layer of gravel; the embryos incubate within the gravel pocket. Hatching time varies from about three weeks to two months depending on water temperature. The young fish emerge from the nest about two to six weeks after hatching.

Habitat requirements of steelhead in streams generally vary with life history stage (Cederholm and Martin 1983; Bjornn and Reiser 1991). Generally, stream flow, water temperature, and water chemistry must be appropriate for adult immigration and juvenile emigration (specific

habitat requirement data can be found in Bjornn and Reiser 1991). Low stream flow, high water temperature, physical barriers, low dissolved oxygen, and high turbidity can delay or halt upstream migration of adults and timing of spawning, and downstream migration of juveniles and subsequent entry into estuary, lagoon, or ocean. Suitable water depth and velocity, and substrate composition are the primary requirements for spawning, but water temperature and turbidity are also important. Dissolved oxygen concentration, pH, and water temperature are factors affecting survival of incubating embryos. Fine sediment, sand and smaller particles, can fill interstitial spaces between substrate particles, thereby reducing water-flow through and dissolved oxygen levels within a nest. Juvenile steelhead require living space (different combinations of water depth and velocity), shelter from predators and harsh environmental conditions, food resources, and suitable water quality and quantity, for development and survival. Young-of-the-year and yearling steelhead generally use riffles and runs (Roper et al. 1994) during much of a given year where these habitats exist. However, young-of-the-year and older juveniles may seek cover and cool water in pools during the summer (Nielsen et al. 1994), particularly as discharge and, therefore, space declines in summer and fall (Kraft 1972).

IV. ENVIRONMENTAL BASELINE

Status of Species in the Action Area

Steelhead populations in the Ventura River system have not been well studied (Moore 1980a; Chubb 1997). Prior to the completion of Matilija Dam in 1947, CDFG personnel estimated that a minimum of 4,000 to 5,000 steelhead spawned in the Ventura River system in normal water years (Clanton and Jarvis 1946; Clanton and White 1946). Observations of small numbers of adult steelhead in the Ventura River have continued through the present, including documented steelhead sightings in 1974, 1975, 1978, 1979, 1991, 1993, and 2001 (Titus et al. 1994; Zimmerman 2002). NOAA Fisheries' estimated run size of <200 adults (Busby et al. 1996) is the most recent estimate of the Ventura River steelhead population. However, in light of the continued pressures exerted upon the population and the paucity of recent sightings in the drainage, NOAA Fisheries fears the Ventura River steelhead population is likely less than 100 adult individuals at the current time. The above estimate is similar to the more conservative predictions offered by other researchers (Moore 1980a; Nehlsen et al. 1991; Titus et al. in prep).

The BA includes a characterization regarding the origin and magnitude of the reported historic steelhead runs in the Ventura River watershed. Specifically, it characterizes the CDFG's estimated run size before the construction of the Matilija Dam as "speculated to be up to 4,000 to 5,000 adults during normal water years." What Clanton and Jarvis (1946) actually reported was that the Matilija Creek system supported a minimum of 2,000 to 2,500 fish in normal years, and that this represented approximately half of the total run in the Ventura River system. These estimates were not speculation as the BA indicates, but were based upon direct, historic observations by CDFG personnel. Further, Clanton and Jarvis (1946) did not suggest that the numbers of adult fish reported were influenced by artificial stocking, as the BA does. In fact, a review of the California Department of Fish and Game records confirms there never has been a stocking program on the Ventura River intended to support or supplement the native anadromous

fish runs; all stocking programs were intended only to support a put-and-take fishery during the spring and summer. Additionally, the number of fish recorded as being stocked in the Ventura River (even if they were all from anadromous stock) would likely be insufficient in number to account for the large runs of adult steelhead, or even to materially affect the run size. Efforts to artificially sustain or increase native anadromous runs in other parts of California have generally proven unsuccessful, and oftentimes counter-productive (California Department of Fish and Game et al. 2001). On the contrary, the periodic planting of non-native fish probably adversely affected run sizes by competing with juvenile steelhead for food and cover, adding to natural predation, and inter-breeding with native stocks, thus reducing overall species fitness. Studies have documented that introduction of non-native stocks has also been a source of pathogens that further reduce the natural productivity of native fish populations, particularly in a warmer water environment such as that which occurs in portions of the Ventura River system (Hard et al. 1992; California Department of Fish and Game et al. 2001; Chilcote 2002).

Because steelhead population data for the Ventura watershed is lacking for the most part, surrogate variables, such as available habitat and potential spawning days, will be used within this Biological Opinion in an attempt to describe and quantify existing and project related effects. The amount of habitat available to steelhead likely has a direct affect on population size, since loss of access to habitat resulting from dams and other upstream barriers is a primary cause of the steelhead's precipitous decline in southern California (Busby et al. 1996). During times of sufficient rainfall, steelhead historically had access to approximately 54 miles of spawning and rearing habitat within the mainstem Ventura River (16 miles), Matilija Creek (12 miles), Coyote/Santa Ana Creek (14 miles), and San Antonio Creek (8 miles) (Clanton and White 1946; Clanton and Jarvis 1946; Fugro West, Inc. 1996b). Prior to completion of Matilija, Robles and Casitas Dams, the prime steelhead spawning and rearing habitat was located within the upper Coyote Creek and Matilija Creek watersheds (Clanton and Jarvis 1946). Presently, steelhead are limited to the fourteen miles of mainstem river below Robles Diversion, three miles of lower Coyote Creek below Casitas Dam, and eight miles of San Antonio Creek. The 25 miles of habitat currently available to steelhead represents less than half of the historic total, and ranges from poor (lower Coyote Creek) to marginal (mainstem Ventura River and San Antonio Creek) quality for spawning and rearing activities. But while much of the prime spawning and rearing habitat historically occurred in the currently inaccessible upper reaches of Matilija and Coyote Creek, steelhead within the Ventura system have adapted to the current river condition by utilizing available mainstem habitat when the preferred headwater habitat was made inaccessible by insufficient migration flows or anthropogenic barriers (i.e., Matilija Dam and Casitas Dam). During the below average rainfall year of 1947, CDFG biologists noted an abundance of spawning activity throughout the 5 mile section of river from Foster Park downstream to the Ventura River estuary (Evans 1947). During the 1947 survey, biologists estimated that 250-300 adults were holding in scattered pools throughout the 5 mile reach. Furthermore, mainstem spawning habitat has been well documented within river sections below the Robles Diversion both prior to (Clanton and Jarvis 1946) and following (ENTRIX 1997) the 1958 construction of the Robles diversion. Likewise, recent surveys have documented steelhead rearing habitat, as

well as utilization of this habitat by juvenile fish, throughout the stretch of river between the Robles Diversion and the Ventura River estuary (Moore 1980a; Capelli 1997).

Factors Affecting Species Environment within the Action Area

As mentioned previously, the area affected directly and/or indirectly by the proposed action encompasses the entire mainstem Ventura River; the section of Matilija Creek below Matilija Dam; the lower 4 miles of NF Matilija Creek; the lower 10 miles of Coyote Creek and lower 4 miles of Santa Ana Creek (a tributary of Coyote Creek); and (~ 8 miles) San Antonio Creek.

Mainstem Ventura River

The 16 mile reach of Ventura from the confluence of Matilija Creek and NF Matilija Creek downstream to the Ventura River estuary is affected by numerous anthropogenic disturbances and modifications. Historical operation of the Robles Diversion, located approximately 14 miles upstream of the Ventura River mouth, has profoundly impacted steelhead migration, spawning and rearing throughout the lower Ventura River. In general, flows up to 20 cfs are released downstream during diversion operations. Historic operation of the Robles Diversion has greatly diminished most natural migratory opportunities within the lower river. The historic 20 cfs downstream bypass is insufficient for successful upstream migration nor is it likely to adequately maintain available spawning and rearing habitat in the lower river. Conversely, data supports a minimum flow of approximately 50 cfs for steelhead passage into the Casitas Springs/Foster Park[4] and Robles reach where the majority of mainstem spawning habitat exists (ENTRIX 1999). Under historic conditions with natural, unimpeded flow conditions in the lower river, there was an average of approximately 44 steelhead passage days (i.e., days > 50 cfs) per year according to the BA (U.S. Bureau of Reclamation 2003). Operations at the Robles Diversion have reduced this number to 13, representing a 70% decrease in available migration days for steelhead in the lower Ventura River. The diversion effect is even greater when one considers that the 12 days likely do not represent consecutive days, but instead reflect two or three storms of 3-4 days length each. It is unlikely that 3-4 days of flows greater than 50 cfs would allow any but the few fastest migrating fish to successfully reach the diversion.

Truncating natural downstream flow via diversion operations has also resulted in reduced groundwater infiltration downstream of the diversion, thus altering the natural hydrologic process responsible for recharging the aquifer underlying the lower river. Late summer surface flow in the Casitas Springs/Foster Park reach which naturally emanates from this aquifer is critical to maintaining available steelhead rearing habitat in the lower river. Finally, upstream passage past the Robles Diversion has been precluded since completion of the diversion dam in 1958, thus

[4] The BA uses the term "Live Reach" which is described as the reach of river extending from 1/3 mile upstream of the confluence of San Antonio Creek downstream to Foster Park. This is allegedly used to describe that portion of the main stem of the Ventura River that maintains a perennial surface flow. This is a confusing misnomer, since the reach of the lower river currently maintaining a natural perennial surface flow extends from above San Antonio Creek all the way to the Pacific Ocean. The so-called "Live Reach" referenced in the BA actually should be called the "Casitas Springs/Foster Park Reach", which is more accurate and therefore the term that NOAA Fisheries has used consistently in previous correspondence.

depriving adult steelhead access to suitable spawning and rearing habitat in lower Matilija Creek and North Fork Matilija Creek.

Pumping of subsurface alluvial groundwater occurs at several points close to or within the active channel along much of the 11 miles directly below the diversion. The City of Ventura operates a well field and surface water diversion in the Foster Park area, which between 1980 and 1990 extracted an annual average of approximately 6,800 AF of surface flow and groundwater (Richard C. Slade and Associates n.d.)[5]. Several smaller water districts and individual water extractors drew an average of approximately 3,200 AF per year out of the alluvial aquifer between Foster Park and the Robles Diversion during the same time period. When factoring all water extractions and diversions occurring within the upper Ventura River basin (including Casitas), approximately 18,000 AF of water is withdrawn annually. The substantial amount of water diverted from the Ventura River during winter and spring storm events combines with Robles operations to substantially abbreviate the duration and magnitude of river flow necessary for successful steelhead migration. Furthermore, extracting water from the alluvial aquifer underlying the Ventura River can dramatically diminish available surface flow and in turn negatively affect instream habitat characteristics (EDAW et al. 1981). The effects from groundwater extraction are further exacerbated by reduced groundwater infiltration resulting from Robles Diversion operations as noted above. Aquatic habitat in the lower Ventura River is especially vulnerable to subsurface water extraction during the summer/fall period, when natural surface flow is already at seasonally low levels and rearing fish and aquatic organisms are confined into the Casitas Springs/Foster Park reach where perennial flows historically existed in most years. Fish and aquatic organisms isolated by receding streamflow face the dangers of increased predation, compromised water quality, and outright dessication once flows disappear. Complete dewatering of the channel above the Foster Park bridge by subsurface water extraction in the Casitas Springs/Foster Park area has been observed by NOAA Fisheries personnel during recent dry years (Rick Rogers, NOAA Fisheries, pers. obs.).

Surface water extraction at the City of Ventura's Foster Park Diversion (completed 1906) and the Robles Diversion has also adversely affected steelhead by entraining fish at the diversion entrance. Fish entrained within the unscreened surface diversions at the Foster Park and Robles Diversion were conveyed into water delivery pipes/canals and likely killed or injured during the process. Even in the best case scenario, fish transported through the Robles-Casitas Canal would have ended up in Lake Casitas, effectively removed from the anadromous population and forced to exist within a lacustrine environment.

Flood plain encroachment and development has been a problem within the communities of Foster Park, Casitas Springs, Oak View, and Meiners Oaks. Flood plain development usually

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[5] The Foster Park well field and surface diversion take advantage of rising groundwater resulting from a natural sub-surface impervious rock formation. The sub-surface dam adjacent to the diversion was placed in its location below the natural impermeable rock formation to take advantage of this naturally rising groundwater. Further, the artificial subsurface dam does not extend completely across the alluvial channel but only extends to the existing surface diversion that is located approximately in the middle of the channel; the eastern half of the channel is unaffected by the subsurface dam, and the naturally rising groundwater can freely flow around it.

requires some degree of streambank armoring in order to protect structures from naturally occurring flood flows. The riprap/cement structures frequently employed for protective purposes tend to create a hardened point within a dynamic and constantly changing fluvial environment. As the natural riverine processes adjust to these static hard-points, geomorphic conditions adjacent to and downstream of the armored area likely become disrupted, reducing available fish habitat by decreasing large woody debris (LWD) recruitment, precipitating unnatural streambed scouring, and generating elevated fine sediment concentrations in downstream reaches (Schmetterling et al. 2001). For example, the 1978 construction of a 5,350 foot earthen levee in the Casitas Springs/Foster Park reach has interfered with the natural meandering of the Ventura River channel and dramatically altered the riparian habitat adjacent to the project.

Discharge from the Ojai Valley Wastewater Treatment Facility, along with the point source contributions from the many floodplain level septic systems and industrial complexes, has degraded the overall water quality within the lower Ventura River (however, the wastewater treatment facility has recently upgraded to tertiary treatment). Agricultural development and accelerated urban growth within the last 50 years has also increased the amount of non-point source pollution affecting river water quality.

Matilija Creek below Matilija Dam

The reach of Matilija Creek between the Matilija/NF Matilija confluence upstream to Matilija Dam is represented by a deeply incised, moderate gradient stream reach relatively unaffected by human development save for the small frontage road that follows a majority of its length. This stream reach is, however, adversely affected to a high degree by the long standing Matilija Dam, which has greatly altered historic flow patterns and sediment transport processes within Matilija Creek since its completion in 1948. Alteration of the natural fluvial processes present below the dam (i.e., sediment transport and recruitment, natural storm flow patterns, etc.) has starved the stream reach of suitable spawning substrate and interrupted fish migratory patterns. Yet, the reach currently contains ample rearing habitat for juvenile fish, and small pockets of potential spawning habitat exist (M. Capelli, NOAA Fisheries, pers. comm., March 2003).[6] Finally, the frequent spill events have promoted the establishment of non-native predatory species (i.e., largemouth bass, sunfish and catfish) within the reach directly below the dam structure.

Matilija Dam does not have the capacity to attenuate very large flow events, but because the practice of Casitas is to draw down the reservoir in anticipation of winter storms, it effectively attenuates moderate sized storms (which constitute the largest majority of storm events in a typical year). Similarly, the Robles Diversion, while not having any effective storage capacity, can divert up to 500 cfs and because the majority of Ventura River storm flows range between 500 and 1500 cfs, the diversion can effectively reduce the peaks of these storm events between

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[6] The BA asserts that the reach of Matilija Creek below Matilija Dam "goes dry during the summer months, eliminating most of its value as habitat, although this reach may still provide some spawning and spring rearing habitat." (Reclamation 2003, page 5-73) Matilija Creek, from Matilija Dam downstream, is a perennial stream, and provides year round rearing habitat, as well as seasonal spawning habitat.

30% and 100%. Reducing peak storm flow has a number of impacts relevant to steelhead and steelhead habitat in the Ventura River system. First, these peak flows provide a stimulus to fish to enter the river and migrate upstream (Shapovalov and Taft 1954). Storm flow conditions facilitate efficient steelhead migration by alleviating natural barriers such as shallow riffles, natural step pools, and exposed channel bottoms. Second, these peak flows flush out potential spawning gravels overlain with fine sediment as well as transport new spawning sediments into the main stem (Beschta and Jackson 1979). Third, these peak flows likely remove annual instream aquatic vegetation (including algae) which displace spawning and rearing space, and rejuvenate riparian vegetation by thinning younger, less well-rooted individual plants. Removal of annual vegetation types allows perennial species to better compete for soil nutrients and water, favoring formation of a mature habitat which provides more effective shading, and more productive allochthonous drift (Scott et al. 1996).

Reclamation and the U.S. Army Corps of Engineers, in cooperation with several local and state agencies and environmental groups, are currently investigating alternatives for the future removal of the Matilija Dam structure. If the dam removal project ultimately comes to fruition and the natural fluvial processes below the dam are restored, fish habitat will likely improve as a result.

North Fork Matilija Creek

Bordering Highway 33 for much of its entire length, North Fork Matilija Creek flows into the Ventura River 16 miles upstream of the Ventura River estuary and drains a watershed spanning approximately 25 square miles (Moore 1980a). Due to the steep gradient and corresponding pool/riffle habitat that dominates the watershed, large areas of quality spawning and rearing habitat were historically available to steelhead. Since the watershed is relatively unaffected by human development, much of this quality habitat still remains in sections of the main creek as well as some of the larger tributaries of the system such as Bear Creek and Cannon Creek (R. Franklin, ENTRIX Inc, pers. comm., June 2002). Upstream fish migration is currently blocked by a degraded arizona stream crossing within the Wheeler Gorge Campground located approximately 4 miles upstream of the NF confluence. Therefore, only habitat downstream of the campground would be available to steelhead passing through the Robles Fish Ladder at the current time. However, the U.S. Forest Service is supposedly considering options for removing the barrier (A. Spina, NOAA Fisheries, pers. comm., March 2003).

Coyote Creek and Santa Ana Creek

The Coyote Creek watershed originates on the southern slopes of the Santa Ynez Mountains and flows in a southeast direction until joining the Ventura River approximately 6 miles upstream from the Pacific Ocean. The 14 miles of stream channel within Upper Coyote Creek and its main tributary, Santa Ana Creek, once comprised approximately half of the high quality steelhead habitat available to steelhead within the entire Ventura River watershed, with the other half located further upstream in the Matilija Creek watershed (Clanton and White 1946). The approximately 11 miles of high quality spawning habitat in these two creeks supported an

average of 3,000 adult fish until the completion of Casitas Dam in 1952 completely blocked steelhead access into the area. A recent survey of both Coyote and Santa Ana Creek by the USGS Biological Resources Division documented extremely productive spawning and rearing habitat (R. Reisenbichler, U.S. Geologic Survey, pers. comm., March 31, 2003). Currently, steelhead have limited access to the lower 3 miles of creek below the dam when high rainfall events spill the reservoir (Casitas Dam has spilled eight times since it filled in 1978). However, the habitat available to steelhead in lower Coyote Creek is highly sedimented and in generally poor condition due to chronic streambank erosion and insufficient storm-related flushing flows. The lower creek is also plagued by meager base flow for much of the year since water is rarely released through the Lake Casitas headworks and into the stream channel below to maintain downstream aquatic habitat.

Much like Matilija Dam, Casitas Dam effectively eliminates almost all the high flushing flows generated by Coyote and Santa Creeks, which constitutes approximately 20% of the total flow in the main stem of the Ventura River below the confluence of Coyote Creek. However, when natural run-off from Coyote and Santa Ana Creek (coupled with input from the Robles Diversion) results in spillage at Casitas Dam, non-native species of fish and other aquatic organisms are introduced into lower Coyote Creek and Ventura River.

San Antonio Creek and Tributaries

San Antonio Creek originates on the southern slopes of the Topa Topa Mountains and Nordhoff Ridge in the northeast portion of the Ventura River Basin. The watershed drains an area of approximately 83.9 square miles, with the mainstem creek flowing approximately 11 miles from Senior Canyon to its confluence with the Ventura River approximately 8 miles upstream of the Pacific Ocean. A 1996 steelhead habitat characterization study performed for the VCWPD documented suitable spawning substrate and moderate to high quality rearing habitat for steelhead throughout a 16,000 foot reach of lower San Antonio Creek (Fugro West 1996b). However, increased urban encroachment into the San Antonio Creek riparian corridor has led to the alteration and destruction of overhanging vegetation cover critical to juvenile steelhead survival. The loss of riparian cover has also likely increased water temperatures throughout significant reaches of the creek. Furthermore, the proliferation of horse corrals and stables built adjacent to the creek channel has likely increased nutrient loading and fine sediment deposition into the surface waters of San Antonio Creek, further lowering water quality already hampered by increased urban runoff. For the most part, steelhead are currently limited to the7 miles of creek below the Ojai Valley Golf Course, where a failed stream crossing likely presents a migrational barrier to adult steelhead under most natural flow scenarios. However, the VCFCD is currently investigating methods for removing or altering this barrier to allow unfettered steelhead passage. Of the main San Antonio Creek tributaries, Lion Canyon Creek would appear to contain the best steelhead habitat owing to its deeply incised channel and pool/riffle morphology. However, much of the upper half of the watershed is inaccessible to steelhead due to a 40 foot high dam located just upstream of the Highway 150 crossing.

V. EFFECTS OF THE PROPOSED ACTION

Methodology for Effects Analysis

To determine a species' needs, NOAA Fisheries often looks to historical conditions as a guide to conditions associated with self-sustaining and self-regulating populations. Where used, these conditions are not necessarily management goals. Instead, they serve as an important reference point for gauging the effects of projects on the species' ability to survive in the current ecosystem. In such cases, a project often has fewer adverse impacts on a threatened or endangered species if it minimizes or avoids changes to, and/or mimics, the natural conditions necessary for the species' long-term survival. This approach has been used in evaluating this project, specifically with regard to proposed diversion operations. In light of this approach, an operational scheme enacted at the Robles Diversion should furnish a downstream flow regime that adequately mimics the natural storm recession rate, and thus the inherent migratory triggers and cues, to which Ventura River steelhead have grown accustomed during their evolutionary development. Furthermore, downstream releases should also ensure that the volume of released water is of sufficient duration and depth to ensure successful migration conditions for the majority of migrating steelhead. Finally, released flows should be structured to maintain existing spawning and rearing habitat within the lower river between storm events.

Effects to steelhead arising from the proposed action will be discussed in regard to the following components of the proposed action: 1) Fish Passage Facility construction and Robles Diversion modification; 2) future operations of the Robles Diversion and Fish Passage Facility; 3) Robles Diversion and Fish Passage Facility maintenance; 4) interim Robles Diversion operations; 5) monitoring and evaluation activities; and 6) the Cooperative Decision Making Process. A discussion of the effects arising from the interrelated and interdependent actions associated with the proposed action will conclude the section.

1) Fish Passage Facility Construction and Robles Diversion Modification

The proposed action includes construction of fish passage and bypass facilities at the existing Robles Diversion Dam. New and modified structures include a fish screen, flow control structure, flow measurement section, fish guidance device, fishway, fish bypass channel, auxiliary water supply pipeline, two fish exit channels, a baffled apron, and a series of low-head stone weirs. Potential construction-related effects include 1) direct effects on steelhead located at the construction site; 2) indirect effects on steelhead migration habitat quality; and 3) indirect effects on steelhead habitat downstream of the diversion facility. The discussion that follows demonstrates that the proposed minimization measures will likely result in no adverse direct or indirect effects on steelhead if construction occurs in a dry channel. More pronounced adverse effects may occur if conditions are not dry when in-channel construction commences.

Installation of the low-head stone weirs and construction staging may result in the removal of some riparian vegetation. Riparian vegetation is important to rearing steelhead because it provides shade to keep water temperatures cool and can improve shelter for rearing fish (Meehan

et al. 1987). Vegetation along the banks of the Ventura River will be restored in locations where removal is necessary. Since fish may be rearing in the reach below the dam during the construction season, there is the possibility that some steelhead may be present in the area if flows are present. Steelhead discovered in either the construction area or any downstream habitat deteriorated by project activities will likely be at risk of take unless captured and transferred to appropriate habitat elsewhere in the drainage. In this case, harassment resulting from capture and relocation would be the most likely form of take. However, instream construction activities may cause direct mortality from crushing or extremely poor water quality if fish relocation is not undertaken immediately.

The river banks downstream of the spillway consist of large boulders, cobble and large gravel maintained at a 2:1 slope to minimize erosion. Erosion can cause infilling of pool habitat and sedimentation of spawning gravels, reducing habitat suitability (Bjornn et al. 1997). Construction of the low-head weirs will temporarily modify the banks as the 15 weirs are keyed into the embankment 4 to 6 feet. Construction will occur when the channel is dry. Following construction the bank slope will be returned to the pre-construction grade (2:1) to minimize erosion. Because there will be no steelhead present, this activity is not anticipated to affect steelhead. The low-head weirs are anticipated to result in improved migratory habitat in this small reach of river by creating a series of pools that can provide holding/resting areas for fish during their migration. They are also anticipated to provide in-stream cover and food input within this reach resulting in a small improvement in habitat conditions for steelhead.

In order to complete construction of the proposed structures, some work will have to occur in the channel. In-channel work has the potential to affect steelhead and their habitat if performed during the winter or spring migration season or when water is present under low-flow conditions. If possible, to eliminate potential impacts on steelhead, work taking place in the channel will be limited to no flow conditions, when the channel is dewatered. This will ensure the absence of steelhead, maintain water quality, and minimize erosion. Work within or adjacent to the waterway includes construction of the high- and low-flow fish exit structures, excavation for construction of the fish ladder entrance, incorporation of the baffled apron into the existing spillway structure, and modification of approximately 800 feet of the existing spillway channel to construct the low-head stone weirs and modify the low-flow crossing.

During the construction phase of the proposed action, priority will be given to completing instream work while the channel is dry. All remaining construction activities (e.g., fish screen, fish ladder, and auxiliary water supply pipeline) can be accomplished during other months without potential impact to the fishery because the work will take place outside of the wetted channel. A storm water pollution prevention plan will be developed for the construction process to ensure that water quality is maintained during construction operations. Equipment used during construction will be well maintained to minimize the potential for hazardous materials (e.g., oil) to be deposited in the dry river bed. This and other standard construction best management practices will result in no adverse effects on steelhead habitat from the use of heavy equipment in the channel.

Every attempt will be made to construct in-channel features when the channel is dry to eliminate potential impacts. Should there be water flowing in the construction reach when in-channel construction is set to begin, there is the potential for construction activities to adversely affect steelhead. Both direct and indirect adverse effects are possible. Direct effects would result if steelhead were present in the construction reach during initiation of activities to isolate the work area. Any fish present at this time would be removed and transferred to high quality, perennial habitat upstream. Rescued fish would, however, be subjected to the stress of capture, transport, and release. Adverse effects associated with fish rescue can range from harassment due to the stress of the rescue activity, more severe harm due to abrasions from handling, or electrical burns if electro-fishing is needed, or even possible mortality. The fish rescue protocol would be designed to minimize the potential adverse effects for fish that must be transferred. In addition, heavy equipment would be working in the wet channel to create the coffer dam. Fish would be rescued from these work areas prior to the use of heavy equipment; however, it is possible that fish may avoid capture and therefore may be crushed, buried, or injured during these activities.

Indirect impacts to steelhead can also occur due to short-term mobilization of sediment into flowing water caused by the use of heavy equipment. High concentrations of suspended sediment have been shown to lower overall fitness of stream dwelling salmonids by disrupting normal feeding behavior (Berg and Northcote 1985) and reducing growth rates (Crouse et al. 1981). Excessive fine sediment in the streambed can also interfere with proper development and emergence of salmonid fry, leading to lower fish recruitment (for review see Chapman 1988). However, proposed construction activities are expected to result in only a localized, short-term increase in turbidity. Once the construction site has been isolated, no appreciable increase in turbidity is anticipated as all construction activities would take place outside flowing water and the sediment control best management practices would minimize any additional mobilization of sediment to flowing water. The minor increase in turbidity over a few days is unlikely to adversely affect steelhead.

In summary, the risk of steelhead being injured or killed by construction activity for the ladder is low. The in-channel construction will likely occur in a dry channel, and has largeley been scheduled outside the steelhead migration and spawning season. In the unlikely event construction begins while surface flow exists below the diversion, steelhead in the project area would likely be captured and relocated to suitable habitat.

Currently, the road crossing/concrete weir located directly below the diversion is an impediment to upstream steelhead migration at low flows. If construction of the downstream weir structure does not coincide with fish passage facility construction, a small percentage of adult steelhead may be delayed or prevented from reaching the ladder structure. These fish would be forced to spawn in downstream habitat or could potentially wait for future storm flow to assist upstream passage.

In summary, the construction activities are anticipated to result in no direct or indirect adverse effects on steelhead because it is likely that construction can occur in a dry channel. If

construction must occur in a wet channel, it is unlikely that steelhead would be present given the poor conditions that would prevail at the Robles site during the summer/fall in-channel construction period. However, if steelhead are present, effects could range from minor harassment to mortality during rescue activities.

2) Robles Diversion and Fish Passage Facility Operation

As mentioned earlier, any future operation of the diversion and fish pass should not only provide for upstream passage opportunity through the lower river, but should also ensure that downstream releases maintain below-diversion spawning and rearing habitat. Impacts to steelhead essential behavioral patterns (i.e., migrating, spawning and rearing) resulting from project operations will be discussed within the following three parameters: a) steelhead migration below the diversion, b) steelhead habitat below the diversion, and c) steelhead migration through the fish ladder. A discussion of potential effects resulting from the Critical Drought Protection Measures appears at the end of the section.

Effects on steelhead migration below the diversion

Adult steelhead migration

Due to the lack of steelhead population and behavioral data specific to the Ventura River watershed (as well as much of the southern California ESU), NOAA Fisheries has utilized data from the Carmel River to assess the efficacy of proposed migrational flows for adult Ventura River steelhead. Dettman and Kelley (1986) monitored steelhead migration between the Carmel River lagoon and San Clemente Dam fish ladder between 1962 - 1975. The Carmel River and Ventura River share many similar characteristics, such as similar stream channel morphology and dry, temperate climate patterns, as well as native steelhead strains adapted to the southern-most extent of the species range. Also, due to the absence of historic steelhead research and monitoring within the Ventura watershed, the Carmel represents the closest river system in which quality migrational data exists. For these reasons, NOAA Fisheries utilized the Carmel River migration data to estimate steelhead migration rates and, ultimately, the length of time that most steelhead would require to traverse the 14 miles of river channel between the Ventura River estuary and the Robles Diversion.

Adult steelhead tend to migrate upstream in large pulses of fish, with each pulse typically triggered by rising storm flows during the winter and spring months (Shapovalov and Taft 1954; Dettman and Kelley 1986). As a pulse of migrating fish approaches a set point some distance upstream, fish arrival times, if plotted, would resemble a bell-shaped curve. For this scenario to be true, one would have to assume that all fish started from approximately the same point at the same time. Thus, with regard to the Carmel River analysis, NOAA Fisheries considered only data from the first storm experiencing fish movement within each water year to ensure that all fish within a pulse had experienced the same triggering storm and start location (i.e., the estuary). This would likely eliminate any fish that might be holding within the river between storms and

would thus have a shorter distance to migrate, and as a result, record an artificially short total migration time. If the migrational circumstances outlined above hold true, then it could be reasoned that fish represented by the "tails" of the bell-shaped curve would likely represent slower and faster swimming individuals. From the Carmel River data, averaging the longest migration time (i.e., the slowest fish) from the initial fish migration storm of each year identified a migration window of 18.6 days for the 18.5 mile lower reach of the Carmel River, or an approximate migration rate of 1 mile per day. Extrapolating these results to the 10 mile stretch between the Shell Hole (the upstream limit of adult holding area on the lower Ventura River) and the Robles Diversion, an appropriate migration window of 10 days was identified. NOAA Fisheries chose to extrapolate a suitable migration window from the slowest migration rate in large part because of the critical status of the Ventura River steelhead population, which has declined at least 97% from historic numbers (Busby et al. 1996). If the migration window was based upon the fastest or even the average migration rate, as many as half of the steelhead within each pulse (i.e., the slower half) would not be afforded sufficient time to make the upstream journey. By basing the window on the average of the slowest fish recorded in each of the Carmel River storms studied above, the Ventura River migration window will likely be long enough to ensure successful upstream migration for the majority of fish within each storm pulse.

The second facet critical to effective steelhead migration in the lower Ventura River is the release of sufficient passage flow to ensure sufficient depth at critical riffle areas. Sautner et al. (1984) reported that passage of chum salmon spawners through sloughs and side channels of the Susitna River, Alaska, depended primarily on water depth, length of the critical stream reach, and size of substrate particles. Critical passage areas (i.e., shallow riffle areas where low flow first present passage problems) were analyzed via the Thompson Method (Thompson 1972) by Casitas' consultants during December, 1999 (ENTRIX 1999). Based upon this analysis, the minimum flow providing sufficient depth for upstream adult steelhead migration was estimated as approximately 50 cfs[7]. Therefore, post-storm flow releases should be maintained at 50 cfs or greater (when natural inflow allows) in order to ensure that the majority of upstream migrating adults can utilize the full 10 day migration window outlined above. The 50 cfs flow, although thought to be sufficient at this time, does represent a minimum flow standard as determined by the Thompson Method. Detailed study of the relationship between flow and passage conditions in the lower reach will allow for future adjustment of this standard if necessary.

Finally, the timing and magnitude of downstream releases must be integrated into an effective flow release pattern to fully realize the potential benefits of the fish ladder. In addition to providing the physical aspects necessary for upstream migration (i.e., the flow duration and magnitude identified above), an effective release pattern should also furnish the natural cues and triggers which stimulate migrational behavior. Research suggests that factors associated with

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[7] The BA cites the ENTRIX fish passage study as the basis for the assertion that 29 cfs would provide adequate fish passage flows in the Robles Reach. NOAA Fisheries has commented previously on the limitations of the Thompson method used in the ENTRIX study, and the questionable modifications made to its criteria in its application to the Ventura River. (See National Marine Fisheries Service Memorandum to Jim Lecky, "Summary of the Thompson Method for determining stream flows for fish life, dated September 4, 2002a and National Marine Fisheries Service 2002b).

high flow events seem to stimulate adult salmonid ascent (Shapovalov and Taft 1954; Alabaster 1970). But while peak discharge events likely trigger the start of migration, the fact that an increase in upstream migration activity occurs during storms or freshets suggests the relative change in flow seems to impact migratory response the greatest. Further, sustained upstream migration seems to be more closely tied to the receding flows following a storm peak than the rising flows preceding it. Huntsman (1948) discovered that while initial entry into the river typically occurred as a freshet developed, the principal upstream ascent to spawning habitat occurred as the river flow was falling. Similarly, Laughton (1991) found that upstream migration took place at all stages of the storm event, even though movement after the storm peak was most common. Thus, it is reasonable to assume that any sharp changes to the smooth, natural recession rate of river flow could abruptly change upstream migratory behavior, possibly even halting movement altogether.

Shapovalov and Taft (1954) noted just this behavior during one of the few studies documenting steelhead behavior in stream systems south of San Francisco, California. While monitoring upstream steelhead and coho salmon *(Oncorhynchus kisutch)* migration, the authors noted that "on more than one occasion a number of steelhead have entered Waddell Creek during a storm or series of storms, but have 'holed' up in pools in the lower portion of the stream....as a result of sudden cessation of the storm and lowering of the flow." Once "holed" up in deep pools, the Shapovalov and Taft observed that these fish would remain in place until an increase in flow triggered them to continue migrating upstream. In light of the observations above, NOAA Fisheries believes incorporating a downstream release pattern that mimics the natural recession rate of a typical Ventura River storm event is essential to ensuring that adult steelhead can fully utilize the migration opportunity presented by the 10 day window/50 cfs minimum flow pattern outlined above. The 10 miles of mainstem Ventura River between the Shell Hole and the Robles Diversion Facility has little, if any, adult holding habitat. Facility operations which cause an abrupt decline in downstream flow level could trigger adult migrating fish to stop and seek cover in areas where water depth is rapidly receding, in essence stranding fish in downstream reaches. Under these circumstance, steelhead trapped in the rapidly receding lower river would be put at great risk by rapidly deteriorating water quality, and ultimately predation or dessication.

Unlike the five species of pacific salmon, steelhead are iteroparous (i.e., able to spawn more than one time). A small percentage of adult steelhead may migrate out to the ocean and return to spawn in subsequent years. Shapovalov and Taft (1954) documented that an average of 17% of the adult steelhead runs on Waddell Creek were made up of repeat spawners. Within the Ventura River watershed, information concerning the overall percentage or behavioral characteristics of "runback" fish is lacking. However, flow augmentation provided for upstream migrating adult fish is anticipated to also supply adequate migratory conditions to the small number of runback fish likely to occur in the Ventura River system.

The proposed action by Reclamation incorporates the elements deemed necessary in the above discussion. Post-storm downstream flows will be released according to the average recession rate of a Ventura River storm event, ensuring that the release pattern properly mimics the natural

storm hydrograph. Furthermore, flow levels following storm events will maintain flows above the minimum passage level of 50 cfs for 10 days, when natural inflow permits. Therefore, NOAA Fisheries anticipates the proposed 10 day migration window will accomodate the majority of migrating adult steelhead within the Ventura River. However, since the window was formulated from the *average* migration rate of the slowest Carmel River fish, it stands to reason that some fish migrating at an extremely slow pace (i.e., slower than 1 mile/day) would likely fail to reach the ladder in time and would likely be trapped below the diversion structure when river flows drop below 50 cfs. NOAA Fisheries again looked to Carmel River migration data to estimate the percentage of fish that would migrate slower than 1 mile/day and thus would not succeed within an 18 day migration window (the Carmel River migration distance was approximately 18 miles).

During the ten storm events analyzed within the Carmel River (one year was outside the 95% confidence interval and deemed an outlier), only the initial storms of 1967 and 1969 produced any of these extremely slow "stragglers". Accounting for fish traveling slower than one mile/day, "stragglers" made up less than 5% of the entire run size in the 1967 storm, whereas the initial storm in 1969 saw almost 19% of the fish pulse arrive outside of the 18 day window. However, it should be noted that 1969 was one of the largest rainfall years on record with flow rates reaching 2840 cfs. Thus, the extremely large 1969 event likely produced anomalous migration rates since fish were likely precluded from beginning upstream migration for several days due to extremely high peak flows. Therefore, NOAA Fisheries has chosen to utilize a 5% "straggler" rate based upon the 1967 migration data. On the Ventura River, steelhead population estimates from the early 1990's gauge the adult steelhead population to be less than 200 returning adults. However, these estimates were made without any sampling or study, and represent a best case scenario for Ventura River steelhead. Based upon the paucity of sightings and/or reports of adult fish within the system during the recent decade-long wet cycle, NOAA Fisheries suggests the current population is likely closer to 100 or fewer returning adult steelhead. Therefore, NOAA Fisheries makes the broad assumption that approximately 5 adult fish (i.e., 5% of 100 total adults) could migrate too slowly to reach the Fish Passage Facility in any given year and would find themselves below the diversion without proper flow to continue upstream. Three possible scenarios exist for steelhead in this situation: 1) migrate downstream to areas of perennial spawning and rearing habitat; 2) potential relocation to perennial spawning and rearing habitat through the fish rescue procedure; and 3) predation or dessication if flows recede sufficiently and rescue or outmigration is not an option. NOAA Fisheries anticipates that the majority of fish trapped below the diversion will either migrate to downstream habitat or be rescued, and thus only a small portion of stranded fish will likely perish. Thus, the number of lost (i.e., dead) fish resulting from stranding is expected to be small and is offset by the adult steelhead spawning within previously inaccessible habitat upstream of the diversion. Restoring steelhead access into the high quality spawning/rearing habitat within tributaries upstream of the Robles Diversion will lead to increased reproductive success for the Ventura River steelhead population. The resulting increase in juvenile recruitment will likely enhance the species' ability to survive and recover.

Downstream juvenile migration

Effects from proposed diversion operations on downstream migrating steelhead within the Ventura River are, at best, not well understood. Steelhead smolt migration appears to be influenced most by changes in photoperiod, although streamflow magnitude, temperature and turbidity may also influence this behavior (Bjornn and Reiser 1991). Although smolt emigration can occur anytime sufficient streamflow is present, the majority of smolt outmigration on the Santa Clara River occurs during the late spring months of April and May (ENTRIX 2000). During this seasonal time period storm flows are less prevalent and baseflow conditions are more likely utilized for downstream passage.

In the Ventura River, 50 cfs was suggested as the minimum flow allowing adult passage through the lower river based upon a discharge/depth analysis performed by Casitas' consultant (ENTRIX 1999). In short, the method (Thompson 1972) utilized in the analysis determines what discharge would cover 25% of the shallowest portion of the channel (e.g., critical riffle areas) to a predetermined depth deemed necessary for safe fish passage (0.6 feet is required for adult steelhead). However, the Thompson Method does not specify a depth criteria for steelhead smolt. Therefore, in determining a suitable smolt passage flow, NOAA Fisheries assumed that Ventura River smolt than adult trout, for which the Thompson Method requires a depth of 0.4 feet. Downstream smolt trapping on the Santa Clara River from 1994-1998 documented an average smolt length of approximately 160 mm and 210 mm for age 1 and age 2 fish, respectively, with the largest specimen measuring 310 mm (ENTRIX 2000). These smolt sizes are for the most part much smaller than the 250-500 mm average size of an adult cutthroat trout (Meehan and Bjornn 1991), which was one of the trout species investigated by Thompson. Factoring the 0.4 foot "trout" minimum depth into the Thompson analysis suggests that approximately 30 cfs would be needed for an average adult trout. Since steelhead smolts are smaller than adult trout, the 30 cfs flow will likely provide a depth sufficient for safe smolt passage downstream through the lower river. Also, the 30 cfs flow will be provided throughout the entire steelhead out-migration season of January 1 through June 30. Therefore, steelhead take associated with migration through the lower river is not anticipated. The proposed research and monitoring within the lower Ventura River will provide a better understanding of the flow magnitude and release pattern necessary for successful steelhead migration.

Effects on steelhead habitat below the diverison

The proposed downstream flow regime has the potential to affect instream spawning and rearing habitat within the lower Ventura River. Spawning and rearing habitat has been documented from below the Robles Diversion downstream to the Ventura River estuary (Evans 1947; Capelli 1997; Zimmerman 2002).[8] Research specific to the Ventura River detailing the relationship

[8] The BA asserts that "No rearing currently occurs in the reach immediately downstream of the Robles facility and riparian forest habitat does not exist at the Robles site." This is a mischaracterization that appears repeatedly throughout the BA. The reach immediately below the Robles Diversion, and extending downstream approximately one-half mile does retain a surface flow in normal rainfall years, and for a considerably longer reach in above normal rainfall years. A survey conducted in 1995 documented the presence of rearing salmonids in this

between flow and instream habitat condition is lacking. Therefore, NOAA Fisheries cannot at this time accurately describe potential impacts to spawning and rearing habitat in the lower river arising from the proposed down-stream release schedule. However, NOAA Fisheries believes the 30 cfs between-storm flow aimed at facilitating smolt emigration will likely improve current instream habitat variables (i.e., depth, cover, and available habitat area) important to rearing and spawning steelhead.

Effects on steelhead migration through the fish ladder

Adverse effects to steelhead resulting from passage through the fish ladder structure are anticipated to be minimal. Steelhead passing through an artificial structure, such as a fish ladder, could experience disorientation and/or delay traveling through the facility; difficulty physically migrating through the ladder; and/or trouble finding and navigating the entrance and exit of the ladder structure. Problems fish encounter when passing through a fish ladder are most likely the result of faulty design and/or construction of the facility and would most likely result in non-lethal impacts similar to those described above. However, the Robles Fish Ladder was designed specifically for the unique conditions present within the Ventura River watershed. Substantial review and input was provided by agency biologists and engineers over the 4-year design process, resulting in the modification of several characteristics of the ladder to ensure problem-free operation and maximum passage efficiency (Borcalli and Associates 2000a; Borcalli and Associates 2000b). At this time it is impossible for NOAA Fisheries to estimate the number of fish likely to be injured at this unique facility. Nevertheless, NOAA Fisheries anticipates that any impacts occurring as a result of faulty fish ladder design and/or construction will be minimal and non-lethal. During the first several years, intensive monitoring and research of the passage conditions within the ladder will guide any modifications to the facility deemed necessary to lower documented adverse impacts. The Management Committee will utilize this analysis to recommend suggested operational changes to Casitas.

Effect resulting from implementation of the Critical Drought Protection Measures

Potential effects attributed to the possible future implementation of the Critical Drought Protection Measures are difficult to assess at this point in time for several reasons. First, the exact time and duration that the measures would be implemented is unknown at this time. Hydrologic patterns within Southern California appear to be cyclical in nature, with the Ventura watershed experiencing a drought sequence approximately every 30 years (U.S. Bureau of Reclamation 2003). The last drought cycle occurred during the late 1980's and early 1990's and lasted several years. Since this time, however, a wet period appears to have begun as indicated by the wet years of 1992, 1993, 1995, 1998 and 2000. Whether this is the start of a new climate regime (possibly a result of changing global weather patterns - i.e., global warming) or simply a small wet pattern embedded in a larger dry sequence is unknown at this time. However, with

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reach, and in fact recorded the highest density of fishes in the lower 14 miles of the main stem of the Ventura River (Capelli 1997). The Photograph No. 8 included in Appendix A of the BA documents riparian vegetation as present at the Robles Diversion and extending downstream.

Lake Casitas approximately 80% full at the present time, it appears unlikely that drought protection measures will be necessary in the near future. It should also be noted that since Lake Casitas initially filled in 1978, drought conditions have never been severe enough (including the late 1980's drought period) to trigger the proposed measures.

The population size and distribution of steelhead when the drought measures are implemented would be integral to any effect determination. Effects on a steelhead population would have greater consequences to the survival and recovery of a critically small population (i.e., the current Ventura River steelhead population) than a larger, healthier population. Within the Ventura River, NOAA Fisheries anticipates that the proposed construction and operation of the Robles Fish Passage Facility will enhance the likelihood of steelhead survival and recovery in the future, likely leading to a larger, more stable steelhead population in the future.

Steelhead in the Ventura River have adapted to a highly variable environment characterized by increased drought incident, higher baseline water temperatures, and unpredictable stream flows (Titus et al.1994). NOAA Fisheries theorizes that the southern steelhead population has weathered the harsh habitat conditions typical of southern California watersheds through various life history modifications, such as resident life-forms supplementing anadromous stocks and vice versa. This interchange between the anadromous and resident populations likely facilitates the continued existence of the species as a whole when one life form is naturally depressed (e.g., when drought conditions preclude successful anadromous migration between freshwater streams and the ocean). Since Ventura River steelhead have naturally adapted to the variable hydrologic regime present in the Ventura River, NOAA Fisheries does not expect that drought-related adjustments to downstream storm flow will significantly affect the Ventura River steelhead population. In addition, the anticipated increase in the abundance of the Southern California steelhead ESU resulting from fish ladder implementation will likely further attenuate any adverse effects resulting from future implementation of the drought management plan.

3) Robles Diversion and Fish Passage Facility Maintenance

Maintenance of facilities has the potential to affect steelhead should they be present during the maintenance activities (e.g., potential for direct injury to individuals) or if the activities affect their habitat (e.g., removal or destruction of habitat). To minimize potential adverse effects, the diversion and fish passage structures have been designed to be generally low maintenance and can typically function for an entire diversion season before requiring routine maintenance. This will allow maintenance activities to occur when there is little or no flow at the site, and therefore no steelhead present, under all but emergency conditions. In addition, should maintenance need to occur during the diversion season, the structures/facilities have been configured such that they are easily accessible for cleaning and other maintenance activities without requiring work in the channel. Other structures have been designed so that maintenance activities will not require actions where migrating steelhead may be affected (i.e., the structures will be placed outside the fish bypass system).

Sedimentation of the forebay pool can necessitate periodic removal of accumulated sediment and large storm events can create the need to shore up the earthen dam and forebay walls. These maintenance activities require moving dirt and rock within the channel using heavy equipment. To avoid potential adverse effects to steelhead, as noted above, these activities will occur when the streambed is dry. Currently this activity occurs every few years but is highly dependent on storm load conditions.

Reconstruction or repairs to the timber cutoff wall will typically occur during dry-channel conditions, often in conjunction with forebay maintenance activities. In such cases, there would be no adverse effect on steelhead. An extremely large storm event may damage the cutoff wall and necessitate emergency maintenance. The Robles facility can not operate if the timber cutoff wall is breached because no forebay can be maintained. Under such emergency conditions, construction could occur in a wet channel. Best management practices developed with NOAA Fisheries and CDFG would be employed to minimize sediment loading to the flowing water and to reduce potential, direct adverse effects to steelhead through movement of heavy equipment in the channel.

Maintenance of the stone weirs is expected to be minimal and limited to debris removal and replacement of the large stones, as necessary. Maintenance will occur only during dry conditions when the channel is dewatered and therefore no impacts to steelhead are anticipated. Removal of debris will maintain the pools created by these structures and therefore will improve holding habitat for migrating steelhead. These activities will, therefore, result in a small, localized benefit to steelhead migratory habitat.

Large debris accumulation can affect diversion and fish screen operation, clogging portions of the fish screen and creating localized "hot spots" of increased screen velocity. The Robles Fish Passage Facility has been designed to minimize debris impacts on the functionality of the system through the existing sloped trash-rack at the headworks entrance and the debris fence located in the forebay. Proper operation of the trash-rack and debris fence will ensure that steelhead effects do not result from debris accumulation at the facility.

For maintenance and operational purposes, staff may access the facility using the low-flow crossing. Crossings will occur when flows are approximately zero to 15 cfs. Because of the additional monitoring and maintenance needs, the exact frequency of crossings is unknown. Crossings during dry conditions do not have the potential to adversely effect steelhead or their habitat as the crossing structure will be maintained by the low-head weirs and no steelhead will be present. When there is flow, the low flow conditions make it unlikely that steelhead will be present.

Major repairs to the fish screen or fish passage facilities will occur outside the migration period, if possible. If not, then the facilities will be shut down while repairs are made. This could result in steelhead passage being delayed for a brief period of time. Efforts will be made to minimize

the period of time the facility is out of service. No direct effects on steelhead are anticipated during such repairs as there will be no steelhead in the facilities.

4) **Interim Robles Diversion Operations**

The interim Robles Diversion operations provide for a minimum 50 cfs down-stream release, when naturally available, below the diversion for the 10 days following a storm peak during the fish flow operations season (i.e., January 1 - June 30). Maintaining a 50 cfs flow for 10 days following a migratory storm event will ensure that adult steelhead will likely have access to the full 14 miles of habitat located below the diversion structure when flows allow. However, adult steelhead take in the form of stranding, predation or dessication may result if migrating fish reach the upper reaches of the Robles Reach and stream flow rapidly recedes due to a combination of diversion and groundwater effects.

NOAA Fisheries does not anticipate large numbers of fish to reach the diversion area for the following reason. Though largely dictated by the size and duration of each individual storm event, Casitas typically postpones diversion operations and bypasses all natural inflow until a day or two following a storm peak; this is done largely to minimize sediment input into Lake Casitas, as well as to avoid the high debris loads common to peak storm flows. Once diversion operations begin, downstream flows will likely be truncated to 50 cfs within a few days following all but the largest storm events. Rapidly receding storm flows have been shown to stop upstream fish migration (Shapovalov and Taft 1954). Absent a smooth recession of post-storm downstream flows, the vast majority of upstream migrating fish in the lower Ventura River will likely stop and spawn in perennial reaches of the mainstem such as those in and below the Foster Park/Casitas Springs area. Furthermore, the 4 miles of stream below the diversion (Robles Reach) typically experience a predictable early summer de-watering regime, with subsurface flow usually originating at the downstream end of the reach and moving upstream as groundwater conditions worsen and incoming streamflow diminishes. The small number of fish anticipated to reach the Robles Reach during interim operations will likely move upstream as subsurface flows recede, working their way toward better habitat directly below the diversion.

NOAA Fisheries anticipates that any stranded fish will be located through the proposed search and rescue protocol and will be re-located if NOAA Fisheries and CDFG determine that the habitat conditions warrant such activity. Therefore, NOAA Fisheries anticipates that only a few fish during each of the two interim seasons will likely be in danger of stranding in the Robles Reach and the proposed search and rescue protocol will likely limit this impact to minor handling and relocation of each individual fish.

5) **Monitoring and Evaluation Activities**

This section presents the potential effects, both adverse and beneficial, of the monitoring and evaluation program. Several shorter-term evaluations or studies are proposed to provide additional information that will be used during the 5-year re-visitation of the initial fish flow

operations. Longer term monitoring components are also proposed. The effects analysis has been sub-divided along the same lines as the monitoring program.

Short-Term Evaluations

The short term evaluations are studies designed to provide specific information that can be used by the Biology and Management committees in adaptive management of the proposed action and during the 5-year re-visitation. Effects of each individual evaluation are provided below.

Upstream Fish Migration Impediment Evaluation

Observations would be made periodically at low flow passage sites and/or other locations to measure flow, velocity, width, and depth and other habitat variables. Such activities can temporarily frighten or modify the behavior of fish inhabiting areas that are being surveyed. Such harassment would not substantially affect steelhead inhabiting surveyed habitats. Passive observations of the status of the sand bar at the mouth of the river will occur, but will not affect steelhead.

Evaluate Fish Movement through the Passage Facility

The majority of the monitoring to occur in the fish passage facility and immediately below the diversion dam would be passive. The fish passage facilities have been designed to provide easy access to the facilities. While the protocols of the monitoring program have not been specifically identified yet, it is anticipated that much of the monitoring would either occur through the grates that cover the facility or through passive observations made by lifting up the grates. Some observations may require getting down into the facilities, and fish in the facilities during these times could be harassed by the presence of the observer. Similarly, downstream observations of the pool below the spillway by snorkeling could frighten or disrupt the behavior of any fish present in the pool area. However, care would be taken to avoid close contact with any fish inhabiting the area and thus potential affects are anticipated to be minor and temporary.

Evaluate Downstream Fish Migration through the Robles Reach

The migrant trapping program is anticipated to have a temporary, adverse effect on individuals captured in the trap during the length of the monitoring program. Installing two trapping locations on the Ventura River may lead to individual steelhead being trapped twice and therefore being subjected to the stresses of trapping, twice. Minor affects to steelhead would primarily result from temporary (e.g., hours) migration delay and handling of fish, both of which will be minimized by the provisions of the study protocol developed with NOAA Fisheries and CDFG. However, trapping and handling during monitoring activities can injure or kill some individuals, although trap related mortality is not expected to exceed 1 % (Sparkman 2002).

NOAA Fisheries anticipates the proposed monitoring outlined above will provide significant benefits to the species. Overall take resulting from the proposed monitoring is expected to be minimal.

Long-Term Monitoring Components

Monitor Robles Facility Operations

All of the sensors and gages used to calculate flow through the various parts of the proposed facilities will be built into the structure and therefore would not hamper, impede, or otherwise affect migrating steelhead. Over the lifetime of the facility, these sensors/gages may require maintenance that is covered under the maintenance of the facility section above.

Fish Passage Monitoring

The Vaki Riverwatcher will count up and down-stream adult steelhead migrants passing through the Fish Passage Facility. Because this is a passive, infrared device, monitoring activities will have no effect on the individuals being counted. Adult migrant counts will be used to determine if adult steelhead are successfully passing through the newly installed fishway. Because of the low numbers of steelhead expected in this portion of the Ventura River system, it is unclear how many adults will be observed using the new facilities in the short term.

Long-term tracking of fish counts at the Robles facility are anticipated to have an overall net benefit on the Ventura River steelhead population because it will provide resource mangers feedback on the status of the population and whether existing restoration and recovery actions are successful. This information will provide the necessary scientific basis for ongoing restoration efforts which will ultimately benefit the local population and the broader ESU.

6) Cooperative Decision Making Process

The intent of the Cooperative Decision Making Process is to provide forums for technical feedback, where necessary, and management-level recommendations relating to proposed operations. The goal of the process is to result in consensus-based recommendations after appropriate information is reviewed and considered. Future changes to the operation or design of the facility will be ultimately decided by Reclamation after considering Management Committee recommendations, and are not expected to result in any impacts other than those already considered within this Biological Opinion. However, if future facility changes result in any new adverse effects not previously considered within this opinion, Reclamation would be required to re-consult as provided in 50 CFR §402.16.

Effects from Interrelated and Interdependent Actions

Effects to steelhead associated with the continued operation of Casitas Dam, Robles-Casitas Canal, and Matilija Dam were described as part of the environmental baseline section of this Biological Opinion. Both Casitas Dam and Robles-Casitas Canal are long-standing, permanent facilities where current operations are expected to continue into the foreseeable future; therefore,

the project related effects described within the environmental baseline are expected to continue into the future.

Since 1958, Casitas Dam has critically impaired the natural flow regime of Coyote Creek and lower Ventura River. Steelhead have been, and will continue to be, prevented from migrating into and out of pristine spawning and rearing habitat that exists in upper Coyote and Santa Ana Creeks. Furthermore, absent any downstream releases from Casitas Dam, steelhead habitat within lower Coyote Creek will remain degraded and of little use to spawning and rearing fish. NOAA Fisheries does not anticipate any increase in impacts to the Southern California steelhead ESU from Casitas Dam operations as a result of the proposed action.

A group of federal, state and local agencies is currently investigating Matilija Dam removal as a means to restore the natural fluvial characteristics of the Ventura River. However, if Matilija Dam removal comes to fruition, steelhead-related benefits expected from the project (i.e., upstream fish passage and restored sediment transport) will likely not occur for decades since the proposal is in its infancy at this point in time. Thus, Matilija Dam will likely continue to block upstream and downstream steelhead migration for the near future, and past dam effects will persist for the most part. However, when Matilija Dam completely fills with sediment (likely to occur within the next several years), downstream transport of sediment and spawning gravel is anticipated to improve. Accumulation of spawning gravel in the currently sediment starved reach of Matilija Creek below the dam will greatly benefit steelhead spawning in that area.

Project-related Long Term Benefits to Steelhead

Although the proposed action is expected to disturb aquatic habitat and create short-term adverse effects, the action is also expected to produce an overall long-term benefit to steelhead. The proposed fish ladder and project operations are expected to increase the production of the Ventura River steelhead population by not only allowing for passage into previously inaccessible upstream habitat, but also improving habitat conditions in the lower river below the diversion structure. NOAA Fisheries believes that the proposed project will also increase the potential survival and recovery of the Southern California steelhead ESU.

VI. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. NOAA Fisheries maintains general familiarity with actions affecting steelhead within the Ventura River watershed, and is not aware of any activities that are reasonably certain to occur within the proposed action area and that would not require section 7 consultation.

VII. SUMMARY

The steelhead population in the Ventura River is potentially susceptible to any activity which affects hydrologic condition within the watershed, including the proposed construction and operation of the Robles Diversion and Fish Passage Facility. The Ventura River represents a highly managed and manipulated system, currently in a state far removed from historic, natural conditions. Water is removed annually via groundwater pumps and surface diversions, greatly diminishing spawning and rearing flows steelhead depend on for survival. Due to the three major dams (i.e., Casitas, Matilija, and Robles) and many smaller migration impediments which effectively block upstream passage, the prime steelhead habitat which still exists within upper tributaries remains largely inaccessible. The above factors are largely blamed for the >96% decline in the size of the Ventura River adult steelhead population. However, the proposed action is likely a critical first step in providing passage throughout the entire river, as well as improving steelhead habitat conditions and water quality within the watershed.

The proposed construction of the ladder is expected to result in minor, non-lethal adverse effects only in the short term, lasting no more than 8 months. Proposed interim operations improve upon the current downstream flow release and thus are expected to slightly improve steelhead migration, spawning and rearing conditions in the lower river during the two years of Fish Passage Facility construction. Beyond this, the completed project is expected to provide an overall net positive benefit over time by improving downstream habitat conditions and increasing steelhead passage opportunity, which could increase abundance and reproduction throughout the river. The operational scheme proposed at the Robles Diversion Fish Passage Facility will furnish a downstream flow regime that adequately mimics the natural storm recession rate, and thus the inherent migratory triggers and cues, to which Ventura River steelhead have grown accustomed during their evolutionary development. Operations will also ensure that water released downstream of the diversion is of sufficient duration and depth to ensure successful migration conditions for the majority of migrating steelhead. Finally, released flows will be structured to help maintain existing spawning and rearing habitat within the lower river between storm events. Therefore, NOAA Fisheries anticipates the construction and long-term operation of the Robles Diversion Fish Passage Facility will increase the numbers, reproduction and distribution of steelhead within the Ventura River.

As a result of interim operations, steelhead from the Ventura River population could be stranded within the Robles Reach by diminishing surface flows. However, as mentioned previously, Reclamation has proposed to rescue fish stranded below the diversion, which makes the likelihood of steelhead mortality from stranding unlikely during the interim operations period. When considering both the small potential for mortality and the short duration of effect (2 years of interim operations), NOAA Fisheries does not expect interim operations to hinder the survival of the species. Therefore, NOAA Fisheries finds that the interim operations are not expected to reduce the likelihood of both the survival and recovery of steelhead within the Ventura River or the southern California ESU.

VIII. CONCLUSION

After reviewing the best scientific and commercial data available, the current status of steelhead, the environmental baseline for the action area, the effects resulting from the proposed action, and any anticipated cumulative effects, it is NOAA Fisheries' biological opinion that the proposed project action is not likely to jeopardize the continued existence of the Southern California steelhead ESU.

IX. INCIDENTAL TAKE STATEMENT

Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. NOAA Fisheries interprets the term "harm" as any effect which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2), taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are nondiscretionary, and must be undertaken by Reclamation so that they become binding conditions of any grant or permit issued to Casitas, as appropriate, for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (1) fails to assume and implement the terms and conditions or (2) fails to require Casitas to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Reclamation must report the progress of the action and its impact on the species to NOAA Fisheries as specified in the incidental take statement. (50 CFR §402.14(i)(3))

Amount or extent of take

NOAA Fisheries anticipates that incidental take of Southern California steelhead is likely to occur as a result of implementation of the proposed project. The quantity of incidental take is outlined below with regard to individual project actions.

Robles Diversion and Fish Passage Facility Operation

The best available information has been used to estimate that the number of Southern California steelhead that may perish each year due to downstream stranding is 5% of the annual run. During the initial phase of Fish Passage Facility operation, take should be no more than 5 fish per

year. However, as the Ventura River steelhead population grows in the future, the amount of steelhead strandings will likely increase in relationship to the population growth.

Interim Operations

A small number of fish may be stranded in pools below the Robles Diversion when flows recede. All of these fish will be captured and relocated, as warranted by habitat conditions. NOAA Fisheries anticipates that no more than 1% of the total number of fish relocated with die as a result of trapping and handling.

Monitoring and Evaluation Activities

Lethal take is likely inherent within any sampling method involving trapping and/or handling of live specimens. However, mortality rates for age 1+ steelhead smolts trapped with a rotary screw trap in Redwood Creek, California were 0.56% (Sparkman 2002). Therefore, smolt mortality resulting from the use of rotary screw traps during proposed Ventura River monitoring activities is not expected to exceed 1% of fish captured.

Effect of take

In the accompanying biological opinion, NOAA Fisheries concluded the anticipated level of take associated with the project action is not likely to jeopardize the continued existence of the southern California steelhead ESU.

Reasonable and Prudent Measures

NOAA Fisheries believes the following Reasonable and Prudent Measures are necessary and appropriate to minimize and monitor incidental take of steelhead.

1) Reclamation shall ensure that steelhead take is fully minimized during the two year Fish Passage Facility construction period.

2) Reclamation shall monitor estuary breaching so that fish flow augmentation procedures are performed correctly.

3) Reclamation shall modify the existing bypass radial gate during project construction to allow the potential for fine downstream flow adjustments, if deemed necessary in the future.

4) Reclamation shall monitor and report take occuring during future construction and operation of the Fish Passage

X. TERMS AND CONDITIONS

In order to be exempt from the take prohibitions of the ESA, Reclamation must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring conditions. These terms and conditions are non-discretionary:

The following Terms and Conditions implement Reasonable and Prudent Measure No. 1.

1. In the event that fish ladder construction is complete but downstream weir construction is delayed beyond the completion date of the fishway, Reclamation and Casitas shall modify the current vehicle crossing downstream as well as the intake to the fish ladder in a way that allows upstream fish passage into the ladder facility. In this event, Casitas will work closely with CDFG and NOAA Fisheries personnel when designing the weir modification and will present final plans to NOAA Fisheries for approval one month prior to the onset of construction activities.

The following Terms and Conditions implement Reasonable and Prudent Measure No. 2.

1. Initial implementation of fish augmentation each season is predicated on prior breaching of the Ventura River estuary. Therefore, Reclamation and Casitas shall implement a mechanism to monitor the breaching of the Ventura River estuary. NOAA Fisheries recommends that Reclamation and Casitas investigate implementing a remote video sensor to accomplish this task. Prior to implementation, Reclamation and Casitas shall submit the proposed monitoring technique to NOAA Fisheries for approval.

The following Terms and Conditions implement Reasonable and Prudent Measure No. 3.

1. Based upon guidance from research and monitoring activities, fish ladder operations could potentially change in the future. Flow through the auxiliary flow release is currently designed to be metered out via a stage control gate. To ensure that higher flows can be delivered downstream if required in the future, Reclamation shall change the auxiliary gate to a volume control gate to allow fine adjustment of downstream releases and to ensure auxiliary flow releases are not directly linked to water elevation within the forebay. Reclamation and Casitas shall work closely with CDFG and NOAA Fisheries engineers to accomplish this task.

The following Terms and Conditions implement Reasonable and Prudent Measure No. 4.

1. Reclamation shall submit an annual summary of all take associated with Robles Diversion and Fish Passage Facility operation. The take summary shall be submitted no later than July 31 of each year and shall include the following information:

a. A detailed account of the number of fish killed or injured during each facet of the proposed action.

b. An explanation of the likely cause of take.

c. A discussion of any potential operational changes which may decrease the likelihood of future take at the Robles Facility.

NOAA Fisheries believes that few steelhead will be incidentally taken as a result of the proposed action. The Reasonable and Prudent Measures, with their implementing Terms and Conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. However, if the level of incidental take is greater than expected, reinitiation of consultation will be required to reassess the impacts of the proposed action. For example, if 6 or more steelhead are found injured or dead within the action area per year or screw trap mortality surpasses 1% , the level of take anticipated has been exceeded. Reclamation must immediately provide an explanation of the causes of the taking and review with NOAA Fisheries the need for possible modification of the reasonable and prudent measures.

Conservation Measures

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species, to help implement recovery plans, or to develop information.

1. NOAA Fisheries recommends that Reclamation and Casitas investigate the mechanism behind fish attraction into the Ventura River and any potential impacts that diversion operations may have on the attraction process. Extensive analysis presented within this Biological Opinion addresses steelhead passage within the lower Ventura River. However, relatively little is known about how the manipulated flow patterns of the Ventura River affect fish attraction into the lagoon and adult/juvenile movement through the lower river.

XI. REINITIATION OF CONSULTATION

This concludes formal consultation on the actions outlined in the project BA (U.S. Bureau of Reclamation 2003). As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by

the action. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately.

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Appendix C

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

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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

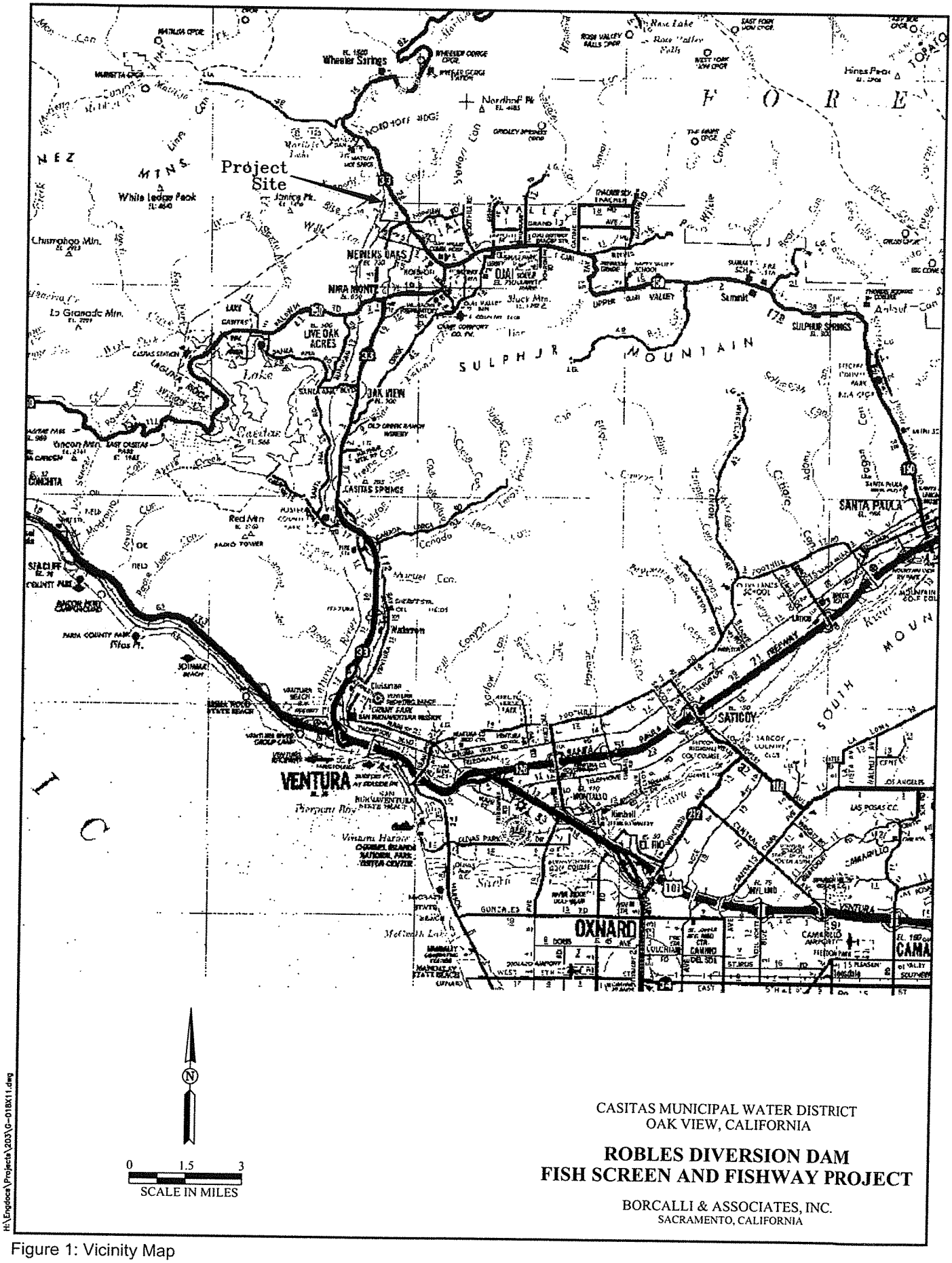
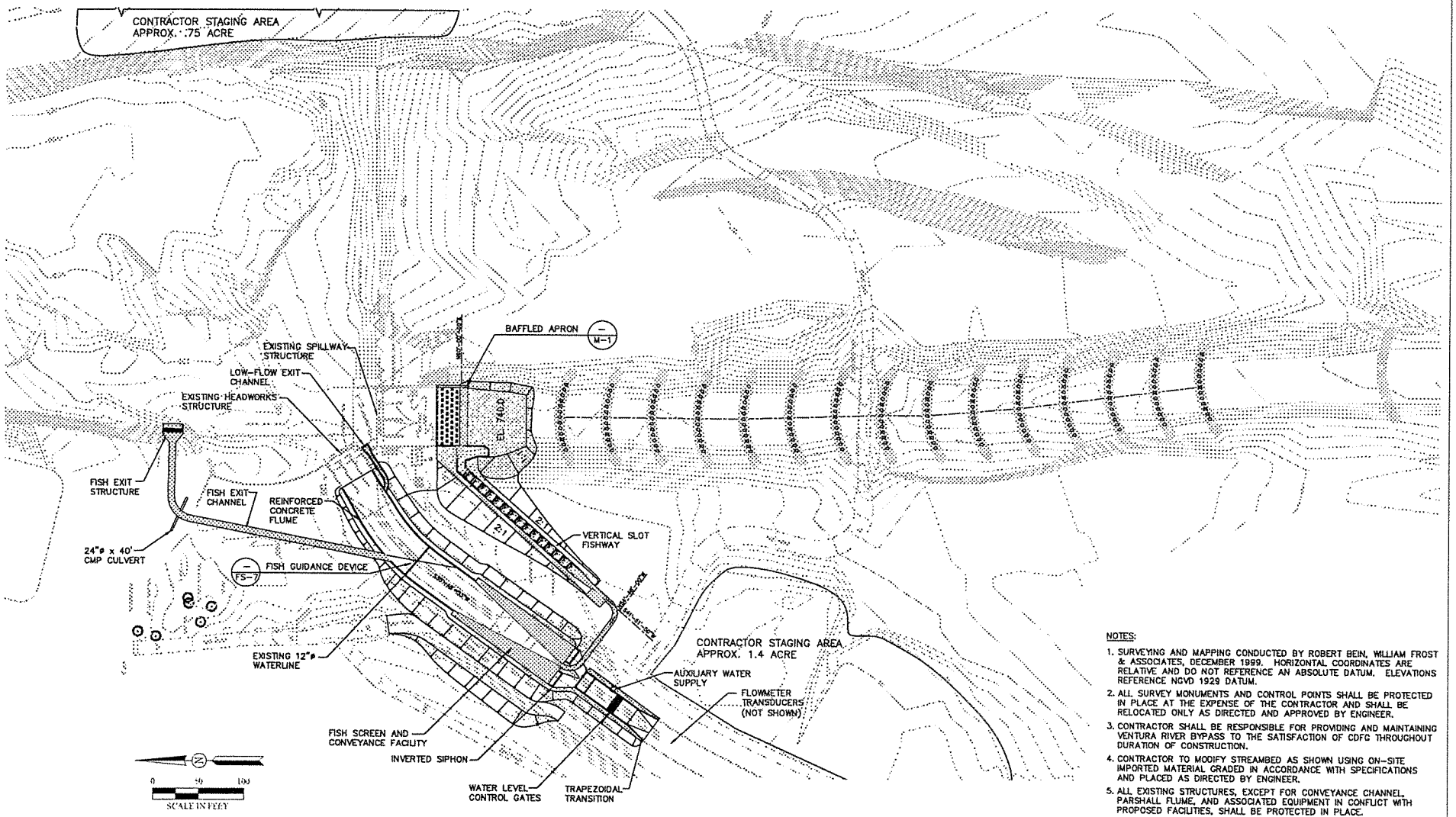


Figure 1: Vicinity Map



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

Francis Borcalli, Borcalli & Associates, Project Description

Tim Buller, Borcalli & Associates, Project Description

Layette Davis, ENTRIX, Inc., Fisheries Resources

Lina Hofmann, ENTRIX, Inc., Biological Sciences, Physical Sciences, Social Sciences

Brenda Peters, ENTRIX, Inc., Social Sciences

Jamie Tull, ENTRIX, Inc., Natural Resources Management

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.

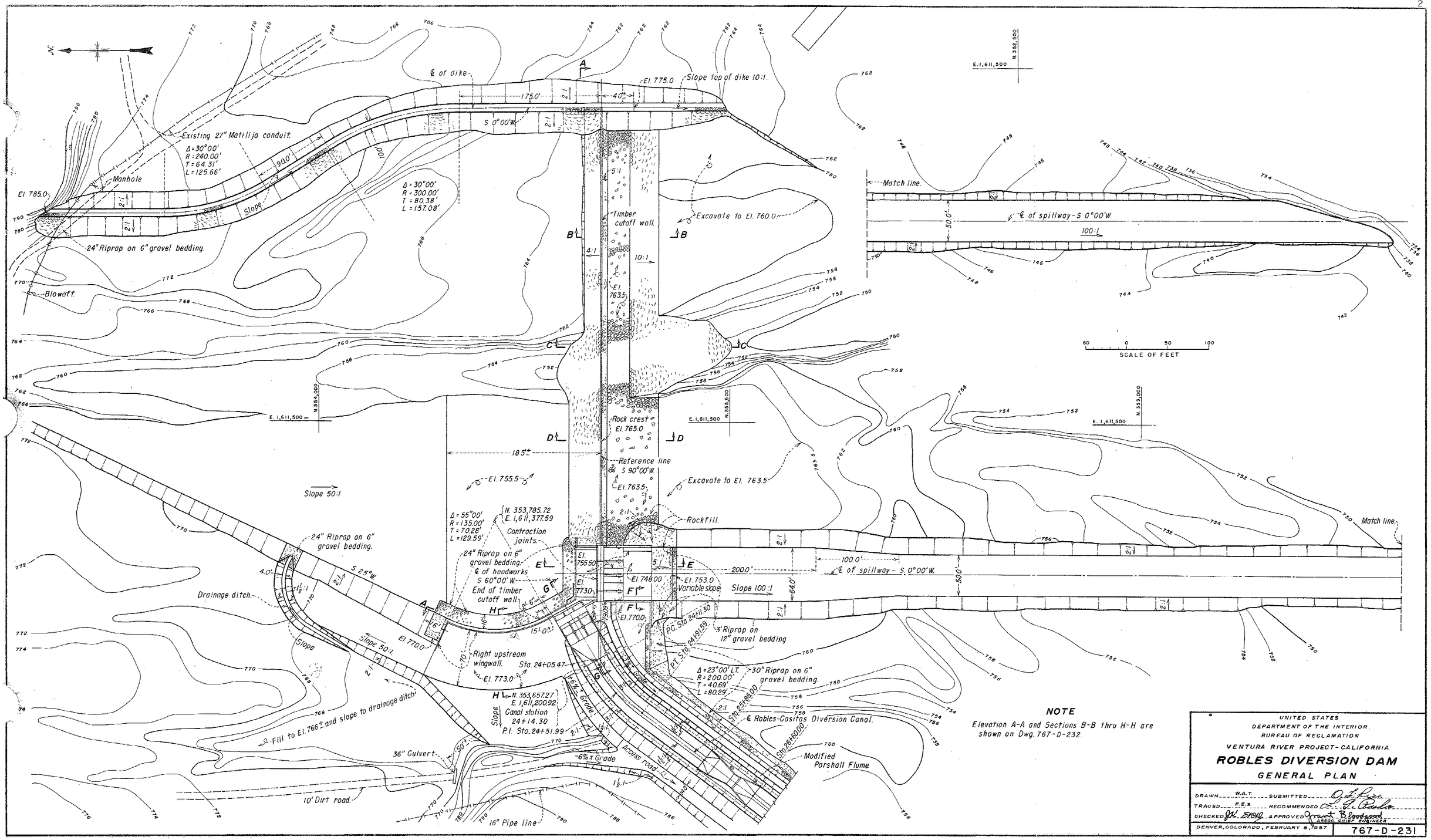
ENTRIX and Woodward Clyde Consultants. 1997. Ventura River Steelhead Restoration and Recovery Plan (SRRP) (December 1997).

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 D

1957 and 1978 Forebay Design



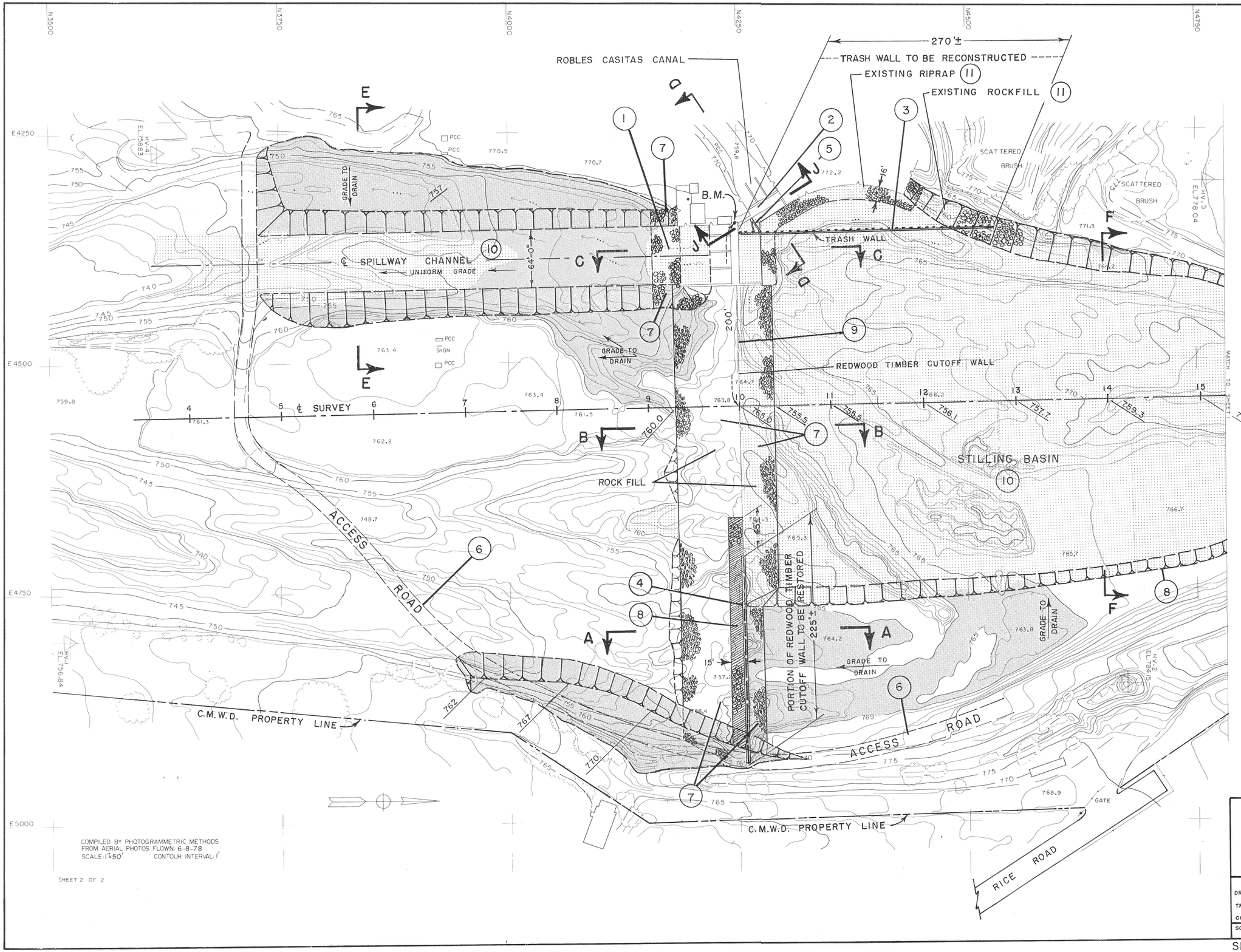
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
VENTURA RIVER PROJECT - CALIFORNIA

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



CONSTRUCTION NOTES

1. Replace riprap as required. (Bid Item 4)
2. Rebuild steel trash racks, three sections. (Bid Item 3)
3. Restore trash wall, exact amount to be determined upon removal of debris. (Bid Item 2 or 2a)
4. Restore redwood timber cutoff wall, exact amount to be determined upon removal of debris. (Bid Item 6 or 6a)
   - Alt. 1 – Rebuild with redwood
   - Alt. 2 – Rebuild with steel sheet piling
5. Repair steel brace. (Bid Item 3)
6. Grade 12' wide road. (Bid Item 1)
7. Replace rock fill, exact amount to be determined after removal of debris. (Bid Item 5)
8. Quarry stone. (Alternate Bid Item 5a)
9. Replace damaged 4 X 12 top wales on portion of cut-off wall not replaced. (Bid Item 7)
10. Restore stilling basin, spillway channel and upstream river channel. (Bid Item 1)
11. No new material required.

GENERAL NOTES

1. Cross sections are available at C.M.W.D. office. It is the Contractor's responsibility to determine the cut and fill quanities.
2. An estimated 91,000 c.y. of material consisting of rock, sand, silt, trash and debris is to be excavated. The contractor shall determine the actual amount for bidding. Cross sections are available at Casitas for review.
3. Contours as of 6/8/78, there has been some minor grading since then.
4. Minimum elevation top of slope is 765.
5. All graded slopes 2 : 1
6. Dimensions not delineated are to be scaled.
7. Contractor shall keep all operations within property lines.

LEGEND

AREA OF EXCAVATION

AREA OF FILL

COMPILED BY PHOTOGRAMMETRIC METHODS
FROM AERIAL PHOTOS FLOWN: 6-8-78
SCALE: 1"=50' CONTOUR INTERVAL: 1'

SHEET 2 OF 2

CASITAS MUNICIPAL WATER DISTRICT
OAK VIEW, CALIFORNIA

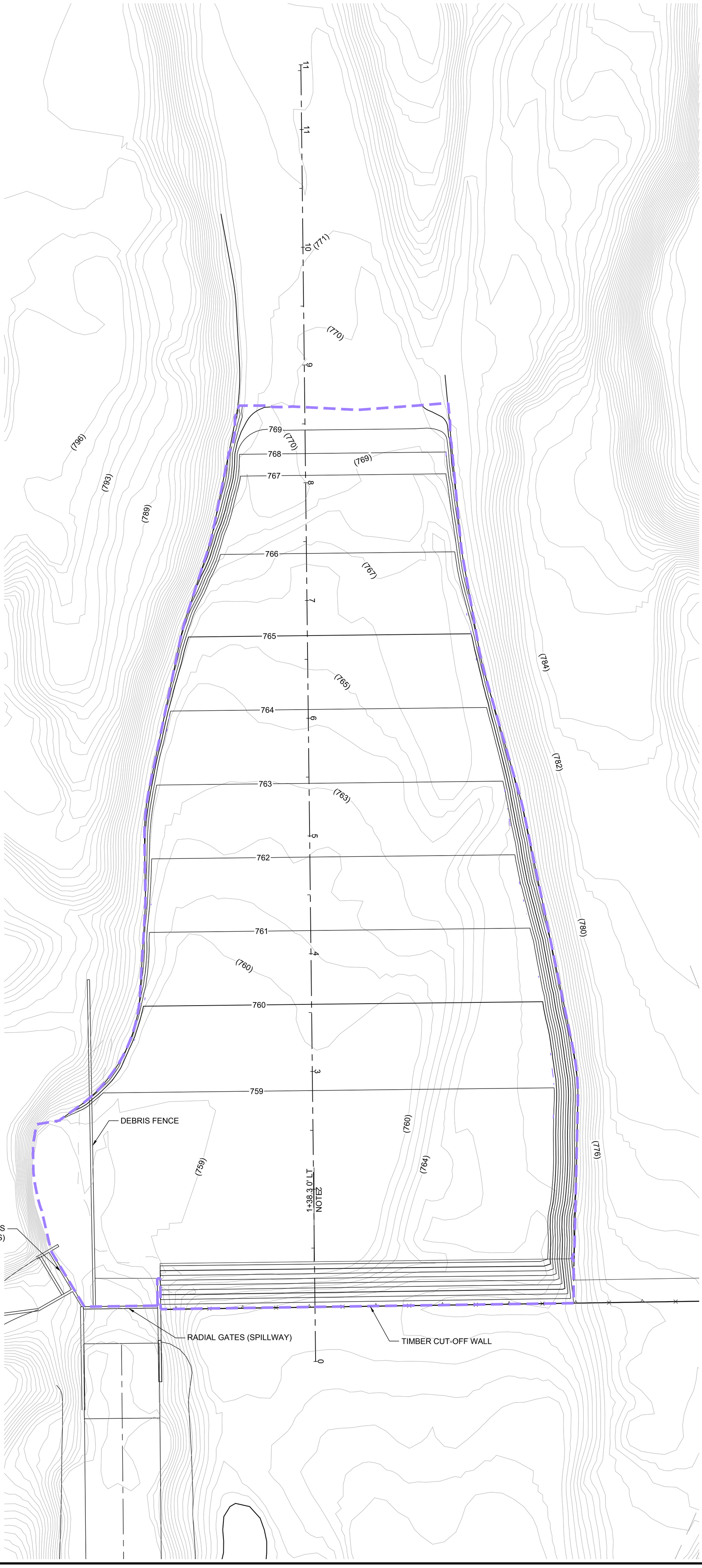
RESTORATION OF FACILITIES AT ROBLES DIVERSION DAM STILLING BASIN & SPILLWAY CHANNEL

DRAWN J.M.S.	SUBMITTED	MARIO O. TOGNAZZINI RCE 12230	
TRACED			
CHECKED	APPROVED	ROBERT N. McKINNEY RCE 15115	
SCALE: 1" = 50'	DATE: 7/24/78	NO: 1730	

SHEET 3 OF 6 SHEETS

Appendix E

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 F

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 Cutoff 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, unless dry	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 Sediment	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 G

CalEEMod Emissions Modeling

Casitas R&M Program - Unmitigated

Ventura County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	40.00	Acre	40.00	1,742,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2022 operational year

Land Use - Total size of facility

Construction Phase - Duration lengths per PD

Off-road Equipment - Equipment list from PD. HP changed from defaults using spec sheets. Off-site haul trips modeled in vehicle trips.

Off-road Equipment - No equipment

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Two 10-HP pumps to remove water from the fish ladder (per data request). Assume excavator used 6 days.

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Excavator to relocate large woody material

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Per equipment list in PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD. Conservatively assumed one dozer.

Off-road Equipment - Equipment list per PD

Trips and VMT - 10 construction workers driving individually, length of 10 miles (distance to edge of Ojai Valley Area). 16 cy dump trucks for 5,000 cy of soil (626 one-way trips). 1 water truck + 2 on-road trucks in vendor trips for Activity 1

Grading -

Construction Off-road Equipment Mitigation - VCAPCD Rule 55.

Table Name	Column Name	Default Value	New Value
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tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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tblConstructionPhase	NumDays	75.00	30.00

Casitas R&M Program - Unmitigated - Ventura County APCD Air District, Summer

tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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Casitas R&M Program - Unmitigated - Ventura County APCD Air District, Summer

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tblOffRoadEquipment	PhaseName		No. 5 Concrete Structures

Casitas R&M Program - Unmitigated - Ventura County APCD Air District, Summer

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2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9579	39.9080	23.6256	0.0873	12.5006	1.2643	14.1637	6.7415	1.1642	8.2716	0.0000	8,904.7225	8,904.7225	1.9334	0.0000	8,953.0578
Maximum	**3.9579**	**39.9080**	**23.6256**	**0.0873**	**12.5006**	**1.2643**	**14.1637**	**6.7415**	**1.1642**	**8.2716**	**0.0000**	**8,904.7225**	**8,904.7225**	**1.9334**	**0.0000**	**8,953.0578**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9579	39.9080	23.6256	0.0873	5.7772	1.2643	7.4402	3.0759	1.1642	4.6060	0.0000	8,904.7225	8,904.7225	1.9334	0.0000	8,953.0577
Maximum	**3.9579**	**39.9080**	**23.6256**	**0.0873**	**5.7772**	**1.2643**	**7.4402**	**3.0759**	**1.1642**	**4.6060**	**0.0000**	**8,904.7225**	**8,904.7225**	**1.9334**	**0.0000**	**8,953.0577**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.79**	**0.00**	**47.47**	**54.37**	**0.00**	**44.32**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No. 1 Forebay Sediment	Grading	1/4/2021	3/26/2021	5	60	
2	No. 1 Forebay Sediment - haul trip	Grading	1/4/2021	3/26/2021	5	60	
3	No. 2 Fish Ladder	Grading	3/29/2021	4/9/2021	5	10	
4	No. 2 Fish Ladder - heavy equipment	Grading	3/29/2021	4/5/2021	5	6	
5	No. 3 Rock Weir	Grading	4/12/2021	4/23/2021	5	10	
6	No. 3 Rock Weir - heavy equipment	Grading	4/12/2021	4/15/2021	5	4	
7	No. 4 Entrance Pool	Grading	4/26/2021	5/21/2021	5	20	
8	No. 4 Entrance Pool - heavy equipment	Grading	4/26/2021	4/30/2021	5	5	
9	No. 5 Concrete Structures	Grading	5/24/2021	6/4/2021	5	10	
10	No. 6 Routine - Timber	Grading	6/7/2021	7/16/2021	5	30	
11	No. 6 Routine - Debris Fence	Grading	7/19/2021	7/30/2021	5	10	
12	No. 6 Routine - Radial Gates	Grading	8/2/2021	8/13/2021	5	10	
13	No. 6 Routine - Instrumentation	Grading	8/16/2021	8/27/2021	5	10	
14	No. 6 Routine - Roads	Grading	8/30/2021	9/17/2021	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 40

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
No. 1 Forebay Sediment	Excavators	1	8.00	162	0.38
No. 1 Forebay Sediment	Excavators	1	8.00	286	0.38
No. 1 Forebay Sediment	Graders	1	4.00	165	0.41
No. 1 Forebay Sediment	Off-Highway Trucks	1	8.00	320	0.38
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	215	0.40
No. 1 Forebay Sediment	Tractors/Loaders/Backhoes	2	8.00	202	0.37
No. 1 Forebay Sediment - haul trip	Graders	1	0.00	187	0.41
No. 2 Fish Ladder	Excavators	1	0.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Excavators	1	8.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Pumps	2	8.00	10	0.74
No. 2 Fish Ladder - heavy equipment	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 3 Rock Weir	Excavators	1	0.00	158	0.38
No. 3 Rock Weir - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool	Excavators	1	0.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Off-Highway Trucks	1	8.00	402	0.38
No. 4 Entrance Pool - heavy equipment	Rubber Tired Dozers	1	8.00	247	0.40
No. 5 Concrete Structures	Cement and Mortar Mixers	1	8.00	9	0.56
No. 5 Concrete Structures	Excavators	1	8.00	158	0.38
No. 5 Concrete Structures	Off-Highway Trucks	2	8.00	402	0.38
No. 5 Concrete Structures	Pumps	1	8.00	84	0.74
No. 6 Routine - Timber	Excavators	1	8.00	158	0.38
No. 6 Routine - Timber	Off-Highway Trucks	1	8.00	402	0.38

No. 6 Routine - Timber	Plate Compactors	1	8.00	8	0.43
No. 6 Routine - Timber	Skid Steer Loaders	1	8.00	65	0.37
No. 6 Routine - Timber	Tractors/Loaders/Backhoes	2	8.00	97	0.37
No. 6 Routine - Debris Fence	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 6 Routine - Radial Gates	Aerial Lifts	1	8.00	63	0.31
No. 6 Routine - Instrumentation	Aerial Lifts	1	0.00	63	0.31
No. 6 Routine - Roads	Rubber Tired Dozers	1	8.00	247	0.40
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	354	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No. 1 Forebay Sediment	7	20.00	6.00	626.00	10.00	7.30	10.00	LD_Mix	HDT_Mix	HHDT
No. 1 Forebay Sediment - haul trip	1	20.00	0.00	626.00	0.00	0.00	40.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder - heavy equipment	4	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir - heavy equipment	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool - heavy equipment	3	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 5 Concrete Structures	5	20.00	2.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Timber	6	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Debris Fence	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Radial Gates	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Instrumentation	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Roads	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2762	0.0000	3.2762	1.6837	0.0000	1.6837			0.0000			0.0000
Off-Road	2.9078	29.1286	20.3030	0.0507		1.2363	1.2363		1.1374	1.1374		4,907.9826	4,907.9826	1.5873		4,947.6661
Total	**2.9078**	**29.1286**	**20.3030**	**0.0507**	**3.2762**	**1.2363**	**4.5124**	**1.6837**	**1.1374**	**2.8211**		**4,907.9826**	**4,907.9826**	**1.5873**		**4,947.6661**

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0438	1.7618	0.3598	4.3800e-003	0.0910	5.5400e-003	0.0965	0.0249	5.3000e-003	0.0302		480.0003	480.0003	0.0496		481.2396
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0406	1.6100e-003	0.0422	0.0117	1.5400e-003	0.0132		165.3514	165.3514	0.0127		165.6679
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.1256**	**2.3776**	**0.9868**	**7.3500e-003**	**0.2837**	**8.2100e-003**	**0.2919**	**0.0770**	**7.8200e-003**	**0.0848**		**788.2680**	**788.2680**	**0.0658**		**789.9139**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.4743	0.0000	1.4743	0.7577	0.0000	0.7577			0.0000			0.0000
Off-Road	2.9078	29.1286	20.3030	0.0507		1.2363	1.2363		1.1374	1.1374	0.0000	4,907.9826	4,907.9826	1.5873		4,947.6661
Total	**2.9078**	**29.1286**	**20.3030**	**0.0507**	**1.4743**	**1.2363**	**2.7105**	**0.7577**	**1.1374**	**1.8950**	**0.0000**	**4,907.9826**	**4,907.9826**	**1.5873**		**4,947.6661**

3.2 No. 1 Forebay Sediment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0438	1.7618	0.3598	4.3800e-003	0.0738	5.5400e-003	0.0793	0.0207	5.3000e-003	0.0260		480.0003	480.0003	0.0496		481.2396
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0333	1.6100e-003	0.0349	9.9000e-003	1.5400e-003	0.0114		165.3514	165.3514	0.0127		165.6679
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.1256**	**2.3776**	**0.9868**	**7.3500e-003**	**0.2262**	**8.2100e-003**	**0.2344**	**0.0628**	**7.8200e-003**	**0.0707**		**788.2680**	**788.2680**	**0.0658**		**789.9139**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1253	4.1955	1.0910	0.0146	0.3633	0.0198	0.3831	0.0995	0.0189	0.1184		1,599.8389	1,599.8389	0.1397		1,603.3315
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	5.4500e-003	0.0769	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3970	4.3970	4.1000e-004		4.4074
Total	**0.1465**	**4.2009**	**1.1679**	**0.0146**	**0.3635**	**0.0199**	**0.3834**	**0.0995**	**0.0190**	**0.1186**		**1,604.2360**	**1,604.2360**	**0.1401**		**1,607.7389**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1253	4.1955	1.0910	0.0146	0.2944	0.0198	0.3141	0.0825	0.0189	0.1014		1,599.8389	1,599.8389	0.1397		1,603.3315
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	5.4500e-003	0.0769	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3970	4.3970	4.1000e-004		4.4074
Total	**0.1465**	**4.2009**	**1.1679**	**0.0146**	**0.2946**	**0.0199**	**0.3144**	**0.0826**	**0.0190**	**0.1016**		**1,604.2360**	**1,604.2360**	**0.1401**		**1,607.7389**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548		949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**		**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548	0.0000	949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**	**0.0000**	**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961		500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**		**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961	0.0000	500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**	**0.0000**	**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636		2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**6.0221**	**0.8300**	**6.8520**	**3.3102**	**0.7636**	**4.0738**		**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636	0.0000	2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**2.7099**	**0.8300**	**3.5399**	**1.4896**	**0.7636**	**2.2532**	**0.0000**	**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432		3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**		**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6200e-003	0.1929	0.0494	5.1000e-004	0.0135	5.4000e-004	0.0141	3.8900e-003	5.1000e-004	4.4000e-003		55.1171	55.1171	4.2200e-003		55.2226
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0706**	**0.2299**	**0.5281**	**1.9400e-003**	**0.1657**	**1.6000e-003**	**0.1673**	**0.0443**	**1.4900e-003**	**0.0457**		**198.0334**	**198.0334**	**7.8300e-003**		**198.2291**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432	0.0000	3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**	**0.0000**	**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6200e-003	0.1929	0.0494	5.1000e-004	0.0111	5.4000e-004	0.0116	3.3000e-003	5.1000e-004	3.8100e-003		55.1171	55.1171	4.2200e-003		55.2226
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0706**	**0.2299**	**0.5281**	**1.9400e-003**	**0.1302**	**1.6000e-003**	**0.1318**	**0.0355**	**1.4900e-003**	**0.0370**		**198.0334**	**198.0334**	**7.8300e-003**		**198.2291**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267		2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**		**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267	0.0000	2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**	**0.0000**	**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028		300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**		**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028	0.0000	300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**	**0.0000**	**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105		162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**		**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105	0.0000	162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**	**0.0000**	**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899		827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**6.0221**	**0.5325**	**6.5545**	**3.3102**	**0.4899**	**3.8001**		**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899	0.0000	827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**2.7099**	**0.5325**	**3.2424**	**1.4896**	**0.4899**	**1.9795**	**0.0000**	**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Unmitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Casitas R&M Program - Unmitigated

Ventura County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	40.00	Acre	40.00	1,742,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2022 operational year

Land Use - Total size of facility

Construction Phase - Duration lengths per PD

Off-road Equipment - Equipment list from PD. HP changed from defaults using spec sheets. Off-site haul trips modeled in vehicle trips.

Off-road Equipment - No equipment

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Two 10-HP pumps to remove water from the fish ladder (per data request). Assume excavator used 6 days.

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Excavator to relocate large woody material

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Per equipment list in PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD. Conservatively assumed one dozer.

Off-road Equipment - Equipment list per PD

Trips and VMT - 10 construction workers driving individually, length of 10 miles (distance to edge of Ojai Valley Area). 16 cy dump trucks for 5,000 cy of soil (626 one-way trips). 1 water truck + 2 on-road trucks in vendor trips for Activity 1

Grading -

Construction Off-road Equipment Mitigation - VCAPCD Rule 55.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	75.00	60.00
tblConstructionPhase	NumDays	75.00	30.00

tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	15.00
tblConstructionPhase	NumDays	75.00	60.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	6.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	4.00
tblConstructionPhase	NumDays	75.00	20.00
tblConstructionPhase	NumDays	75.00	5.00
tblConstructionPhase	NumDays	75.00	10.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	286.00
tblOffRoadEquipment	HorsePower	187.00	165.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	97.00	202.00
tblOffRoadEquipment	HorsePower	402.00	320.00
tblOffRoadEquipment	HorsePower	84.00	10.00
tblOffRoadEquipment	HorsePower	247.00	354.00
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		No. 6 Routine - Radial Gates
tblOffRoadEquipment	PhaseName		No. 6 Routine - Instrumentation
tblOffRoadEquipment	PhaseName		No. 5 Concrete Structures
tblOffRoadEquipment	PhaseName		No. 1 Forebay Sediment
tblOffRoadEquipment	PhaseName		No. 6 Routine - Timber
tblOffRoadEquipment	PhaseName		No. 4 Entrance Pool - heavy equipment
tblOffRoadEquipment	PhaseName		No. 5 Concrete Structures
tblOffRoadEquipment	PhaseName		No. 6 Routine - Timber
tblOffRoadEquipment	PhaseName		No. 2 Fish Ladder - heavy equipment
tblOffRoadEquipment	PhaseName		No. 5 Concrete Structures

Casitas R&M Program - Unmitigated - Ventura County APCD Air District, Winter

tblOffRoadEquipment	PhaseName		No. 6 Routine - Timber
tblOffRoadEquipment	PhaseName		No. 1 Forebay Sediment
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	626.00
tblTripsAndVMT	HaulingTripNumber	0.00	626.00
tblTripsAndVMT	VendorTripLength	7.30	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
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tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00

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tblTripsAndVMT	WorkerTripNumber	18.00	20.00
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tblTripsAndVMT	WorkerTripNumber	3.00	20.00
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tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9828	40.0908	23.8011	0.0868	12.5006	1.2650	14.1637	6.7415	1.1649	8.2716	0.0000	8,852.7395	8,852.7395	1.9421	0.0000	8,901.2931
Maximum	**3.9828**	**40.0908**	**23.8011**	**0.0868**	**12.5006**	**1.2650**	**14.1637**	**6.7415**	**1.1649**	**8.2716**	**0.0000**	**8,852.7395**	**8,852.7395**	**1.9421**	**0.0000**	**8,901.2931**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9828	40.0908	23.8011	0.0868	5.7772	1.2650	7.4402	3.0759	1.1649	4.6060	0.0000	8,852.7395	8,852.7395	1.9421	0.0000	8,901.2931
Maximum	**3.9828**	**40.0908**	**23.8011**	**0.0868**	**5.7772**	**1.2650**	**7.4402**	**3.0759**	**1.1649**	**4.6060**	**0.0000**	**8,852.7395**	**8,852.7395**	**1.9421**	**0.0000**	**8,901.2931**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.79**	**0.00**	**47.47**	**54.37**	**0.00**	**44.32**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No. 1 Forebay Sediment	Grading	1/4/2021	3/26/2021	5	60	
2	No. 1 Forebay Sediment - haul trip	Grading	1/4/2021	3/26/2021	5	60	
3	No. 2 Fish Ladder	Grading	3/29/2021	4/9/2021	5	10	
4	No. 2 Fish Ladder - heavy equipment	Grading	3/29/2021	4/5/2021	5	6	
5	No. 3 Rock Weir	Grading	4/12/2021	4/23/2021	5	10	
6	No. 3 Rock Weir - heavy equipment	Grading	4/12/2021	4/15/2021	5	4	
7	No. 4 Entrance Pool	Grading	4/26/2021	5/21/2021	5	20	
8	No. 4 Entrance Pool - heavy equipment	Grading	4/26/2021	4/30/2021	5	5	
9	No. 5 Concrete Structures	Grading	5/24/2021	6/4/2021	5	10	
10	No. 6 Routine - Timber	Grading	6/7/2021	7/16/2021	5	30	
11	No. 6 Routine - Debris Fence	Grading	7/19/2021	7/30/2021	5	10	
12	No. 6 Routine - Radial Gates	Grading	8/2/2021	8/13/2021	5	10	
13	No. 6 Routine - Instrumentation	Grading	8/16/2021	8/27/2021	5	10	
14	No. 6 Routine - Roads	Grading	8/30/2021	9/17/2021	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 40

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
No. 1 Forebay Sediment	Excavators	1	8.00	162	0.38
No. 1 Forebay Sediment	Excavators	1	8.00	286	0.38
No. 1 Forebay Sediment	Graders	1	4.00	165	0.41
No. 1 Forebay Sediment	Off-Highway Trucks	1	8.00	320	0.38
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	215	0.40
No. 1 Forebay Sediment	Tractors/Loaders/Backhoes	2	8.00	202	0.37
No. 1 Forebay Sediment - haul trip	Graders	1	0.00	187	0.41
No. 2 Fish Ladder	Excavators	1	0.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Excavators	1	8.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Pumps	2	8.00	10	0.74
No. 2 Fish Ladder - heavy equipment	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 3 Rock Weir	Excavators	1	0.00	158	0.38
No. 3 Rock Weir - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool	Excavators	1	0.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Off-Highway Trucks	1	8.00	402	0.38
No. 4 Entrance Pool - heavy equipment	Rubber Tired Dozers	1	8.00	247	0.40
No. 5 Concrete Structures	Cement and Mortar Mixers	1	8.00	9	0.56
No. 5 Concrete Structures	Excavators	1	8.00	158	0.38
No. 5 Concrete Structures	Off-Highway Trucks	2	8.00	402	0.38
No. 5 Concrete Structures	Pumps	1	8.00	84	0.74
No. 6 Routine - Timber	Excavators	1	8.00	158	0.38
No. 6 Routine - Timber	Off-Highway Trucks	1	8.00	402	0.38

No. 6 Routine - Timber	Plate Compactors	1	8.00	8	0.43
No. 6 Routine - Timber	Skid Steer Loaders	1	8.00	65	0.37
No. 6 Routine - Timber	Tractors/Loaders/Backhoes	2	8.00	97	0.37
No. 6 Routine - Debris Fence	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 6 Routine - Radial Gates	Aerial Lifts	1	8.00	63	0.31
No. 6 Routine - Instrumentation	Aerial Lifts	1	0.00	63	0.31
No. 6 Routine - Roads	Rubber Tired Dozers	1	8.00	247	0.40
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	354	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No. 1 Forebay Sediment	7	20.00	6.00	626.00	10.00	7.30	10.00	LD_Mix	HDT_Mix	HHDT
No. 1 Forebay Sediment - haul trip	1	20.00	0.00	626.00	0.00	0.00	40.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder - heavy equipment	4	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir - heavy equipment	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool - heavy equipment	3	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 5 Concrete Structures	5	20.00	2.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Timber	6	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Debris Fence	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Radial Gates	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Instrumentation	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Roads	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2762	0.0000	3.2762	1.6837	0.0000	1.6837			0.0000			0.0000
Off-Road	2.9078	29.1286	20.3030	0.0507		1.2363	1.2363		1.1374	1.1374		4,907.9826	4,907.9826	1.5873		4,947.6661
Total	**2.9078**	**29.1286**	**20.3030**	**0.0507**	**3.2762**	**1.2363**	**4.5124**	**1.6837**	**1.1374**	**2.8211**		**4,907.9826**	**4,907.9826**	**1.5873**		**4,947.6661**

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0460	1.7578	0.4041	4.2600e-003	0.0910	5.8400e-003	0.0968	0.0249	5.5900e-003	0.0305		466.3753	466.3753	0.0522		467.6809
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0406	1.7000e-003	0.0423	0.0117	1.6300e-003	0.0133		161.2941	161.2941	0.0135		161.6307
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.1372**	**2.3790**	**1.0401**	**7.1300e-003**	**0.2837**	**8.6000e-003**	**0.2923**	**0.0770**	**8.2000e-003**	**0.0852**		**763.6718**	**763.6718**	**0.0692**		**765.4012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.4743	0.0000	1.4743	0.7577	0.0000	0.7577			0.0000			0.0000
Off-Road	2.9078	29.1286	20.3030	0.0507		1.2363	1.2363		1.1374	1.1374	0.0000	4,907.9826	4,907.9826	1.5873		4,947.6661
Total	**2.9078**	**29.1286**	**20.3030**	**0.0507**	**1.4743**	**1.2363**	**2.7105**	**0.7577**	**1.1374**	**1.8950**	**0.0000**	**4,907.9826**	**4,907.9826**	**1.5873**		**4,947.6661**

3.2 No. 1 Forebay Sediment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0460	1.7578	0.4041	4.2600e-003	0.0738	5.8400e-003	0.0796	0.0207	5.5900e-003	0.0263		466.3753	466.3753	0.0522		467.6809
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0333	1.7000e-003	0.0350	9.9000e-003	1.6300e-003	0.0115		161.2941	161.2941	0.0135		161.6307
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.1372**	**2.3790**	**1.0401**	**7.1300e-003**	**0.2262**	**8.6000e-003**	**0.2348**	**0.0628**	**8.2000e-003**	**0.0710**		**763.6718**	**763.6718**	**0.0692**		**765.4012**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1274	4.2852	1.1263	0.0145	0.3633	0.0201	0.3834	0.0995	0.0192	0.1186		1,586.2140	1,586.2140	0.1423		1,589.7716
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0182	6.3700e-003	0.1027	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3286	4.3286	5.1000e-004		4.3413
Total	**0.1457**	**4.2916**	**1.2290**	**0.0145**	**0.3635**	**0.0202**	**0.3837**	**0.0995**	**0.0193**	**0.1188**		**1,590.5425**	**1,590.5425**	**0.1428**		**1,594.1129**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1274	4.2852	1.1263	0.0145	0.2944	0.0201	0.3144	0.0825	0.0192	0.1017		1,586.2140	1,586.2140	0.1423		1,589.7716
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0182	6.3700e-003	0.1027	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3286	4.3286	5.1000e-004		4.3413
Total	**0.1457**	**4.2916**	**1.2290**	**0.0145**	**0.2946**	**0.0202**	**0.3147**	**0.0826**	**0.0193**	**0.1019**		**1,590.5425**	**1,590.5425**	**0.1428**		**1,594.1129**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548		949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**		**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548	0.0000	949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**	**0.0000**	**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961		500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**		**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961	0.0000	500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**	**0.0000**	**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636		2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**6.0221**	**0.8300**	**6.8520**	**3.3102**	**0.7636**	**4.0738**		**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636	0.0000	2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**2.7099**	**0.8300**	**3.5399**	**1.4896**	**0.7636**	**2.2532**	**0.0000**	**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432		3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**		**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9700e-003	0.1926	0.0559	5.0000e-004	0.0135	5.7000e-004	0.0141	3.8900e-003	5.4000e-004	4.4300e-003		53.7647	53.7647	4.4900e-003		53.8769
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0793**	**0.2360**	**0.5242**	**1.8700e-003**	**0.1657**	**1.6300e-003**	**0.1673**	**0.0443**	**1.5200e-003**	**0.0458**		**189.7671**	**189.7671**	**7.9800e-003**		**189.9665**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432	0.0000	3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**	**0.0000**	**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9700e-003	0.1926	0.0559	5.0000e-004	0.0111	5.7000e-004	0.0117	3.3000e-003	5.4000e-004	3.8400e-003		53.7647	53.7647	4.4900e-003		53.8769
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0793**	**0.2360**	**0.5242**	**1.8700e-003**	**0.1302**	**1.6300e-003**	**0.1318**	**0.0355**	**1.5200e-003**	**0.0371**		**189.7671**	**189.7671**	**7.9800e-003**		**189.9665**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267		2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**		**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267	0.0000	2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**	**0.0000**	**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028		300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**		**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028	0.0000	300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**	**0.0000**	**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105		162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**		**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105	0.0000	162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**	**0.0000**	**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899		827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**6.0221**	**0.5325**	**6.5545**	**3.3102**	**0.4899**	**3.8001**		**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899	0.0000	827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**2.7099**	**0.5325**	**3.2424**	**1.4896**	**0.4899**	**1.9795**	**0.0000**	**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Unmitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Casitas R&M Program - Mitigated (Non-Haul)

Ventura County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	40.00	Acre	40.00	1,742,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2022 operational year

Land Use - Total size of facility

Construction Phase - Duration lengths per PD

Off-road Equipment - Equipment list from PD. HP changed from defaults using spec sheets.

Off-road Equipment - No equipment

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Two 10-HP pumps to remove water from the fish ladder (per data request). Assume excavator used 6 days.

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Excavator to relocate large woody material

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Per equipment list in PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD. Conservatively assumed one dozer.

Off-road Equipment - Equipment list per PD

Trips and VMT - 10 construction workers driving individually, length of 10 miles (distance to edge of Ojai Valley Area). 1 water truck + 2 on-road trucks in vendor trips for Activity 1

Grading -

Construction Off-road Equipment Mitigation - VCAPCD Rule 55. Tier 4 Final Mitigation.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	75.00	60.00
tblConstructionPhase	NumDays	75.00	30.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	15.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	6.00
tblConstructionPhase	NumDays	75.00	10.00

Casitas R&M Program - Mitigated (Non-Haul) - Ventura County APCD Air District, Summer

tblConstructionPhase	NumDays	75.00	4.00
tblConstructionPhase	NumDays	75.00	20.00
tblConstructionPhase	NumDays	75.00	5.00
tblConstructionPhase	NumDays	75.00	10.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	286.00
tblOffRoadEquipment	HorsePower	187.00	165.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	247.00	354.00
tblOffRoadEquipment	HorsePower	97.00	202.00
tblOffRoadEquipment	HorsePower	402.00	320.00
tblOffRoadEquipment	HorsePower	84.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		No. 1 Forebay Sediment
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00

tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9579	36.8872	23.2638	0.0581	12.5006	1.2423	14.1637	6.7415	1.1430	8.2716	0.0000	5,640.8831	5,640.8831	1.6965	0.0000	5,683.2965
Maximum	**3.9579**	**36.8872**	**23.2638**	**0.0581**	**12.5006**	**1.2423**	**14.1637**	**6.7415**	**1.1430**	**8.2716**	**0.0000**	**5,640.8831**	**5,640.8831**	**1.6965**	**0.0000**	**5,683.2965**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.8545	3.3165	28.7937	0.0581	5.7772	0.0858	5.8683	3.0759	0.0856	3.1668	0.0000	5,640.8831	5,640.8831	1.6965	0.0000	5,683.2965
Maximum	**0.8545**	**3.3165**	**28.7937**	**0.0581**	**5.7772**	**0.0858**	**5.8683**	**3.0759**	**0.0856**	**3.1668**	**0.0000**	**5,640.8831**	**5,640.8831**	**1.6965**	**0.0000**	**5,683.2965**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**78.41**	**91.01**	**-23.77**	**0.00**	**53.79**	**93.10**	**58.57**	**54.37**	**92.51**	**61.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No. 1 Forebay Sediment	Grading	1/4/2021	3/26/2021	5	60	
2	No. 2 Fish Ladder	Grading	3/29/2021	4/9/2021	5	10	
3	No. 2 Fish Ladder - heavy equipment	Grading	3/29/2021	4/5/2021	5	6	
4	No. 3 Rock Weir	Grading	4/12/2021	4/23/2021	5	10	
5	No. 3 Rock Weir - heavy equipment	Grading	4/12/2021	4/15/2021	5	4	
6	No. 4 Entrance Pool	Grading	4/26/2021	5/21/2021	5	20	
7	No. 4 Entrance Pool - heavy equipment	Grading	4/26/2021	4/30/2021	5	5	
8	No. 5 Concrete Structures	Grading	5/24/2021	6/4/2021	5	10	
9	No. 6 Routine - Timber	Grading	6/7/2021	7/16/2021	5	30	
10	No. 6 Routine - Debris Fence	Grading	7/19/2021	7/30/2021	5	10	
11	No. 6 Routine - Radial Gates	Grading	8/2/2021	8/13/2021	5	10	
12	No. 6 Routine - Instrumentation	Grading	8/16/2021	8/27/2021	5	10	
13	No. 6 Routine - Roads	Grading	8/30/2021	9/17/2021	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 40

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
No. 1 Forebay Sediment	Excavators	1	8.00	162	0.38
No. 1 Forebay Sediment	Excavators	1	8.00	286	0.38
No. 1 Forebay Sediment	Graders	1	4.00	165	0.41
No. 1 Forebay Sediment	Off-Highway Trucks	1	8.00	320	0.38
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	215	0.40
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	354	0.40
No. 1 Forebay Sediment	Tractors/Loaders/Backhoes	2	8.00	202	0.37
No. 2 Fish Ladder	Excavators	1	0.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Excavators	1	8.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Pumps	2	8.00	10	0.74
No. 2 Fish Ladder - heavy equipment	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 3 Rock Weir	Excavators	1	0.00	158	0.38
No. 3 Rock Weir - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool	Excavators	1	0.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Off-Highway Trucks	1	8.00	402	0.38
No. 4 Entrance Pool - heavy equipment	Rubber Tired Dozers	1	8.00	247	0.40
No. 5 Concrete Structures	Cement and Mortar Mixers	1	8.00	9	0.56
No. 5 Concrete Structures	Excavators	1	8.00	158	0.38
No. 5 Concrete Structures	Off-Highway Trucks	2	8.00	402	0.38
No. 5 Concrete Structures	Pumps	1	8.00	84	0.74
No. 6 Routine - Timber	Excavators	1	8.00	158	0.38
No. 6 Routine - Timber	Off-Highway Trucks	1	8.00	402	0.38

No. 6 Routine - Timber	Plate Compactors	1	8.00	8	0.43
No. 6 Routine - Timber	Skid Steer Loaders	1	8.00	65	0.37
No. 6 Routine - Timber	Tractors/Loaders/Backhoes	2	8.00	97	0.37
No. 6 Routine - Debris Fence	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 6 Routine - Radial Gates	Aerial Lifts	1	8.00	63	0.31
No. 6 Routine - Instrumentation	Aerial Lifts	1	0.00	63	0.31
No. 6 Routine - Roads	Rubber Tired Dozers	1	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No. 1 Forebay Sediment	8	20.00	6.00	0.00	10.00	7.30	10.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder - heavy equipment	4	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir - heavy equipment	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool - heavy equipment	3	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 5 Concrete Structures	5	20.00	2.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Timber	6	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Debris Fence	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Radial Gates	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Instrumentation	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Roads	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2762	0.0000	3.2762	1.6837	0.0000	1.6837			0.0000			0.0000
Off-Road	2.9150	29.2032	20.3623	0.0508		1.2397	1.2397		1.1405	1.1405		4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**2.9150**	**29.2032**	**20.3623**	**0.0508**	**3.2762**	**1.2397**	**4.5158**	**1.6837**	**1.1405**	**2.8242**		**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0406	1.6100e-003	0.0422	0.0117	1.5400e-003	0.0132		165.3514	165.3514	0.0127		165.6679
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0819**	**0.6158**	**0.6270**	**2.9700e-003**	**0.1927**	**2.6700e-003**	**0.1954**	**0.0520**	**2.5200e-003**	**0.0546**		**308.2677**	**308.2677**	**0.0163**		**308.6743**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.4743	0.0000	1.4743	0.7577	0.0000	0.7577			0.0000			0.0000
Off-Road	0.6232	2.7007	25.3753	0.0508		0.0831	0.0831		0.0831	0.0831	0.0000	4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**0.6232**	**2.7007**	**25.3753**	**0.0508**	**1.4743**	**0.0831**	**1.5574**	**0.7577**	**0.0831**	**0.8408**	**0.0000**	**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0333	1.6100e-003	0.0349	9.9000e-003	1.5400e-003	0.0114		165.3514	165.3514	0.0127		165.6679
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0819**	**0.6158**	**0.6270**	**2.9700e-003**	**0.1524**	**2.6700e-003**	**0.1551**	**0.0421**	**2.5200e-003**	**0.0447**		**308.2677**	**308.2677**	**0.0163**		**308.6743**

3.3 No. 2 Fish Ladder - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 2 Fish Ladder - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 2 Fish Ladder - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.4 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548		949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**		**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.4 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1015	0.4399	6.2601	0.0104		0.0135	0.0135		0.0135	0.0135	0.0000	949.4336	949.4336	0.2758		956.3285
Total	**0.1015**	**0.4399**	**6.2601**	**0.0104**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.4 No. 2 Fish Ladder - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.5 No. 3 Rock Weir - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 No. 3 Rock Weir - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 No. 3 Rock Weir - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.6 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961		500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**		**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.6 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0635	0.2753	3.9180	5.1700e-003		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	500.1920	500.1920	0.1618		504.2363
Total	**0.0635**	**0.2753**	**3.9180**	**5.1700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.6 No. 3 Rock Weir - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.7 No. 4 Entrance Pool - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 No. 4 Entrance Pool - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 No. 4 Entrance Pool - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.8 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636		2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**6.0221**	**0.8300**	**6.8520**	**3.3102**	**0.7636**	**4.0738**		**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.8 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.3297	1.4289	13.6789	0.0269		0.0440	0.0440		0.0440	0.0440	0.0000	2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**0.3297**	**1.4289**	**13.6789**	**0.0269**	**2.7099**	**0.0440**	**2.7539**	**1.4896**	**0.0440**	**1.5336**	**0.0000**	**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.8 No. 4 Entrance Pool - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.9 No. 5 Concrete Structures - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432		3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**		**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.9 No. 5 Concrete Structures - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6200e-003	0.1929	0.0494	5.1000e-004	0.0135	5.4000e-004	0.0141	3.8900e-003	5.1000e-004	4.4000e-003		55.1171	55.1171	4.2200e-003		55.2226
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0706**	**0.2299**	**0.5281**	**1.9400e-003**	**0.1657**	**1.6000e-003**	**0.1673**	**0.0443**	**1.4900e-003**	**0.0457**		**198.0334**	**198.0334**	**7.8300e-003**		**198.2291**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4526	1.9614	19.8290	0.0389		0.0604	0.0604		0.0604	0.0604	0.0000	3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**0.4526**	**1.9614**	**19.8290**	**0.0389**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.9 No. 5 Concrete Structures - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6200e-003	0.1929	0.0494	5.1000e-004	0.0111	5.4000e-004	0.0116	3.3000e-003	5.1000e-004	3.8100e-003		55.1171	55.1171	4.2200e-003		55.2226
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0706**	**0.2299**	**0.5281**	**1.9400e-003**	**0.1302**	**1.6000e-003**	**0.1318**	**0.0355**	**1.4900e-003**	**0.0370**		**198.0334**	**198.0334**	**7.8300e-003**		**198.2291**

3.10 No. 6 Routine - Timber - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267		2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**		**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.10 No. 6 Routine - Timber - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3521	2.4672	16.0989	0.0271		0.0436	0.0436		0.0436	0.0436	0.0000	2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**0.3521**	**2.4672**	**16.0989**	**0.0271**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.10 No. 6 Routine - Timber - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.11 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028		300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**		**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.11 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0380	0.1646	2.3421	3.1100e-003		5.0600e-003	5.0600e-003		5.0600e-003	5.0600e-003	0.0000	300.9001	300.9001	0.0973		303.3330
Total	**0.0380**	**0.1646**	**2.3421**	**3.1100e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.11 No. 6 Routine - Debris Fence - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.12 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105		162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**		**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.12 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0413	0.9438	1.2745	1.6800e-003		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003	0.0000	162.6199	162.6199	0.0526		163.9347
Total	**0.0413**	**0.9438**	**1.2745**	**1.6800e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.12 No. 6 Routine - Radial Gates - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.13 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.13 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.13 No. 6 Routine - Instrumentation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.14 No. 6 Routine - Roads - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899		827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**6.0221**	**0.5325**	**6.5545**	**3.3102**	**0.4899**	**3.8001**		**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.14 No. 6 Routine - Roads - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.1046	0.4531	3.8336	8.5300e-003		0.0139	0.0139		0.0139	0.0139	0.0000	827.3522	827.3522	0.2676		834.0418
Total	**0.1046**	**0.4531**	**3.8336**	**8.5300e-003**	**2.7099**	**0.0139**	**2.7239**	**1.4896**	**0.0139**	**1.5035**	**0.0000**	**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.14 No. 6 Routine - Roads - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Unmitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Casitas R&M Program - Mitigated (Non-Haul)

Ventura County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	40.00	Acre	40.00	1,742,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2022 operational year

Land Use - Total size of facility

Construction Phase - Duration lengths per PD

Off-road Equipment - Equipment list from PD. HP changed from defaults using spec sheets.

Off-road Equipment - No equipment

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Two 10-HP pumps to remove water from the fish ladder (per data request). Assume excavator used 6 days.

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Excavator to relocate large woody material

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Per equipment list in PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD. Conservatively assumed one dozer.

Off-road Equipment - Equipment list per PD

Trips and VMT - 10 construction workers driving individually, length of 10 miles (distance to edge of Ojai Valley Area). 1 water truck + 2 on-road trucks in vendor trips for Activity 1

Grading -

Construction Off-road Equipment Mitigation - VCAPCD Rule 55. Tier 4 Final Mitigation.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	75.00	60.00
tblConstructionPhase	NumDays	75.00	30.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	15.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	6.00
tblConstructionPhase	NumDays	75.00	10.00

tblConstructionPhase	NumDays	75.00	4.00
tblConstructionPhase	NumDays	75.00	20.00
tblConstructionPhase	NumDays	75.00	5.00
tblConstructionPhase	NumDays	75.00	10.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	286.00
tblOffRoadEquipment	HorsePower	187.00	165.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	247.00	354.00
tblOffRoadEquipment	HorsePower	97.00	202.00
tblOffRoadEquipment	HorsePower	402.00	320.00
tblOffRoadEquipment	HorsePower	84.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		No. 1 Forebay Sediment
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00

tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9828	36.9063	23.2327	0.0579	12.5006	1.2424	14.1637	6.7415	1.1431	8.2716	0.0000	5,620.1415	5,620.1415	1.6962	0.0000	5,662.5458
Maximum	**3.9828**	**36.9063**	**23.2327**	**0.0579**	**12.5006**	**1.2424**	**14.1637**	**6.7415**	**1.1431**	**8.2716**	**0.0000**	**5,620.1415**	**5,620.1415**	**1.6962**	**0.0000**	**5,662.5458**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.8794	3.3219	28.7626	0.0579	5.7772	0.0859	5.8683	3.0759	0.0857	3.1668	0.0000	5,620.1415	5,620.1415	1.6962	0.0000	5,662.5458
Maximum	**0.8794**	**3.3219**	**28.7626**	**0.0579**	**5.7772**	**0.0859**	**5.8683**	**3.0759**	**0.0857**	**3.1668**	**0.0000**	**5,620.1415**	**5,620.1415**	**1.6962**	**0.0000**	**5,662.5458**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**77.92**	**91.00**	**-23.80**	**0.00**	**53.79**	**93.09**	**58.57**	**54.37**	**92.50**	**61.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No. 1 Forebay Sediment	Grading	1/4/2021	3/26/2021	5	60	
2	No. 2 Fish Ladder	Grading	3/29/2021	4/9/2021	5	10	
3	No. 2 Fish Ladder - heavy equipment	Grading	3/29/2021	4/5/2021	5	6	
4	No. 3 Rock Weir	Grading	4/12/2021	4/23/2021	5	10	
5	No. 3 Rock Weir - heavy equipment	Grading	4/12/2021	4/15/2021	5	4	
6	No. 4 Entrance Pool	Grading	4/26/2021	5/21/2021	5	20	
7	No. 4 Entrance Pool - heavy equipment	Grading	4/26/2021	4/30/2021	5	5	
8	No. 5 Concrete Structures	Grading	5/24/2021	6/4/2021	5	10	
9	No. 6 Routine - Timber	Grading	6/7/2021	7/16/2021	5	30	
10	No. 6 Routine - Debris Fence	Grading	7/19/2021	7/30/2021	5	10	
11	No. 6 Routine - Radial Gates	Grading	8/2/2021	8/13/2021	5	10	
12	No. 6 Routine - Instrumentation	Grading	8/16/2021	8/27/2021	5	10	
13	No. 6 Routine - Roads	Grading	8/30/2021	9/17/2021	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 40

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
No. 1 Forebay Sediment	Excavators	1	8.00	162	0.38
No. 1 Forebay Sediment	Excavators	1	8.00	286	0.38
No. 1 Forebay Sediment	Graders	1	4.00	165	0.41
No. 1 Forebay Sediment	Off-Highway Trucks	1	8.00	320	0.38
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	215	0.40
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	354	0.40
No. 1 Forebay Sediment	Tractors/Loaders/Backhoes	2	8.00	202	0.37
No. 2 Fish Ladder	Excavators	1	0.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Excavators	1	8.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Pumps	2	8.00	10	0.74
No. 2 Fish Ladder - heavy equipment	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 3 Rock Weir	Excavators	1	0.00	158	0.38
No. 3 Rock Weir - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool	Excavators	1	0.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Off-Highway Trucks	1	8.00	402	0.38
No. 4 Entrance Pool - heavy equipment	Rubber Tired Dozers	1	8.00	247	0.40
No. 5 Concrete Structures	Cement and Mortar Mixers	1	8.00	9	0.56
No. 5 Concrete Structures	Excavators	1	8.00	158	0.38
No. 5 Concrete Structures	Off-Highway Trucks	2	8.00	402	0.38
No. 5 Concrete Structures	Pumps	1	8.00	84	0.74
No. 6 Routine - Timber	Excavators	1	8.00	158	0.38
No. 6 Routine - Timber	Off-Highway Trucks	1	8.00	402	0.38

No. 6 Routine - Timber	Plate Compactors	1	8.00	8	0.43
No. 6 Routine - Timber	Skid Steer Loaders	1	8.00	65	0.37
No. 6 Routine - Timber	Tractors/Loaders/Backhoes	2	8.00	97	0.37
No. 6 Routine - Debris Fence	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 6 Routine - Radial Gates	Aerial Lifts	1	8.00	63	0.31
No. 6 Routine - Instrumentation	Aerial Lifts	1	0.00	63	0.31
No. 6 Routine - Roads	Rubber Tired Dozers	1	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No. 1 Forebay Sediment	8	20.00	6.00	0.00	10.00	7.30	10.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder - heavy equipment	4	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir - heavy equipment	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool - heavy equipment	3	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 5 Concrete Structures	5	20.00	2.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Timber	6	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Debris Fence	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Radial Gates	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Instrumentation	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Roads	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2762	0.0000	3.2762	1.6837	0.0000	1.6837			0.0000			0.0000
Off-Road	2.9150	29.2032	20.3623	0.0508		1.2397	1.2397		1.1405	1.1405		4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**2.9150**	**29.2032**	**20.3623**	**0.0508**	**3.2762**	**1.2397**	**4.5158**	**1.6837**	**1.1405**	**2.8242**		**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0406	1.7000e-003	0.0423	0.0117	1.6300e-003	0.0133		161.2941	161.2941	0.0135		161.6307
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0912**	**0.6213**	**0.6360**	**2.8700e-003**	**0.1927**	**2.7600e-003**	**0.1955**	**0.0520**	**2.6100e-003**	**0.0546**		**297.2965**	**297.2965**	**0.0170**		**297.7203**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.4743	0.0000	1.4743	0.7577	0.0000	0.7577			0.0000			0.0000
Off-Road	0.6232	2.7007	25.3753	0.0508		0.0831	0.0831		0.0831	0.0831	0.0000	4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**0.6232**	**2.7007**	**25.3753**	**0.0508**	**1.4743**	**0.0831**	**1.5574**	**0.7577**	**0.0831**	**0.8408**	**0.0000**	**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0333	1.7000e-003	0.0350	9.9000e-003	1.6300e-003	0.0115		161.2941	161.2941	0.0135		161.6307
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0912**	**0.6213**	**0.6360**	**2.8700e-003**	**0.1524**	**2.7600e-003**	**0.1552**	**0.0421**	**2.6100e-003**	**0.0447**		**297.2965**	**297.2965**	**0.0170**		**297.7203**

3.3 No. 2 Fish Ladder - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 2 Fish Ladder - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 2 Fish Ladder - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.4 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548		949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**		**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.4 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1015	0.4399	6.2601	0.0104		0.0135	0.0135		0.0135	0.0135	0.0000	949.4336	949.4336	0.2758		956.3285
Total	**0.1015**	**0.4399**	**6.2601**	**0.0104**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.4 No. 2 Fish Ladder - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.5 No. 3 Rock Weir - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 No. 3 Rock Weir - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 No. 3 Rock Weir - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.6 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961		500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**		**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.6 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0635	0.2753	3.9180	5.1700e-003		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	500.1920	500.1920	0.1618		504.2363
Total	**0.0635**	**0.2753**	**3.9180**	**5.1700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.6 No. 3 Rock Weir - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.7 No. 4 Entrance Pool - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 No. 4 Entrance Pool - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 No. 4 Entrance Pool - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.8 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636		2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**6.0221**	**0.8300**	**6.8520**	**3.3102**	**0.7636**	**4.0738**		**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.8 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.3297	1.4289	13.6789	0.0269		0.0440	0.0440		0.0440	0.0440	0.0000	2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**0.3297**	**1.4289**	**13.6789**	**0.0269**	**2.7099**	**0.0440**	**2.7539**	**1.4896**	**0.0440**	**1.5336**	**0.0000**	**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.8 No. 4 Entrance Pool - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.9 No. 5 Concrete Structures - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432		3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**		**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.9 No. 5 Concrete Structures - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9700e-003	0.1926	0.0559	5.0000e-004	0.0135	5.7000e-004	0.0141	3.8900e-003	5.4000e-004	4.4300e-003		53.7647	53.7647	4.4900e-003		53.8769
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0793**	**0.2360**	**0.5242**	**1.8700e-003**	**0.1657**	**1.6300e-003**	**0.1673**	**0.0443**	**1.5200e-003**	**0.0458**		**189.7671**	**189.7671**	**7.9800e-003**		**189.9665**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4526	1.9614	19.8290	0.0389		0.0604	0.0604		0.0604	0.0604	0.0000	3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**0.4526**	**1.9614**	**19.8290**	**0.0389**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.9 No. 5 Concrete Structures - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9700e-003	0.1926	0.0559	5.0000e-004	0.0111	5.7000e-004	0.0117	3.3000e-003	5.4000e-004	3.8400e-003		53.7647	53.7647	4.4900e-003		53.8769
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0793**	**0.2360**	**0.5242**	**1.8700e-003**	**0.1302**	**1.6300e-003**	**0.1318**	**0.0355**	**1.5200e-003**	**0.0371**		**189.7671**	**189.7671**	**7.9800e-003**		**189.9665**

3.10 No. 6 Routine - Timber - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267		2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**		**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.10 No. 6 Routine - Timber - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3521	2.4672	16.0989	0.0271		0.0436	0.0436		0.0436	0.0436	0.0000	2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**0.3521**	**2.4672**	**16.0989**	**0.0271**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.10 No. 6 Routine - Timber - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.11 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028		300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**		**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.11 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0380	0.1646	2.3421	3.1100e-003		5.0600e-003	5.0600e-003		5.0600e-003	5.0600e-003	0.0000	300.9001	300.9001	0.0973		303.3330
Total	**0.0380**	**0.1646**	**2.3421**	**3.1100e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.11 No. 6 Routine - Debris Fence - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.12 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105		162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**		**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.12 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0413	0.9438	1.2745	1.6800e-003		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003	0.0000	162.6199	162.6199	0.0526		163.9347
Total	**0.0413**	**0.9438**	**1.2745**	**1.6800e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.12 No. 6 Routine - Radial Gates - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.13 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.13 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.13 No. 6 Routine - Instrumentation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.14 No. 6 Routine - Roads - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899		827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**6.0221**	**0.5325**	**6.5545**	**3.3102**	**0.4899**	**3.8001**		**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.14 No. 6 Routine - Roads - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.1046	0.4531	3.8336	8.5300e-003		0.0139	0.0139		0.0139	0.0139	0.0000	827.3522	827.3522	0.2676		834.0418
Total	**0.1046**	**0.4531**	**3.8336**	**8.5300e-003**	**2.7099**	**0.0139**	**2.7239**	**1.4896**	**0.0139**	**1.5035**	**0.0000**	**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.14 No. 6 Routine - Roads - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Unmitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Casitas R&M Program - Mitigated

Ventura County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	40.00	Acre	40.00	1,742,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Casitas R&M Program - Mitigated - Ventura County APCD Air District, Summer

Project Characteristics - 2022 operational year

Land Use - Total size of facility

Construction Phase - Duration lengths per PD

Off-road Equipment - Equipment list from PD. HP changed from defaults using spec sheets. Off-site haul trips modeled in vehicle trips.

Off-road Equipment - No equipment

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Two 10-HP pumps to remove water from the fish ladder (per data request). Assume excavator used 6 days.

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Excavator to relocate large woody material

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Per equipment list in PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD. Conservatively assumed one dozer.

Off-road Equipment - Equipment list per PD

Trips and VMT - 10 construction workers driving individually, length of 10 miles (distance to edge of Ojai Valley Area). MITIGATED 21 cy dump trucks for 5,000 cy of soil (478 one-way trips). 1 water truck + 2 on-road trucks in vendor trips for Activity 1

Grading -

Construction Off-road Equipment Mitigation - VCAPCD Rule 55. Tier 4 Final Mitigation.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	15.00
tblConstructionPhase	NumDays	75.00	60.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	6.00

tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	4.00
tblConstructionPhase	NumDays	75.00	20.00
tblConstructionPhase	NumDays	75.00	5.00
tblConstructionPhase	NumDays	75.00	10.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	286.00
tblOffRoadEquipment	HorsePower	187.00	165.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	247.00	354.00
tblOffRoadEquipment	HorsePower	97.00	202.00
tblOffRoadEquipment	HorsePower	402.00	320.00
tblOffRoadEquipment	HorsePower	84.00	10.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	478.00
tblTripsAndVMT	HaulingTripNumber	0.00	478.00
tblTripsAndVMT	VendorTripLength	7.30	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
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tblTripsAndVMT	WorkerTripNumber	3.00	20.00
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tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9579	37.5822	23.2638	0.0795	12.5006	1.2618	14.1637	6.7415	1.1616	8.2716	0.0000	8,041.7945	8,041.7945	1.8579	0.0000	8,088.2421
Maximum	**3.9579**	**37.5822**	**23.2638**	**0.0795**	**12.5006**	**1.2618**	**14.1637**	**6.7415**	**1.1616**	**8.2716**	**0.0000**	**8,041.7945**	**8,041.7945**	**1.8579**	**0.0000**	**8,088.2421**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.9723	11.0797	28.7937	0.0795	5.7772	0.1052	5.8683	3.0759	0.1042	3.1668	0.0000	8,041.7945	8,041.7945	1.8579	0.0000	8,088.2421
Maximum	**0.9723**	**11.0797**	**28.7937**	**0.0795**	**5.7772**	**0.1052**	**5.8683**	**3.0759**	**0.1042**	**3.1668**	**0.0000**	**8,041.7945**	**8,041.7945**	**1.8579**	**0.0000**	**8,088.2421**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**75.43**	**70.52**	**-23.77**	**0.00**	**53.79**	**91.66**	**58.57**	**54.37**	**91.03**	**61.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No. 1 Forebay Sediment	Grading	1/4/2021	3/26/2021	5	60	
2	No. 1 Forebay Sediment - haul trip	Grading	1/4/2021	3/26/2021	5	60	
3	No. 2 Fish Ladder	Grading	3/29/2021	4/9/2021	5	10	
4	No. 2 Fish Ladder - heavy equipment	Grading	3/29/2021	4/5/2021	5	6	
5	No. 3 Rock Weir	Grading	4/12/2021	4/23/2021	5	10	
6	No. 3 Rock Weir - heavy equipment	Grading	4/12/2021	4/15/2021	5	4	
7	No. 4 Entrance Pool	Grading	4/26/2021	5/21/2021	5	20	
8	No. 4 Entrance Pool - heavy equipment	Grading	4/26/2021	4/30/2021	5	5	
9	No. 5 Concrete Structures	Grading	5/24/2021	6/4/2021	5	10	
10	No. 6 Routine - Timber	Grading	6/7/2021	7/16/2021	5	30	
11	No. 6 Routine - Debris Fence	Grading	7/19/2021	7/30/2021	5	10	
12	No. 6 Routine - Radial Gates	Grading	8/2/2021	8/13/2021	5	10	
13	No. 6 Routine - Instrumentation	Grading	8/16/2021	8/27/2021	5	10	
14	No. 6 Routine - Roads	Grading	8/30/2021	9/17/2021	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 40

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
No. 1 Forebay Sediment	Excavators	1	8.00	162	0.38
No. 1 Forebay Sediment	Excavators	1	8.00	286	0.38
No. 1 Forebay Sediment	Graders	1	4.00	165	0.41
No. 1 Forebay Sediment	Off-Highway Trucks	1	8.00	320	0.38
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	215	0.40
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	354	0.40
No. 1 Forebay Sediment	Tractors/Loaders/Backhoes	2	8.00	202	0.37
No. 1 Forebay Sediment - haul trip	Graders	1	0.00	187	0.41
No. 2 Fish Ladder	Excavators	1	0.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Excavators	1	8.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Pumps	2	8.00	10	0.74
No. 2 Fish Ladder - heavy equipment	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 3 Rock Weir	Excavators	1	0.00	158	0.38
No. 3 Rock Weir - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool	Excavators	1	0.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Off-Highway Trucks	1	8.00	402	0.38
No. 4 Entrance Pool - heavy equipment	Rubber Tired Dozers	1	8.00	247	0.40
No. 5 Concrete Structures	Cement and Mortar Mixers	1	8.00	9	0.56
No. 5 Concrete Structures	Excavators	1	8.00	158	0.38
No. 5 Concrete Structures	Off-Highway Trucks	2	8.00	402	0.38
No. 5 Concrete Structures	Pumps	1	8.00	84	0.74
No. 6 Routine - Timber	Excavators	1	8.00	158	0.38

No. 6 Routine - Timber	Off-Highway Trucks	1	8.00	402	0.38
No. 6 Routine - Timber	Plate Compactors	1	8.00	8	0.43
No. 6 Routine - Timber	Skid Steer Loaders	1	8.00	65	0.37
No. 6 Routine - Timber	Tractors/Loaders/Backhoes	2	8.00	97	0.37
No. 6 Routine - Debris Fence	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 6 Routine - Radial Gates	Aerial Lifts	1	8.00	63	0.31
No. 6 Routine - Instrumentation	Aerial Lifts	1	0.00	63	0.31
No. 6 Routine - Roads	Rubber Tired Dozers	1	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No. 1 Forebay Sediment	8	20.00	6.00	478.00	10.00	7.30	10.00	LD_Mix	HDT_Mix	HHDT
No. 1 Forebay Sediment - haul trip	1	20.00	0.00	478.00	0.00	0.00	40.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder - heavy equipment	4	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir - heavy equipment	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool - heavy equipment	3	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 5 Concrete Structures	5	20.00	2.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Timber	6	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Debris Fence	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Radial Gates	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Instrumentation	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Roads	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2762	0.0000	3.2762	1.6837	0.0000	1.6837			0.0000			0.0000
Off-Road	2.9150	29.2032	20.3623	0.0508		1.2397	1.2397		1.1405	1.1405		4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**2.9150**	**29.2032**	**20.3623**	**0.0508**	**3.2762**	**1.2397**	**4.5158**	**1.6837**	**1.1405**	**2.8242**		**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0334	1.3453	0.2748	3.3500e-003	0.0695	4.2300e-003	0.0737	0.0190	4.0500e-003	0.0231		366.5178	366.5178	0.0379		367.4641
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0406	1.6100e-003	0.0422	0.0117	1.5400e-003	0.0132		165.3514	165.3514	0.0127		165.6679
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.1153**	**1.9610**	**0.9017**	**6.3200e-003**	**0.2622**	**6.9000e-003**	**0.2691**	**0.0711**	**6.5700e-003**	**0.0776**		**674.7855**	**674.7855**	**0.0541**		**676.1384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.4743	0.0000	1.4743	0.7577	0.0000	0.7577			0.0000			0.0000
Off-Road	0.6232	2.7007	25.3753	0.0508		0.0831	0.0831		0.0831	0.0831	0.0000	4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**0.6232**	**2.7007**	**25.3753**	**0.0508**	**1.4743**	**0.0831**	**1.5574**	**0.7577**	**0.0831**	**0.8408**	**0.0000**	**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0334	1.3453	0.2748	3.3500e-003	0.0563	4.2300e-003	0.0605	0.0158	4.0500e-003	0.0199		366.5178	366.5178	0.0379		367.4641
Vendor	0.0169	0.5788	0.1483	1.5400e-003	0.0333	1.6100e-003	0.0349	9.9000e-003	1.5400e-003	0.0114		165.3514	165.3514	0.0127		165.6679
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.1153**	**1.9610**	**0.9017**	**6.3200e-003**	**0.2087**	**6.9000e-003**	**0.2156**	**0.0579**	**6.5700e-003**	**0.0645**		**674.7855**	**674.7855**	**0.0541**		**676.1384**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0957	3.2036	0.8331	0.0111	0.2774	0.0151	0.2925	0.0759	0.0144	0.0904		1,221.6023	1,221.6023	0.1067		1,224.2691
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	5.4500e-003	0.0769	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3970	4.3970	4.1000e-004		4.4074
Total	**0.1169**	**3.2090**	**0.9100**	**0.0112**	**0.2776**	**0.0152**	**0.2928**	**0.0760**	**0.0146**	**0.0906**		**1,225.9993**	**1,225.9993**	**0.1071**		**1,228.6765**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0957	3.2036	0.8331	0.0111	0.2248	0.0151	0.2398	0.0630	0.0144	0.0774		1,221.6023	1,221.6023	0.1067		1,224.2691
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	5.4500e-003	0.0769	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3970	4.3970	4.1000e-004		4.4074
Total	**0.1169**	**3.2090**	**0.9100**	**0.0112**	**0.2250**	**0.0152**	**0.2402**	**0.0631**	**0.0146**	**0.0776**		**1,225.9993**	**1,225.9993**	**0.1071**		**1,228.6765**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548		949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**		**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1015	0.4399	6.2601	0.0104		0.0135	0.0135		0.0135	0.0135	0.0000	949.4336	949.4336	0.2758		956.3285
Total	**0.1015**	**0.4399**	**6.2601**	**0.0104**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961		500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**		**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0635	0.2753	3.9180	5.1700e-003		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	500.1920	500.1920	0.1618		504.2363
Total	**0.0635**	**0.2753**	**3.9180**	**5.1700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636		2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**6.0221**	**0.8300**	**6.8520**	**3.3102**	**0.7636**	**4.0738**		**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.3297	1.4289	13.6789	0.0269		0.0440	0.0440		0.0440	0.0440	0.0000	2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**0.3297**	**1.4289**	**13.6789**	**0.0269**	**2.7099**	**0.0440**	**2.7539**	**1.4896**	**0.0440**	**1.5336**	**0.0000**	**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432		3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**		**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6200e-003	0.1929	0.0494	5.1000e-004	0.0135	5.4000e-004	0.0141	3.8900e-003	5.1000e-004	4.4000e-003		55.1171	55.1171	4.2200e-003		55.2226
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0706**	**0.2299**	**0.5281**	**1.9400e-003**	**0.1657**	**1.6000e-003**	**0.1673**	**0.0443**	**1.4900e-003**	**0.0457**		**198.0334**	**198.0334**	**7.8300e-003**		**198.2291**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4526	1.9614	19.8290	0.0389		0.0604	0.0604		0.0604	0.0604	0.0000	3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**0.4526**	**1.9614**	**19.8290**	**0.0389**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6200e-003	0.1929	0.0494	5.1000e-004	0.0111	5.4000e-004	0.0116	3.3000e-003	5.1000e-004	3.8100e-003		55.1171	55.1171	4.2200e-003		55.2226
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0706**	**0.2299**	**0.5281**	**1.9400e-003**	**0.1302**	**1.6000e-003**	**0.1318**	**0.0355**	**1.4900e-003**	**0.0370**		**198.0334**	**198.0334**	**7.8300e-003**		**198.2291**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267		2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**		**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3521	2.4672	16.0989	0.0271		0.0436	0.0436		0.0436	0.0436	0.0000	2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**0.3521**	**2.4672**	**16.0989**	**0.0271**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028		300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**		**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0380	0.1646	2.3421	3.1100e-003		5.0600e-003	5.0600e-003		5.0600e-003	5.0600e-003	0.0000	300.9001	300.9001	0.0973		303.3330
Total	**0.0380**	**0.1646**	**2.3421**	**3.1100e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105		162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**		**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0413	0.9438	1.2745	1.6800e-003		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003	0.0000	162.6199	162.6199	0.0526		163.9347
Total	**0.0413**	**0.9438**	**1.2745**	**1.6800e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899		827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**6.0221**	**0.5325**	**6.5545**	**3.3102**	**0.4899**	**3.8001**		**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.1046	0.4531	3.8336	8.5300e-003		0.0139	0.0139		0.0139	0.0139	0.0000	827.3522	827.3522	0.2676		834.0418
Total	**0.1046**	**0.4531**	**3.8336**	**8.5300e-003**	**2.7099**	**0.0139**	**2.7239**	**1.4896**	**0.0139**	**1.5035**	**0.0000**	**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0370	0.4786	1.4300e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		142.9163	142.9163	3.6100e-003		143.0065
Total	**0.0650**	**0.0370**	**0.4786**	**1.4300e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**142.9163**	**142.9163**	**3.6100e-003**		**143.0065**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Unmitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Casitas R&M Program - Mitigated

Ventura County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	40.00	Acre	40.00	1,742,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Casitas R&M Program - Mitigated - Ventura County APCD Air District, Winter

Project Characteristics - 2022 operational year

Land Use - Total size of facility

Construction Phase - Duration lengths per PD

Off-road Equipment - Equipment list from PD. HP changed from defaults using spec sheets. Off-site haul trips modeled in vehicle trips.

Off-road Equipment - No equipment

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Two 10-HP pumps to remove water from the fish ladder (per data request). Assume excavator used 6 days.

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Excavator to relocate large woody material

Off-road Equipment - Phase for construction vehicles

Off-road Equipment - Per equipment list in PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD

Off-road Equipment - Equipment list per PD. Conservatively assumed one dozer.

Off-road Equipment - Equipment list per PD

Trips and VMT - 10 construction workers driving individually, length of 10 miles (distance to edge of Ojai Valley Area). MITIGATED 21 cy dump trucks for 5,000 cy of soil (478 one-way trips). 1 water truck + 2 on-road trucks in vendor trips for Activity 1

Grading -

Construction Off-road Equipment Mitigation - VCAPCD Rule 55. Tier 4 Final Mitigation.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	75.00	60.00
tblConstructionPhase	NumDays	75.00	30.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	15.00
tblConstructionPhase	NumDays	75.00	60.00
tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	6.00

tblConstructionPhase	NumDays	75.00	10.00
tblConstructionPhase	NumDays	75.00	4.00
tblConstructionPhase	NumDays	75.00	20.00
tblConstructionPhase	NumDays	75.00	5.00
tblConstructionPhase	NumDays	75.00	10.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	286.00
tblOffRoadEquipment	HorsePower	187.00	165.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	247.00	354.00
tblOffRoadEquipment	HorsePower	97.00	202.00
tblOffRoadEquipment	HorsePower	402.00	320.00
tblOffRoadEquipment	HorsePower	84.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	478.00
tblTripsAndVMT	HaulingTripNumber	0.00	478.00
tblTripsAndVMT	VendorTripLength	7.30	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	0.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripLength	10.80	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00

tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	3.9828	37.7236	23.2327	0.0791	12.5006	1.2623	14.1637	6.7415	1.1621	8.2716	0.0000	7,999.4752	7,999.4752	1.8648	0.0000	8,046.0947
Maximum	**3.9828**	**37.7236**	**23.2327**	**0.0791**	**12.5006**	**1.2623**	**14.1637**	**6.7415**	**1.1621**	**8.2716**	**0.0000**	**7,999.4752**	**7,999.4752**	**1.8648**	**0.0000**	**8,046.0947**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.9806	11.2211	28.7626	0.0791	5.7772	0.1058	5.8683	3.0759	0.1047	3.1668	0.0000	7,999.4751	7,999.4751	1.8648	0.0000	8,046.0947
Maximum	**0.9806**	**11.2211**	**28.7626**	**0.0791**	**5.7772**	**0.1058**	**5.8683**	**3.0759**	**0.1047**	**3.1668**	**0.0000**	**7,999.4751**	**7,999.4751**	**1.8648**	**0.0000**	**8,046.0947**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**75.38**	**70.25**	**-23.80**	**0.00**	**53.79**	**91.62**	**58.57**	**54.37**	**90.99**	**61.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**	**0.0000**	**9.3300e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No. 1 Forebay Sediment	Grading	1/4/2021	3/26/2021	5	60	
2	No. 1 Forebay Sediment - haul trip	Grading	1/4/2021	3/26/2021	5	60	
3	No. 2 Fish Ladder	Grading	3/29/2021	4/9/2021	5	10	
4	No. 2 Fish Ladder - heavy equipment	Grading	3/29/2021	4/5/2021	5	6	
5	No. 3 Rock Weir	Grading	4/12/2021	4/23/2021	5	10	
6	No. 3 Rock Weir - heavy equipment	Grading	4/12/2021	4/15/2021	5	4	
7	No. 4 Entrance Pool	Grading	4/26/2021	5/21/2021	5	20	
8	No. 4 Entrance Pool - heavy equipment	Grading	4/26/2021	4/30/2021	5	5	
9	No. 5 Concrete Structures	Grading	5/24/2021	6/4/2021	5	10	
10	No. 6 Routine - Timber	Grading	6/7/2021	7/16/2021	5	30	
11	No. 6 Routine - Debris Fence	Grading	7/19/2021	7/30/2021	5	10	
12	No. 6 Routine - Radial Gates	Grading	8/2/2021	8/13/2021	5	10	
13	No. 6 Routine - Instrumentation	Grading	8/16/2021	8/27/2021	5	10	
14	No. 6 Routine - Roads	Grading	8/30/2021	9/17/2021	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 40

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
No. 1 Forebay Sediment	Excavators	1	8.00	162	0.38
No. 1 Forebay Sediment	Excavators	1	8.00	286	0.38
No. 1 Forebay Sediment	Graders	1	4.00	165	0.41
No. 1 Forebay Sediment	Off-Highway Trucks	1	8.00	320	0.38
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	215	0.40
No. 1 Forebay Sediment	Rubber Tired Dozers	1	4.00	354	0.40
No. 1 Forebay Sediment	Tractors/Loaders/Backhoes	2	8.00	202	0.37
No. 1 Forebay Sediment - haul trip	Graders	1	0.00	187	0.41
No. 2 Fish Ladder	Excavators	1	0.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Excavators	1	8.00	158	0.38
No. 2 Fish Ladder - heavy equipment	Pumps	2	8.00	10	0.74
No. 2 Fish Ladder - heavy equipment	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 3 Rock Weir	Excavators	1	0.00	158	0.38
No. 3 Rock Weir - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool	Excavators	1	0.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Excavators	1	8.00	158	0.38
No. 4 Entrance Pool - heavy equipment	Off-Highway Trucks	1	8.00	402	0.38
No. 4 Entrance Pool - heavy equipment	Rubber Tired Dozers	1	8.00	247	0.40
No. 5 Concrete Structures	Cement and Mortar Mixers	1	8.00	9	0.56
No. 5 Concrete Structures	Excavators	1	8.00	158	0.38
No. 5 Concrete Structures	Off-Highway Trucks	2	8.00	402	0.38
No. 5 Concrete Structures	Pumps	1	8.00	84	0.74
No. 6 Routine - Timber	Excavators	1	8.00	158	0.38

No. 6 Routine - Timber	Off-Highway Trucks	1	8.00	402	0.38
No. 6 Routine - Timber	Plate Compactors	1	8.00	8	0.43
No. 6 Routine - Timber	Skid Steer Loaders	1	8.00	65	0.37
No. 6 Routine - Timber	Tractors/Loaders/Backhoes	2	8.00	97	0.37
No. 6 Routine - Debris Fence	Tractors/Loaders/Backhoes	1	8.00	97	0.37
No. 6 Routine - Radial Gates	Aerial Lifts	1	8.00	63	0.31
No. 6 Routine - Instrumentation	Aerial Lifts	1	0.00	63	0.31
No. 6 Routine - Roads	Rubber Tired Dozers	1	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No. 1 Forebay Sediment	8	20.00	6.00	478.00	10.00	7.30	10.00	LD_Mix	HDT_Mix	HHDT
No. 1 Forebay Sediment - haul trip	1	20.00	0.00	478.00	0.00	0.00	40.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 2 Fish Ladder - heavy equipment	4	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 3 Rock Weir - heavy equipment	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 4 Entrance Pool - heavy equipment	3	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 5 Concrete Structures	5	20.00	2.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Timber	6	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Debris Fence	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Radial Gates	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Instrumentation	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
No. 6 Routine - Roads	1	20.00	0.00	0.00	10.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2762	0.0000	3.2762	1.6837	0.0000	1.6837			0.0000			0.0000
Off-Road	2.9150	29.2032	20.3623	0.0508		1.2397	1.2397		1.1405	1.1405		4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**2.9150**	**29.2032**	**20.3623**	**0.0508**	**3.2762**	**1.2397**	**4.5158**	**1.6837**	**1.1405**	**2.8242**		**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0351	1.3422	0.3086	3.2500e-003	0.0695	4.4600e-003	0.0739	0.0190	4.2700e-003	0.0233		356.1141	356.1141	0.0399		357.1110
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0406	1.7000e-003	0.0423	0.0117	1.6300e-003	0.0133		161.2941	161.2941	0.0135		161.6307
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.1263**	**1.9634**	**0.9446**	**6.1200e-003**	**0.2622**	**7.2200e-003**	**0.2694**	**0.0711**	**6.8800e-003**	**0.0779**		**653.4105**	**653.4105**	**0.0568**		**654.8313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.4743	0.0000	1.4743	0.7577	0.0000	0.7577			0.0000			0.0000
Off-Road	0.6232	2.7007	25.3753	0.0508		0.0831	0.0831		0.0831	0.0831	0.0000	4,915.0104	4,915.0104	1.5896		4,954.7508
Total	**0.6232**	**2.7007**	**25.3753**	**0.0508**	**1.4743**	**0.0831**	**1.5574**	**0.7577**	**0.0831**	**0.8408**	**0.0000**	**4,915.0104**	**4,915.0104**	**1.5896**		**4,954.7508**

3.2 No. 1 Forebay Sediment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0351	1.3422	0.3086	3.2500e-003	0.0563	4.4600e-003	0.0608	0.0158	4.2700e-003	0.0201		356.1141	356.1141	0.0399		357.1110
Vendor	0.0179	0.5779	0.1678	1.5000e-003	0.0333	1.7000e-003	0.0350	9.9000e-003	1.6300e-003	0.0115		161.2941	161.2941	0.0135		161.6307
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.1263**	**1.9634**	**0.9446**	**6.1200e-003**	**0.2087**	**7.2200e-003**	**0.2159**	**0.0579**	**6.8800e-003**	**0.0648**		**653.4105**	**653.4105**	**0.0568**		**654.8313**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	3.2721	0.8600	0.0110	0.2774	0.0153	0.2927	0.0759	0.0147	0.0906		1,211.1985	1,211.1985	0.1087		1,213.9150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0182	6.3700e-003	0.1027	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3286	4.3286	5.1000e-004		4.3413
Total	**0.1155**	**3.2785**	**0.9627**	**0.0111**	**0.2776**	**0.0154**	**0.2931**	**0.0760**	**0.0148**	**0.0908**		**1,215.5271**	**1,215.5271**	**0.1092**		**1,218.2563**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 No. 1 Forebay Sediment - haul trip - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0973	3.2721	0.8600	0.0110	0.2248	0.0153	0.2401	0.0630	0.0147	0.0777		1,211.1985	1,211.1985	0.1087		1,213.9150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0182	6.3700e-003	0.1027	5.0000e-005	2.0000e-004	1.3000e-004	3.3000e-004	8.0000e-005	1.2000e-004	2.0000e-004		4.3286	4.3286	5.1000e-004		4.3413
Total	**0.1155**	**3.2785**	**0.9627**	**0.0111**	**0.2250**	**0.0154**	**0.2404**	**0.0631**	**0.0148**	**0.0779**		**1,215.5271**	**1,215.5271**	**0.1092**		**1,218.2563**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 No. 2 Fish Ladder - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6036	5.2139	6.4537	0.0104		0.2721	0.2721		0.2548	0.2548		949.4336	949.4336	0.2758		956.3285
Total	**0.6036**	**5.2139**	**6.4537**	**0.0104**	**0.0000**	**0.2721**	**0.2721**	**0.0000**	**0.2548**	**0.2548**		**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1015	0.4399	6.2601	0.0104		0.0135	0.0135		0.0135	0.0135	0.0000	949.4336	949.4336	0.2758		956.3285
Total	**0.1015**	**0.4399**	**6.2601**	**0.0104**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**0.0135**	**0.0135**	**0.0000**	**949.4336**	**949.4336**	**0.2758**		**956.3285**

3.5 No. 2 Fish Ladder - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 No. 3 Rock Weir - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2292	2.1534	3.2718	5.1700e-003		0.1044	0.1044		0.0961	0.0961		500.1920	500.1920	0.1618		504.2363
Total	**0.2292**	**2.1534**	**3.2718**	**5.1700e-003**	**0.0000**	**0.1044**	**0.1044**	**0.0000**	**0.0961**	**0.0961**		**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0635	0.2753	3.9180	5.1700e-003		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	500.1920	500.1920	0.1618		504.2363
Total	**0.0635**	**0.2753**	**3.9180**	**5.1700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**8.4700e-003**	**8.4700e-003**	**0.0000**	**500.1920**	**500.1920**	**0.1618**		**504.2363**

3.7 No. 3 Rock Weir - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 No. 4 Entrance Pool - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.8815	18.3881	10.9139	0.0269		0.8300	0.8300		0.7636	0.7636		2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**1.8815**	**18.3881**	**10.9139**	**0.0269**	**6.0221**	**0.8300**	**6.8520**	**3.3102**	**0.7636**	**4.0738**		**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.3297	1.4289	13.6789	0.0269		0.0440	0.0440		0.0440	0.0440	0.0000	2,606.0672	2,606.0672	0.8429		2,627.1385
Total	**0.3297**	**1.4289**	**13.6789**	**0.0269**	**2.7099**	**0.0440**	**2.7539**	**1.4896**	**0.0440**	**1.5336**	**0.0000**	**2,606.0672**	**2,606.0672**	**0.8429**		**2,627.1385**

3.9 No. 4 Entrance Pool - heavy equipment - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8802	16.2583	14.5295	0.0389		0.6825	0.6825		0.6432	0.6432		3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**1.8802**	**16.2583**	**14.5295**	**0.0389**	**0.0000**	**0.6825**	**0.6825**	**0.0000**	**0.6432**	**0.6432**		**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9700e-003	0.1926	0.0559	5.0000e-004	0.0135	5.7000e-004	0.0141	3.8900e-003	5.4000e-004	4.4300e-003		53.7647	53.7647	4.4900e-003		53.8769
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0793**	**0.2360**	**0.5242**	**1.8700e-003**	**0.1657**	**1.6300e-003**	**0.1673**	**0.0443**	**1.5200e-003**	**0.0458**		**189.7671**	**189.7671**	**7.9800e-003**		**189.9665**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4526	1.9614	19.8290	0.0389		0.0604	0.0604		0.0604	0.0604	0.0000	3,730.7899	3,730.7899	1.0280		3,756.4900
Total	**0.4526**	**1.9614**	**19.8290**	**0.0389**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**0.0604**	**0.0604**	**0.0000**	**3,730.7899**	**3,730.7899**	**1.0280**		**3,756.4900**

3.10 No. 5 Concrete Structures - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9700e-003	0.1926	0.0559	5.0000e-004	0.0111	5.7000e-004	0.0117	3.3000e-003	5.4000e-004	3.8400e-003		53.7647	53.7647	4.4900e-003		53.8769
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0793**	**0.2360**	**0.5242**	**1.8700e-003**	**0.1302**	**1.6300e-003**	**0.1318**	**0.0355**	**1.5200e-003**	**0.0371**		**189.7671**	**189.7671**	**7.9800e-003**		**189.9665**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3252	12.4632	12.9971	0.0271		0.5717	0.5717		0.5267	0.5267		2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**1.3252**	**12.4632**	**12.9971**	**0.0271**	**0.0000**	**0.5717**	**0.5717**	**0.0000**	**0.5267**	**0.5267**		**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3521	2.4672	16.0989	0.0271		0.0436	0.0436		0.0436	0.0436	0.0000	2,615.1929	2,615.1929	0.8382		2,636.1487
Total	**0.3521**	**2.4672**	**16.0989**	**0.0271**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**0.0436**	**0.0436**	**0.0000**	**2,615.1929**	**2,615.1929**	**0.8382**		**2,636.1487**

3.11 No. 6 Routine - Timber - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1873	1.8958	2.2602	3.1100e-003		0.1118	0.1118		0.1028	0.1028		300.9001	300.9001	0.0973		303.3330
Total	**0.1873**	**1.8958**	**2.2602**	**3.1100e-003**	**0.0000**	**0.1118**	**0.1118**	**0.0000**	**0.1028**	**0.1028**		**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0380	0.1646	2.3421	3.1100e-003		5.0600e-003	5.0600e-003		5.0600e-003	5.0600e-003	0.0000	300.9001	300.9001	0.0973		303.3330
Total	**0.0380**	**0.1646**	**2.3421**	**3.1100e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**5.0600e-003**	**5.0600e-003**	**0.0000**	**300.9001**	**300.9001**	**0.0973**		**303.3330**

3.12 No. 6 Routine - Debris Fence - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0375	0.6006	1.0941	1.6800e-003		0.0115	0.0115		0.0105	0.0105		162.6199	162.6199	0.0526		163.9347
Total	**0.0375**	**0.6006**	**1.0941**	**1.6800e-003**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0105**	**0.0105**		**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0413	0.9438	1.2745	1.6800e-003		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003	0.0000	162.6199	162.6199	0.0526		163.9347
Total	**0.0413**	**0.9438**	**1.2745**	**1.6800e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**2.7600e-003**	**2.7600e-003**	**0.0000**	**162.6199**	**162.6199**	**0.0526**		**163.9347**

3.13 No. 6 Routine - Radial Gates - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.14 No. 6 Routine - Instrumentation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	1.0464	10.9713	4.0378	8.5300e-003		0.5325	0.5325		0.4899	0.4899		827.3522	827.3522	0.2676		834.0418
Total	**1.0464**	**10.9713**	**4.0378**	**8.5300e-003**	**6.0221**	**0.5325**	**6.5545**	**3.3102**	**0.4899**	**3.8001**		**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1521	1.0600e-003	0.1532	0.0404	9.8000e-004	0.0413		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1521**	**1.0600e-003**	**0.1532**	**0.0404**	**9.8000e-004**	**0.0413**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7099	0.0000	2.7099	1.4896	0.0000	1.4896			0.0000			0.0000
Off-Road	0.1046	0.4531	3.8336	8.5300e-003		0.0139	0.0139		0.0139	0.0139	0.0000	827.3522	827.3522	0.2676		834.0418
Total	**0.1046**	**0.4531**	**3.8336**	**8.5300e-003**	**2.7099**	**0.0139**	**2.7239**	**1.4896**	**0.0139**	**1.5035**	**0.0000**	**827.3522**	**827.3522**	**0.2676**		**834.0418**

3.15 No. 6 Routine - Roads - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0733	0.0434	0.4683	1.3700e-003	0.1191	1.0600e-003	0.1202	0.0322	9.8000e-004	0.0332		136.0024	136.0024	3.4900e-003		136.0896
Total	**0.0733**	**0.0434**	**0.4683**	**1.3700e-003**	**0.1191**	**1.0600e-003**	**0.1202**	**0.0322**	**9.8000e-004**	**0.0332**		**136.0024**	**136.0024**	**3.4900e-003**		**136.0896**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.588665	0.041515	0.188382	0.110464	0.019030	0.006351	0.019720	0.017925	0.001164	0.001012	0.003904	0.000380	0.001490

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Unmitigated	0.9494	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6172					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	4.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.7500e-003	8.7500e-003	2.0000e-005		9.3300e-003
Total	**0.9494**	**4.0000e-005**	**4.0900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.7500e-003**	**8.7500e-003**	**2.0000e-005**		**9.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix H

Cultural Resources Assessment

Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program

Cultural Resources Assessment Report

prepared for

Casitas Municipal Water District
1055 Ventura Avenue
Oak View, California 93022
Kelley Dyer, P.E. Assistant General Manager

prepared by

Rincon Consultants, Inc.
180 North Ashwood Avenue
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September 2021

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Please cite this report as follows:

Strother, Mark, Gena Granger, Alexandra Madsen, Hannah Haas, and Christopher Duran

2020 *Casitas Municipal Water District Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program: Cultural Resources Assessment, Ventura County, California*. Rincon Consultants Project No. 19-08905. Report on file at the South Central Coastal Information Center, California State University, Fullerton, California

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Appendices

Executive Summary

The Casitas Municipal Water District (Casitas) retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources assessment in support of Robles Diversion and Fish Passage Facility Annual Maintenance and Repair (R&M) Program (project). The Bureau of Reclamation (Reclamation) owns the Robles Diversion and Fish Passage Facility (Facility), and Casitas operates and maintains this Facility. The facilities include the Robles Diversion Dam, fishway (e.g., screenbay, high-flow bypass, and fish ladder), forebay, a timber cutoff wall, entrance pool, rock weirs and measurement weir, and access roads (Robles Diversion Dam Facility). The Robles Diversion Dam, fishway, forebay and timber cut-off wall facilities are designed to channel a portion of the Ventura River water down the Robles Diversion Canal, which empties into Lake Casitas, and to divert another portion into the Fish Passage Facility structures. The approximately 5.70-acre forebay is located directly upstream of the other structures, extending nearly 800 feet along the Ventura River floodplain.

The project includes six maintenance and repair activities, starting with 1) Forebay sediment removal, which has the most significant ground disturbance. This area has experienced a significant amount of sedimentation over the last several years. High-precipitation events caused mudslides and debris flows in the watershed following the Thomas Fire, which burned from December 2017 to January 2018. An estimated 80,000 to 100,000[1] cubic yards of sediment accumulated in the forebay area as a result of post-fire storm events. In 2019, Casitas received permits from the resource agencies to remove and relocate 100,000 cubic yards of sediment downstream over a three-year period in order to restore storage capacity of the forebay and maintain effective diversion and fish ladder operations. In accordance with the existing 2003 Biological Opinion (BiOp) issued to Reclamation by the National Marine Fisheries Service (NMFS), 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 require periodic removal, and large storm events can create the need to shore up the earthen dam and forebay banks. The project proposes to restore functionality to the forebay by 1A) removing accumulated sediment and 1B) redepositing it downstream to restore storm eroded areas. In addition, the proposed project includes annual repair and maintenance for 2) Fish ladder, Screenbay, High-flow Bypass, 3) Rock Weir and Measurement Weir, 4) Entrance Pool, 5) Concrete repair, 6) Routine Maintenance of A. timber cut-off wall, B. debris fence, C. radial gates, D. instrumentation, and E. access roads.

The Annual R&M Program requires federal approval from United States Bureau of Reclamation (Reclamation), United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), and NMFS. As such, it is considered a federal undertaking and requires compliance with Section 106 of the National Historic Preservation Act (NHPA). This cultural resource study has been prepared to meet the requirements of both the California Environmental Quality Act (CEQA) and Section 106 of the NHPA. This study comprises a cultural resources records search at the South

[1] In 2019, Casitas received permits from the resource agencies to remove and relocate 100,000 cubic yards of sediment downstream over a three-year period. National Marine Fisheries Service (NMFS) issued a letter of concurrence to remove up to 50,000 cubic yards in 2019, as proposed. Casitas relocated approximately 32,600 cubic yards of sediment trapped in the forebay to the designated placement area downstream of the cut-off wall, in November 2019. According with the permits, Casitas may proceed in August 2020 to remove up to 30,000 cubic yards of trapped sediment behind the forebay and relocate it downstream to the same designated areas where sediment was placed in November 2019. Similarly, Casitas may again proceed in August 2021 to remove/relocate up to 20,000 cubic yards of sediment from the forebay to the same designated areas downstream of the timber cut-off wall, if needed.

Central Coastal Information Center, a Sacred Lands File (SLF) search with the Native American Heritage Commission, a pedestrian survey, evaluation of an historic period built-environment resource, and the preparation of this technical report. Reclamation will conduct the Section 106 consultation efforts with the State Historic Preservation Officer, Native American tribes, and other consulting parties.

One historic-era built environment resource, the Robles Diversion Dam Facility, is in the APE. The dam Facility was previously evaluated and determined ineligible for listing in the National Register of Historic Places (NRHP) by Reclamation, a finding that received concurrence from the California State Historic Preservation Officer in September 2010. As part of the current study, the dam Facility was evaluated and found ineligible for listing in the California Register of Historical Resources (CRHR); it therefore does not qualify as a historical resource under CEQA or an historic property per Section 106 of the NHPA. The cultural resources records search did not identify any archaeological resources in the Area of Potential Effects (APE). Two isolated lithic flakes were identified in imported fill-soil during the pedestrian survey. Because they were identified in fill soils, they lack a discernable context and were not formally recorded. No other archaeological resources were identified during the survey. However, the SLF results were positive and the records search identified five prehistoric archaeological sites within a 1.0-mile radius of the APE. Although none of these sites extend into the APE, two are large habitation sites (P-56-000139 and P-56-000194) and two are confirmed to contain human remains (P-56-000139 and P-56-000306). These resources are located upstream from the Diversion Dam and it is possible that artifacts or remains associated with the sites could have washed downstream over time from erosion. These factors increase the likelihood of encountering buried archaeological deposits during project-related ground disturbance. However, these deposits would have been the result of recent erosion and not the result of prehistoric human activity.

Significant project-related ground disturbance is limited to Activities 1A, 1B, which include periodic removal and downstream redeposition of accumulated sediments, and may occur during road grading and excavation during Activity 6E. Therefore, Rincon recommends archaeological and Native American monitoring as a standard condition for project-related ground disturbance during Activities 1A and 1B and for grading and excavation during Activity 6E, detailed below. Although any encountered resources in these areas are likely to be within a secondary context, the heritage value of any such resources to local tribal groups remains. Monitoring is consistent with tribal concerns and precedent existing for the general area.

Based on the results of this cultural resources assessment, Rincon recommends a finding of ***no impact to historical resources and less than significant impact to archaeological resources with mitigation*** under CEQA and ***no historic properties affected*** under Section 106 of NHPA. Additionally, Rincon presents the following recommendation in case of unanticipated discovery of cultural resources during project development. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

Archaeological and Native American Monitoring

Rincon recommends archaeological and Native American monitoring of all project-related ground disturbance during Activities 1A and 1B and of grading and excavation during Activity 6E by a qualified archaeologist and Native American consultant. Archaeological monitoring should be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983). Native American

monitoring should be provided by a locally affiliated tribal member. Monitors will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological or Native American monitoring or both may be reduced to spot-checking or eliminated at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of rough grading. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the APE and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be eligible for the NRHP and/or CRHR, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts/adverse effects.

Human Remains

The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner would notify the Native American Heritage Commission, which would determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

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1 Introduction

The Casitas Municipal Water District (Casitas) retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources assessment in support of Robles Diversion and Fish Passage Facility Annual Maintenance and Repair (R&M) Program (project). The Bureau of Reclamation (Reclamation) owns the Robles Diversion and Fish Passage Facility (Facility), and Casitas operates and maintains this Facility. The facilities include the Robles Diversion Dam, fishway (e.g., screenbay, high-flow bypass, and fish ladder), forebay, a timber cutoff wall, entrance pool, rock weirs, measurement weir, and access roads (Robles Diversion Dam Facility). The Robles Diversion Dam, fishway, forebay and timber cut-off wall facilities are designed to channel a portion of the Ventura River water down the Robles Diversion Canal, which empties into Lake Casitas, and to divert another portion into the Fish Passage Facility structures. The approximately 5.70-acre forebay is located directly upstream of the other structures, extending nearly 800 feet along the Ventura River floodplain.

This area has experienced a significant amount of sedimentation over the last several years. High-precipitation events caused mudslides and debris flows in the watershed following the Thomas Fire, which burned from December 2017 to January 2018. An estimated 80,000 to 100,000 cubic yards of sediment accumulated in the forebay area as a result of post-fire storm events. In 2019, Casitas received permits from the resource agencies to remove and relocate 100,000 cubic yards of sediment downstream over a three-year period in order to restore storage capacity of the forebay and maintain effective diversion and fish ladder operations. In accordance with the existing 2003 Biological Opinion (BiOp) issued to Reclamation by the National Marine Fisheries Service (NMFS), 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 and forebay banks. The project proposes to restore functionality to the forebay by removing accumulated sediment. In addition, the proposed project includes typical maintenance and repair activities to be performed annually at the Facility: sediment removal from the fishway and entrance pool; vegetation control; concrete repair within the existing footprint of the Facility; repair and maintenance of the timber cut-off wall and radial gates (at the entrance to the headworks and spillway), rock weirs and measurement weirs, debris fence, instrumentation, and access roads.

The Annual R&M Program requires federal approval from Reclamation, United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), and NMFS. As such, it is considered a federal undertaking and requires compliance with Section 106 of the National Historic Preservation Act (NHPA). This cultural resource study has been prepared to meet the requirements of both the California Environmental Quality Act (CEQA) and Section 106 of the NHPA. This study comprises a cultural resources records search at the South Central Coastal Information Center, a Sacred Lands File (SLF) search with the Native American Heritage Commission, a pedestrian survey, evaluation of an historic period built-environment resource, and the preparation of this technical report. The Reclamation will conduct the Section 106 consultation efforts with the State Historic Preservation Officer, Native American tribes, and other consulting parties.

1.1 Project Location and Description

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, concrete measurement weir and a series of low-head rock weirs) constructed in 2004, after Southern California (SC) Distinct Population Segment of steelhead (*Oncorhynchus mykiss*; steelhead) 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. The project location is depicted on the Matilija, California United States Geological Survey 7.5-minute topographic quadrangle in Township 4N Range 23W Section 04, and in Township 5N Range 32W Section 33 (Figure 1).

The primary objective of the Casitas routine maintenance and repair program is to ensure the proper operation of the Facility. By maintaining the Facility consistent with its original design, Casitas reduces or prevents ineffective operation of the water diversion and fish ladder. The Facility allows a portion of Ventura River flows to be diverted into the Robles Canal, which transports the water to Lake Casitas for storage and ultimately municipal, industrial, 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 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.

Most of the maintenance and repair activities are considered routine. Maintenance work is scheduled in advance based on the results of regular inspections and consists of activities to keep the Facility operating in accordance with its design specifications. Work takes place in accordance with a detailed schedule which takes into account the 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 the Facility, and environmental constraints.

Emergency actions which require immediate repair to protect life and property are covered under emergency state and federal authorizations on a case-by-case basis and are not part of the proposed R&M Program assessed herein.

1.1.1 Activities Descriptions

Activities included in the R&M Program 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)

Figure 1 Project Vicinity Map

- 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

Activity No. 1 Forebay Sediment

Permit History

Maintaining the depth and volume of the forebay is critical to the operation of the Robles Diversion Facility and 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). Sediment and vegetation are removed from the Robles forebay on average every four years. 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 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.

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 (Activity No. 1A; please see Figure 2). This activity may occur annually. The quantity sediment/debris to be removed is highly dependent on storm load deposition, but generally will not exceed approximately 56,500 cubic yards per year, unless a greater amount of sediment accumulates at the upstream end of the forebay as it has in the past. In which case, there may be a need to remove an additional 15,000 cubic yards of sediment. To restore the forebay's operational volume each year, the project will return the forebay closer to its historic operational grade (Appendix D) by removing the amount of accumulated sediment necessary to restore the forebay's capacity, and relocate it downstream (Activity No. 1B; shown on Figure 2), or to a stockpile area. Remaining sediment excavated may be exported offsite to a landfill or other appropriate designated soil disposal areas.

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 2).

Prior to placing sediments in 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[2] of sediment downstream of the timber cut-off wall, a photogrammetric aerial survey was conducted, and will be utilized in conjunction with the fill design plan to determine how much sediment can be placed downstream in 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

[2] 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 to 20 percent of basin capacity is occupied by sediment and debris.

Figure 2 Activity 1 Forebay Sediment

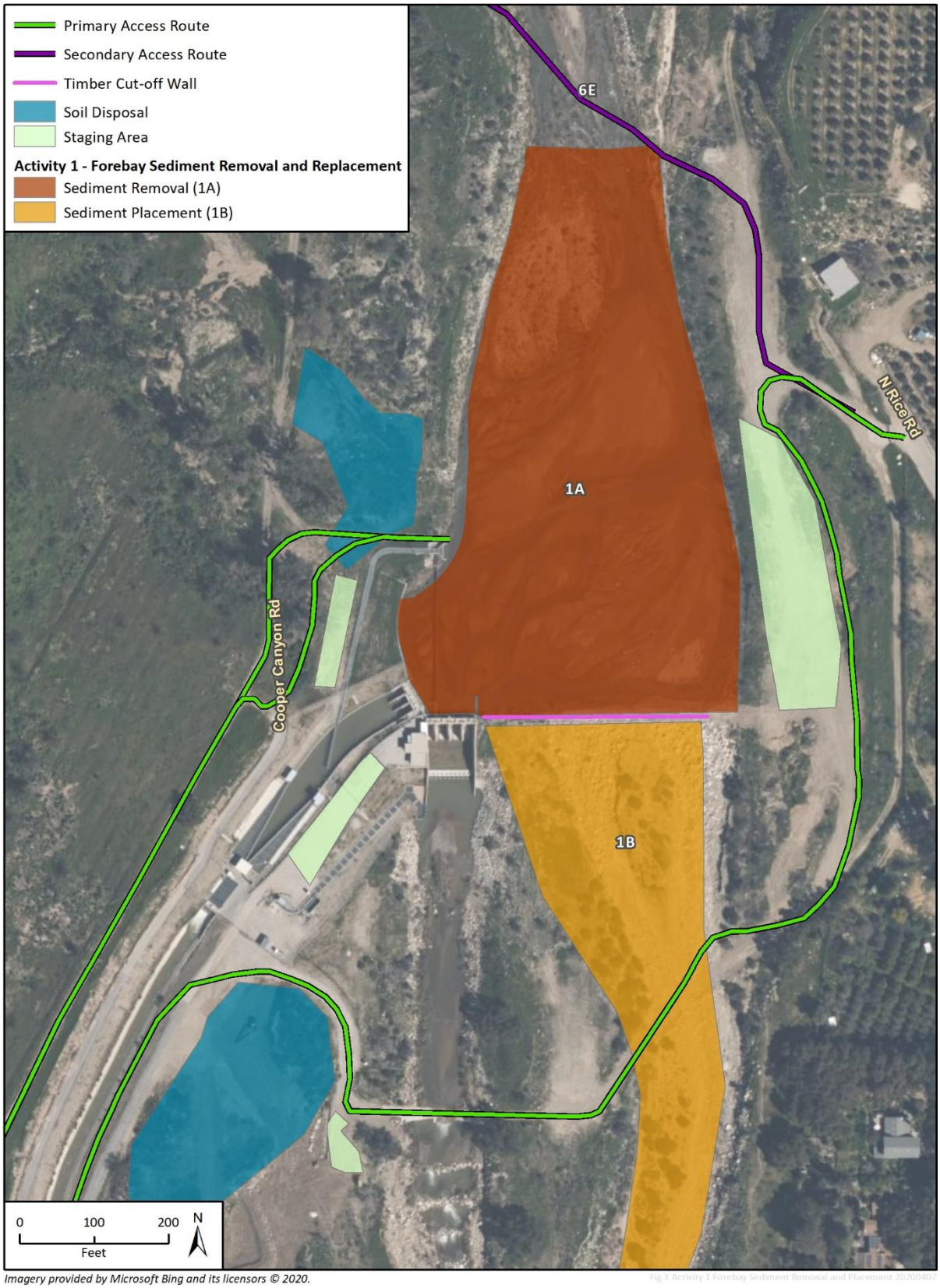

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Fig 3 Activity 1 Forebay Sediment Removal and Placement 20200407

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

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 Fish Passage Project in 2003/2004, and provides fish passage through the Facility (Figure 3). Casitas provided compensatory mitigation in the form of onsite restoration to compensate for permanent impacts to jurisdictional areas. 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 when the fishway is not in operation. The potential still 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 whether maintenance and repair activities are critical to maintain diversion and fish passage

Figure 3 Activity 2 Fish Ladder, Screenbay, High-flow Bypass

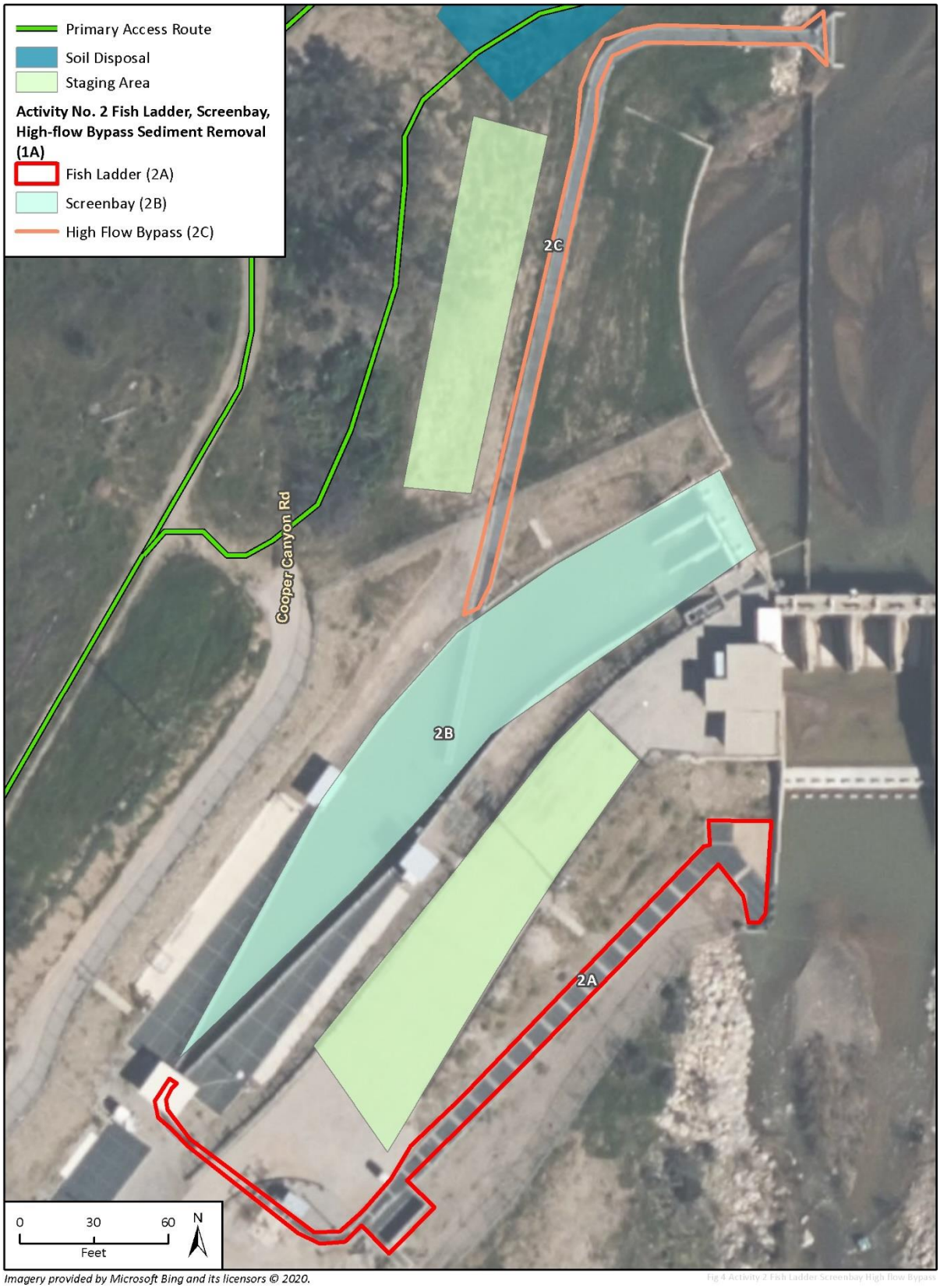

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Fig 4 Activity 2 Fish Ladder Screenbay High Flow Bypass

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 it is fixed. In all cases, 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) which 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 on the west of the forebay adjacent to the high-flow bypass, which is unpaved. It is anticipated the maintenance and repair activities would require up to 1 to 2 weeks to complete annually; and heavy equipment will be used for up to 6 days.

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 by hand will occur throughout the year provided that it can be safely removed 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 to maintain operations of the diversion and fish passage.

REMOVAL OF LARGE DEBRIS AND SEDIMENT

Removal of large debris 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 is closed to initiate a full shut down of the Facility and allow flows to recede such that 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. southern California 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 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. Visual monitoring for listed species would be performed periodically while repair and maintenance activities are performed.

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 steelhead adults, with the last detection occurring in 2011 prior to the recent drought. In addition, Casitas has documented approximately 1,300 juvenile and resident *O. mykiss* moving upstream and downstream through Robles from 2006-2018. Given the interim project has demonstrated passage, Casitas has postponed the installation of additional rock weirs due to the current uncertain timing of the Matilija Dam Removal Project upstream of the Robles Facility, which will affect the area of the rock weirs. Casitas provided compensatory mitigation in the form of onsite restoration to compensate for permanent impacts to jurisdictional areas. 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 west of the channel where the weirs are located (Figure 4). Access to the weirs will be from Rice Road located east of the forebay across the Ventura River via the southern access road.

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

Figure 4 Activity 3 Rock Weir and Measurement Weir

- 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; 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) to relocate the large woody material. It is anticipated heavy equipment would be used for up to 4 days to make necessary adjustments to boulders and relocate large woody material.

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, and its purpose is to provide attraction flows to the fish ladder. 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. 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.

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 would be stockpiled outside of jurisdictional areas in designated soil disposal sites (Figure 5). 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 5). 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.

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 6) 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.

Heavy equipment will be used to remove damage 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 5 Activity 4 Entrance Pool

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Fig 6 Activity 4 Entrance Pool Maintenance

Figure 6 Activity 5 Concrete Structures

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Activity No. 6 Routine Maintenance

Timber Cut-off Wall (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 then native material is placed to fill the voids. The timber wall has been damaged by extremely high river flows and fire, and it will occasionally need maintenance and repair/replacement of the timbers and rocks/backfill. 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 7).

Debris Fence (6B)

The timber debris fence lies upstream of the diversion headworks in the forebay (Figure 7). 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.

Figure 7 Activity 6 Routine Maintenance

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Fig 8 Activity 6 Routine Maintenance

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 7). 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 7). 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 would occur as needed (estimated annually) on Reclamation property during dry river conditions (Figure 7). 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.

1.2 Area of Potential Effects

The area of potential effects (APE) of a project is defined in 36 Code of Federal Regulations (CFR) 800.16(d) as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such property exists.” The APE generally depicts all areas expected to be affected by the project, including staging and construction areas (Figure 8). As defined for this project, the APE is comprised of 36.06 acres and encompasses the proposed project footprint described in Section 1.1.

The APE must also be considered as a three-dimensional space and include any ground disturbance associated with the project. The maximum depth of ground disturbance for the project is expected

Figure 8 Area of Potential Effects

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to generally be approximately 10 feet in the forebay and 8 feet in the entrance pool located downstream of the spillway at the entrance to the fish ladder. Therefore, the vertical depth of the APE varies, but is not expected to exceed 10 feet in all areas.

The project APE is limited to the direct project footprint as most of the project work involves removed sediment build up at- or below-grade and as such, this work would not introduce any intrusive elements which may indirectly affect historic properties. The sediment removal is therefore not expected to have an indirect effect on the surroundings.

1.3 Regulatory Setting

1.3.1 Federal Regulations

This Project may involve the use of funds provided by the federal government. Projects that involve federal funding or permitting (otherwise known as a federal nexus) must comply with the provisions of the 1966 NHPA, as amended (16 United States Code 470f). Cultural resources are considered during federal undertakings chiefly under Section 106 of NHPA, through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), and under the National Environmental Policy Act. Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d) (6) (A) of the NHPA. Other relevant federal laws include the Archaeological Data Preservation Act of 1974, American Indian Religious Freedom Act of 1978, Archaeological Resources Protection Act of 1979, and Native American Graves Protection and Repatriation Act of 1989.

National Historic Preservation Act

Section 106 of the NHPA (16 United States Code 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object included in or eligible for inclusion in the NRHP, and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources are those resources listed in or are eligible for listing in the NRHP per the criteria listed below (36 CFR 60.4). Cultural resources eligible for the NRHP are labeled as historic properties.

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

(a) Are associated with events that have made a significant contribution to the broad patterns of our history

(b) Are associated with the lives of persons significant in our past

(c) Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

(d) Have yielded, or may be likely to yield, information important in prehistory or history

PRC, Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be demonstrated clearly that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

1.3.2 State Regulations

California Environmental Quality Act

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is a resource listed, or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered *historically significant* if it meets any of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2) Is associated with the lives of persons important to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4) Has yielded, or may be likely to yield, information important in prehistory or history

Generally, a cultural resource must be at least 50 years of age to be considered for listing on the CRHR. Resources that have achieved significance within the past 50 years may also be eligible for inclusion in the CRHR, provided enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource (Office of Historic Preservation n.d.:3).

If it can be demonstrated a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be demonstrated clearly that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type

Is directly associated with a scientifically recognized important prehistoric or historic event or person

Assembly Bill 52

California Assembly Bill 52 (AB 52) was enacted July 1, 2015; it expands CEQA by defining a new resource category called *tribal cultural resources* (TCR). AB 52 establishes "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCRs as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and meets either of the following criteria:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources, as defined in PRC Section 5020.1(k)
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe

AB 52 also establishes a formal consultation process for California tribes regarding TCRs. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those requesting notice of projects proposed within the jurisdiction of the lead agency. The consultation process for a project must take place prior to the adoption of a negative declaration or mitigation negative declaration or the certification of an environmental impact report.

1.3.3 Local Regulations

County of Ventura

Ventura County Ordinance No. 4225, known as the Cultural Heritage Ordinance, delineates the criteria utilized to assess the eligibility of a potential Cultural Heritage Site, and the manner by which Cultural Heritage Sites are designated. An improvement, natural feature or site may become a designated Cultural Heritage Site if it meets the following applicable criteria:

A. To be designated as a Landmark, a property must meet one of the following criteria
    1. It exemplifies or reflects special elements of the County's social, aesthetic, engineering, architectural or natural history;
    2. It is associated with events that have made a significant contribution to the broad patterns of Ventura County or its cities, regional history or the cultural heritage of California or the United States;
    3. It is associated with the lives of persons important to Ventura County or its cities, California or national history;

4. It has yielded, or has the potential to yield, information important to the prehistory or history of Ventura County or its cities, California or the nation.
5. It embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of a master or possesses high artistic values;
6. Integrity. Establish the authenticity of the resource's physical identity by evidence of lack of deterioration and significant survival of the characteristics that existed during its period of importance. This shall be evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling and association.

B. Site of Merits – Satisfy the following criteria:
   1. Sites of historical, architectural, community or aesthetic merit which have not been designated as a landmark or point of interest, but which are deserving of special recognition; and
   2. County approved surveyed sites with a National Register status code of 5 or above.

C. Point of Interests – Satisfy any one the following criteria:
   1. That is the site of a building, structure or object that no longer exists, but was associated with historic events, important persons or embodied a distinctive character or architectural style; or
   2. That it has historical significance, but has been altered to the extent that the integrity of the original workmanship, materials or style has been substantially compromised; or
   3. That the site of a historic event which has no distinguishable characteristics other than that a historic event occurred at that site, and the site is not of sufficient historical significance to justify the establishment of a landmark.

D. District – Meets the criteria below:
   1. Possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.
   2. Has precisely mapped and defined exterior boundaries, which requires a description of what lies immediately on the edge of the district to allow rational exclusion of adjoining areas.
   3. Has at least one of the criteria for significance of Section 1365-5.a. 1-8
   4. Complies with the criteria for integrity contained in Section 1365-5.a.6.

In addition to meeting the criteria in Sec. 1365-5 et seq., all the following standards must be met before a site becomes a designated Cultural Heritage Site:

A. It shall have historic, aesthetic or special character or interest for the general public, and not be limited in interest to a special group of persons
B. Its designation shall not require the expenditure by the County of Ventura of any amount of money not commensurate with the value of the object to be preserved
C. Its designation shall not infringe upon the rights of a private owner thereof to make any and all reasonable uses thereof which are not in conflict with the purposes of this Article

1.4 Project Personnel

Rincon Senior Archaeologist Hannah Haas, MA, Registered Professional Archaeologist (RPA), served as Principal Investigator for this study. Ms. Haas meets the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology (National Park Service 1983). Rincon Archaeologist Gena Granger, MA, RPA, submitted the SLF search request for this cultural resources assessment and is the primary author of this report. Archaeologist Mark Strother, MA, RPA, is a contributing author of this report. Architectural Historian Alexandra Madsen, MA, completed the evaluation of the Robles Diversion Dam Facility and is a contributing author of this report. Archaeologist Mary Pfeiffer conducted the field survey. Geographic Information Systems Analysts Allysen Valencia and Aubrey Brown prepared the figures found in this report. Senior Technical Editor April Durham, PhD, Senior Architectural Historian, Steven Treffers, MHP, and Principal and Senior Archaeologist, Christopher Duran, reviewed this report for quality control.

2 Natural and Cultural Setting

2.1 Natural Setting

The project APE is in northern Ventura County, north of the community of Meiners Oaks; it occurs in the Ventura River watershed. Specifically, the APE is located along Ventura River in the western portion of unincorporated Ventura County in the Meiners Oaks community. The project occurs between 764 to 775 feet above mean sea level and is located in the Transverse Ranges geomorphic province of southern California. The project occurs in the Santa Ynez-Sulphur Mountains subsection of the Southern California Coast Eco Region. The Mediterranean climate is characterized by hot, dry summers and rainy, mild winters. Annual maximum temperatures range from 66 degrees Fahrenheit (°F) to 91°F, minimum temperatures range from 35°F to 54°F. The Ventura River watershed is approximately 226 square miles (144,833 acres) and extends from the Matilija Creek headwaters in the steep Transverse Ranges of the Matilija Wilderness to the Pacific Ocean, 33.5 miles downstream. The topography of the watershed can be described as rugged in the upper basins and flat valleys toward the downstream areas. Approximately 15 percent of the watershed can be classified as valley area. Forty percent can be classified as foothill area and 45 percent can be classified as mountainous.

Rainfall varies geographically, seasonally, and from year to year. Cycles of drought and flood are the norm. Many parts of the stream network are typically dry during much of the year. Approximately 90 percent of rainfall occurs between November and April (Reclamation 2006). Near Matilija Dam, the upstream portion of the Ventura River averages approximately 23.9 inches of rainfall per year, while the average near the mouth of the Ventura River at the Pacific Ocean is approximately 16.9 inches per year (Ventura County Water Protection District 2019). For the entire watershed, the average rainfall is approximately 20 inches per year. This rain sometimes comes in large storms that can produce fast-moving floodwaters, when combined with the steep topography. Major or moderate floods have occurred once every five years on average since 1933.

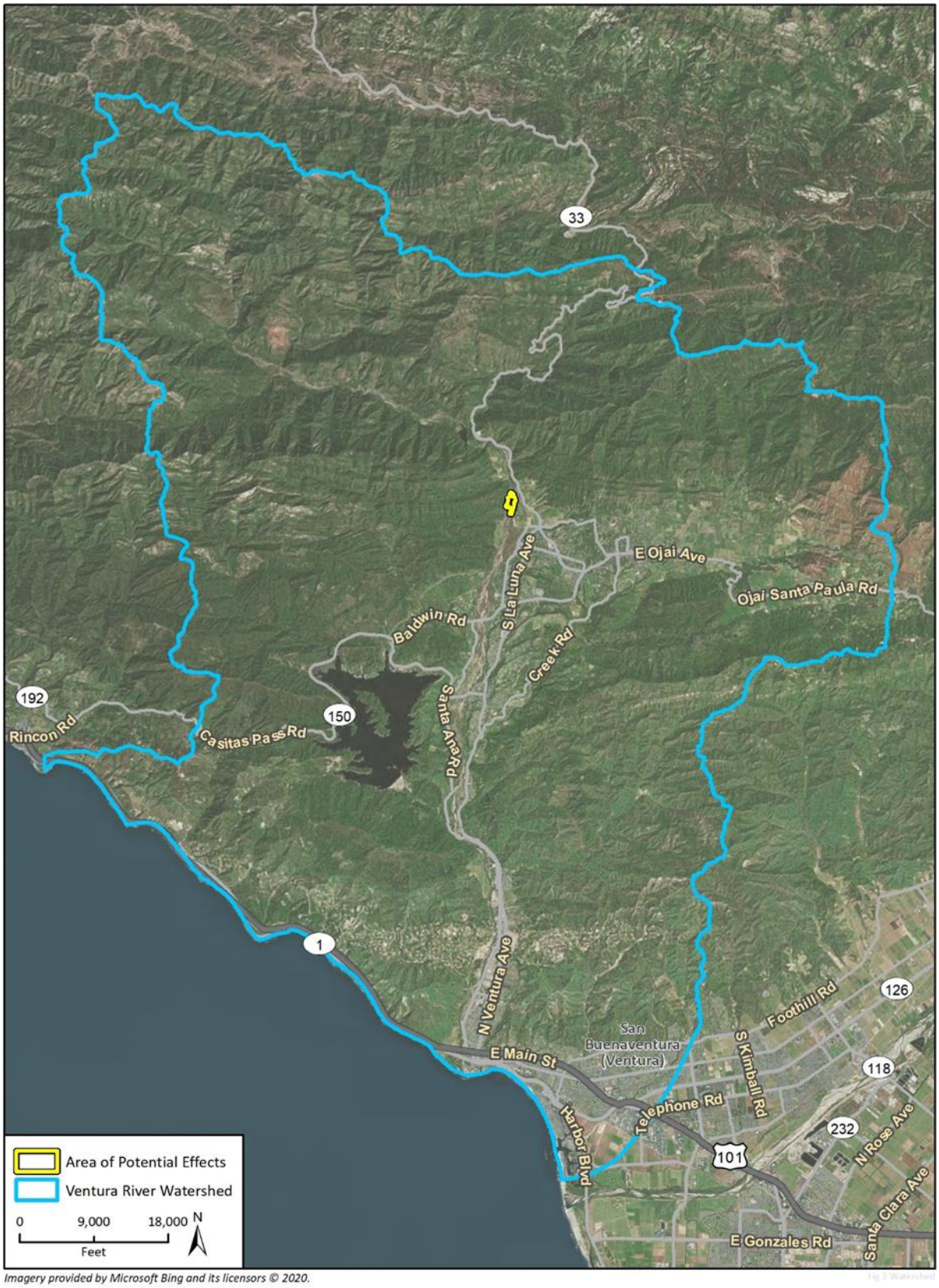
2.2 Prehistoric Setting

The APE is in what has been defined as the Northern California Bight (Northern Bight) archaeological region, one of eight organizational divisions of the state (Moratto 1984; Glassow et al. 2007; Moratto and Chartkoff 2007). The Northern Bight archaeological region encompasses the area from Vandenberg Air Force Base on the coast, south to Point Conception, including the Channel Islands, south along the coast to Rancho Palos Verdes, into the Los Angeles Basin, and north to the "northern margins of Ventura and Santa Barbara counties" (Glassow et al. 2007:191).

2.2.1 Paleo-Coastal Tradition (ca. 10,000 – 7000 BCE)

The Paleo-Indian Period, also referred to as the Paleo-Coastal Tradition, defines the earliest human occupation of the Northern Bight, and describes the cultural trends and subsistence strategies of prehistoric populations from approximately 10,000 to 7000 BCE (Glassow et al. 2007). The Paleo-Indian Period in North America is recognized largely by projectile points associated with extinct large mammal remains, such as mammoth, bison, and dire wolves, particularly in the Southwest and Plains regions (Reed 1992; Slaughter et al. 1992; Huckell 1996; Erlandson et al. 2007). These

Figure 9 Ventura River Watershed



projectile points have been classified as the Clovis style, which exhibit a lanceolate shape with a flute initiated from the base extending as far as the midline (Justice 2002; Hollenshead 2007).

The earliest accepted dates for human occupation in California were recovered from archaeological sites on two of the Northern Channel Islands, located off the southern coast of Santa Barbara County. The earliest radiocarbon dates known for the region, calibrated to approximately 11,000 years before present, were derived from human remains and rodent bones recovered from within the same deposits on Santa Rosa Island (Johnson et al. 2002; Erlandson et al. 2007; Glassow et al. 2007). Archaeological deposits from the Daisy Cave site on San Miguel Island establishes the presence of people in this area approximately 10,000 years ago (Erlandson 1991; Erlandson et al. 2007). In San Luis Obispo County, archaeological sites CA-SLO-1764 (Lebow et al. 2001), Cross Creek (CA-SLO-1797; Fitzgerald 2000), and CA-SLO-832 (Jones et al. 2001) yielded radiocarbon dates from approximately 9,000 years ago (Jones and Ferneau 2002).

Recent data from Paleo-Indian sites in southern California indicate the economy was a diverse mix of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones and Ferneau 2002; Erlandson et al. 2007). Archaeological deposits at the Daisy Cave site yielded an assemblage of "the oldest known fishhooks in the Americas" (Erlandson et al. 2007:57). Shell middens discovered on the mainland of California have also yielded dates from 8000 to 7000 BCE (Erlandson et al. 2007).

A fluted projectile point fragment was recovered from site CA-SBA-1951 on the Santa Barbara Channel coastal plain (Erlandson et al. 1987; Erlandson 1994). Another fluted projectile point was reportedly found on the surface in Nipomo, San Luis Obispo County (Mills et al. 2005; Rondeau et al. 2007). Large side-notched projectile points of the Central Coast Stemmed series in this area date to as early as 8,000 years ago (Justice 2002) suggesting some overlap with the Clovis type. Central Coast Stemmed projectile points have been recovered along the Central Coast, which is located immediately north of the Northern Bight region. These sites include Diablo Canyon (CA-SLO-2; Greenwood 1972), Cross Creek (CA-SLO-1797; Fitzgerald 2000), Little Pico Creek (CA-SLO-175; Jones and Waugh 1995), and the Honda Beach site (CA-SBA-530; Glassow 1997), among others. At the Metcalf site (CA-SCL-178), in the southern Santa Clara Valley, Hildebrandt (1983) recovered two large side-notched points associated with charcoal dates ranging from 9,960 to 8,500 years ago.

2.2.2 Millingstone Horizon (ca. 7000 – 5000 BCE)

It is generally accepted human occupation of California originated from small, dispersed occupations during the Paleo-Indian period. Populations increased from the Paleo-Indian Period to the Millingstone Horizon, possibly as a result of an ecological adaptation to collecting plant resources. Rogers (1929) originally identified the Millingstone Horizon along the Santa Barbara Channel. Wallace (1955, 1978) further defined the period, noting the appearance and abundance of milling implements in archaeological sites from this period. The milling implements, including milling stones (e.g., metates, milling slabs) and hand stones (e.g., manos, mullers), are associated with the horizontal motion of grinding small seeds and nuts, and lend to the name Millingstone Horizon (Desautels and Leach 1978; Glassow et al. 2007).

These milling implements are particularly noted in archaeological sites along the coast of California and become even more prevalent near the end of the horizon (Wallace 1955, 1978; Warren 1968; Desautels and Leach 1978). Excavations at the Tank Site (CA-LAN-1) in Topanga Canyon from 1947 to 1948 confirmed the presence of a significant number of milling implements corresponding with

the Millingstone Horizon (Treganza and Bierman 1958). Although the milling implements suggest an emphasis on seed and nut gathering, Millingstone populations likely employed a mixed food procurement strategy which included hunting. Flaked stone assemblages, which include crude core and cobble-core tools, flake tools, large side-notched projectile points, and pitted stones (Desautels and Leach 1978; Glassow et al. 2007; Jones et al. 2007), shell middens, and faunal remains in coastal Millingstone Period sites point to broad-spectrum hunting and gathering of shellfish, fish, birds, and mammals. This mixed food procurement strategy demonstrates adaptation to regional and local environments, lending to population increase.

2.2.3 Early Period (ca. 5000 – 2000 BCE)

The Early Period of the Northern Bight is marked by a lower frequency of radiocarbon dated archaeological sites as well as changes in artifact forms. Differences in artifact forms, particularly in ground stone implements, likely represent changes in subsistence (Glassow et al. 2007). The material culture recovered from Early Period sites within the Northern Bight region provides evidence for continued exploitation of inland plant and coastal marine resource as well as the incorporation of "newly important food resources" found in specific habitats (Glassow et al. 2007:197). In addition to the use of metates and manos, prehistoric populations began to use mortars and pestles, such as those recovered from the Sweetwater Mesa (CA-LAN-267) and Aerophysics (CA-SBA-53) sites (Glassow et al. 2007).

Artifact assemblages recovered from Early Period sites also include bi-pointed bone gorge hooks used for fishing, Olivella beads, bone tools, and pendants made from soapstone. The frequency of projectile points in Early Period assemblages also increased, while the style began to change from lanceolate forms to side-notched forms (Glassow et al. 2007). This projectile point style trend, first identified by David Banks Rogers in 1929, was confirmed by Greenwood (1972) at Diablo Canyon. The projectile point trend has become apparent at numerous sites along the California coast as well as a few inland sites (e.g., CA-SBA-210 and CA-SBA-530). In many cases, manifestations of this trend are associated with the establishment of new and larger settlements, such as at the Aerophysics site (Glassow et al. 2007; Jones et al. 2007).

2.2.4 Middle Period (ca. 2000 BCE – CE 1)

The Middle Period describes a pronounced trend toward greater adaptation to regional or local resources as well as the development of socioeconomic and political complexity in prehistoric populations (Glassow et al. 2007). The remains of fish, land mammals, and sea mammals are increasingly abundant and diverse in archaeological deposits along the coast.

Coastal populations developed shell fishhooks, and projectile points changed from side-notched dart points to contracting stem styles. Flaked stone tools used for hunting and processing—such as large side-notched, stemmed, lanceolate or leaf-shaped projectile points, large knives, edge modified flakes, and drill-like implements—occurred in archaeological deposits in higher frequencies and are more morphologically diversified during the Middle Period. Bone tools, including awls, are more numerous than in the preceding period, and the use of asphaltum adhesive became common. Circular fish hooks which date from between 1000 and 500 BCE, compound bone fish hooks which date between CE 300 and 900, notched stone sinkers, and the tule reed or balsa raft, indicative of complex maritime technology, became part of the toolkit during this period (Kennett 1998; King 1990; Arnold 1995; Jones and Klar 2005; Glassow et al. 2007).

Populations continued to follow a seasonal settlement pattern until the end of the Middle Period; large, permanently occupied settlements with formal architecture, particularly in coastal areas, appear to have been the norm by the end of the Middle Period (Kennett 1998; Glassow et al. 2007). Prehistoric populations began to bury the deceased in formal cemeteries with artifacts which may represent changes in ideology and the development of ritual practices (Glassow et al. 2007).

2.2.5 Middle – Late Transition Period (ca. CE 1 – 1000)

The Middle-Late Transition period is marked by major changes in settlement patterns, diet, and interregional exchange. Prehistoric populations continued to occupy more permanent settlements, with the continued use of formal, though crowded cemeteries, and the burial of goods with the deceased. Burials are normally flexed, placed face down, and oriented toward the north or west (Warren 1968). The interments are typically marked by vertical pieces of whalebone, and have abundant grave goods, such as ornaments, effigies, and utensils.

After CE 500, a wealth of ornaments, ceremonial, and artistic items characterize the Northern Bight "Chumash Tradition" along the central coast and offshore islands (Warren 1968). Ground stone items include bowls, mortars and pestles, balls, grooved stones, doughnut stones, stone beads, pendants, pipes, tubes, and mammal effigies. Projectile points, both large and small, were typically non-stemmed and leaf-shaped, with convex or concave bases. Chipped stone implements also included drills and scrapers. Utilitarian objects were made from bone (e.g., awls, fishhooks, whistles, and tubes) and shell (e.g., fishhooks and abalone shell dishes). Shell beads and ornaments were abundant, bowls, pestles, pipes, and stone tubes were inlaid with shell beads and engraved. Bowls, pipes, and ornaments were commonly manufactured from steatite.

The manufacture of the plank canoe lined with naturally occurring asphaltum, called tomol, allowed coastal prehistoric populations to catch larger fish in deeper waters (Glassow et al. 2007). Following the introduction of the tomol, populations began to use harpoons, hooks and lines, and nets to catch deep-sea fish and mammals (Van Horn 1979). The plank canoe appears to have influenced "commerce between the mainland coast and the Channel Islands," and fish remains indicate "a noticeable increase in the acquisition of large deep-sea fish such as tuna and swordfish" (Glassow et al. 2007:204).

Projectile points diagnostic of both the Middle and Late periods are found in Northern Bight archaeological sites (Glassow et al. 2007). These projectile points include large, contracting-stemmed types typical of the Middle Period, as well as small, leaf-shaped Late Period projectile points, which likely reflect the introduction of the bow and arrow. Middle-Late Transition Period sites indicate populations replaced atlatl (dart) technologies with the bow and arrow, which required smaller projectile points.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. Many archaeologists believe this change in milling stones signals a change from the processing and consuming of hard seed resources to the increasing reliance on acorn (e.g., Glassow et al. 1988; True 1993).

2.2.6 Late Period (ca. CE 1000 – Historic Contact)

Late Period archaeological sites indicate sociopolitical and economic complexity among populations in the Northern Bight. Glassow et al. (2007:205) notes between 1200 and 1300 a social stratification becomes clear archaeologically. Climatic change may have stimulated the development of

specialized crafts, regional trade, and changes in food procurement. Unlike the large Middle Period shell middens, Late Period sites are more frequently single-component deposits. There are also more inland sites, with fewer and less visible sites along the Pacific shore during the Late Period. The settlement pattern and dietary reconstructions indicate a lesser reliance on marine resources than observed for the Middle and Middle-Late Transition periods, as well as an increased preference for deer and rabbit (Jones 1995). An increase in the number of sites with bedrock mortar features dating to the Late Period suggests nuts and seeds began to take on a more significant dietary role in Late Period populations.

Late Period sites are distinguished by small, finely worked projectile points and temporally diagnostic shell beads. These shell beads were used as monetary currency to trade with inland populations. Trade brought many maritime goods, such as fish, shellfish, and steatite bowls to inland locations, such as CA-SBA-3404, CA-SBA-485, and CA-SBA-2358, particularly during the latter part of the Late Period. Small, finely worked projectile points are typically associated with bow and arrow technology, which is believed to have been introduced to the area by the Takic migration from the deserts into southern California.

2.3 Ethnographic Context

The APE lies within Chumash ethnographic territory, which extends from the current city of Malibu, north beyond San Luis Obispo, and inland as far as 42 miles (Glassow 1996). The Chumash also inhabited the northern Channel Islands. The Chumash spoke six closely related languages, divided into two broad groups – Northern Chumash, consisting of only Obispeño and Southern Chumash, including Purisimeño, Ineseño, Barbareño, Ventureño, and Island Chumash (Mithun 1999). The Chumash are divided into three main groups, including Interior, Coastal, and Northern Channel Islands Chumash. The coastal Barbareño Chumash referred to themselves as the Wal-wa-ren-na, and “occupied the narrow coastal plain from Point Conception to Punta Gorda in Ventura County” (Grant 1978:509).

Chumash villages generally ranged between 30 and 200 people, with the largest settlements numbering anywhere from 500 to 800 people (Glassow 1996:14). Grant (1978b) describes a typical Chumash village along the Santa Barbara Channel as consisting of “several houses, a sweathouse, store houses, a ceremonial enclosure, gaming area, and a cemetery usually placed well away from the living area.” Archaeological investigations have recognized separate areas within cemeteries for elites and non-elites (King 1969).

Permanent Chumash villages included hemispherical or rounded mud-covered (insulated) pole and thatch dwellings arranged in close groups (Brown 2001). Thatching was made from tule, Carrizo grass, wild alfalfa, and fern (Grant 1978). Smaller Chumash groups correspondingly occupied short-term special-purpose camps throughout the year to acquire seasonal resources (Glassow 1996). Cooking fires were centered within the dwelling to allow smoke to ventilate through a hole in the roof (Grant 1978).

The Chumash are well-known for their wooden plank canoe, also called tomol. The tomol facilitated the procurement of marine resources and the trade network between the mainland and the Channel Islands. Sea mammals were hunted with harpoons, while deep-sea fish were caught using nets and hooks and lines. In addition to marine resources, the Chumash subsistence focused on acorns, pine nuts, prickly pear cactus, and other plant resources, and land animals such as mule deer, antelope, quail, dove, and other waterfowl (Brown 2001). The Chumash also manufactured various other utilitarian and non-utilitarian items. Eating utensils, ornaments, fishhooks, harpoons,

and other items were made using bone and shell. Olivella shell beads were especially important for trade.

Spanish explorers first arrived in the Santa Barbara Channel region in 1542. Contact had much more of an impact starting in 1770 with the establishment of the missions. Mission life led to severe population decline and culture loss (Johnson 1987). Although the Chumash languages are no longer commonly spoken (Timbrook 1990), many descendants of the Chumash still live in the region and a cultural revitalization has been ongoing since the twentieth century (Glassow et al. 2007). Today, the Santa Ynez Band of Chumash Indians is the only federally-recognized Chumash tribe.

2.4 History

Post-European contact history for the state of California is divided generally into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848 present). The following provides a general discussion of the history of California following European contact.

2.4.1 Spanish Period (1769-1822)

Spanish exploration of California began when Juan Rodriguez Cabrillo led the first European expedition into the region in 1542. During this expedition, he anchored in Malibu Lagoon. He named the area Pueblo de las Canoas for the Chumash canoes. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). In 1769, Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish in what was then known as Alta (upper) California between 1769 and 1823. Mission San Buenaventura was founded in 1782. It was during this time that Spanish settlement of the project vicinity began.

Mexican Period (1822-1848)

The Mexican Period commenced when news of the success of the Mexican Revolution (1810-1821) against the Spanish crown reached California in 1822. This period saw the privatization of mission lands in California with the passage of the Secularization Act of 1833, which enabled Mexican governors in California to distribute mission lands to individuals in the form of land grants. Successive Mexican governors made more than 700 land grants between 1822 and 1846, putting most of the state's lands into private ownership for the first time (Shumway 2007). About 20 land grants (ranchos) were in Ventura County. The approximately 26,623-acre Rancho Las Posas was originally granted to Jose Carrillo in 1824 (or 1834, depending on the source), and later the title confirmed to Jose de la Guerra y Noriega (Mason 1883; Stork 1891; Westergaard 1920). It is on this former rancho land that the subject property is located.

In 1846, the Mexican-American War was initiated following the annexation of Texas by the United States and a dispute over the boundary of the state between the U.S. and Mexico. On January 10, 1847, leaders of the pueblo of Los Angeles surrendered peacefully after Mexican General Jose Maria Flores withdrew his forces. Shortly thereafter, newly appointed Mexican Military Commander of California Andrés Pico surrendered all of Alta California to U.S. Army Lieutenant Colonel John C. Fremont in the Treaty of Cahuenga (Nevin 1978).

American Period (1848-Present)

The Mexican Period officially ended in February 1848 with the signing of the Treaty of Guadalupe Hidalgo, formally concluding the Mexican-American War. Per the treaty, the United States agreed to pay Mexico $15 million for conquered territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. California gained statehood in 1850, and this political shift set in motion a variety of factors that began to erode the rancho system.

In 1848, the discovery of gold in northern California led to the California Gold Rush, though the first gold was found in 1842 in San Francisquito slightly east of Ventura County (Workman 1935: 107; Guinn 1976). The presence of commercial grade oil in Ventura County was recognized in 1852 at Rancho Ojai (Franks and Lambert 1985).

By 1853, the population of California exceeded 300,000. Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. However, a severe drought in the 1860s decimated cattle herds and drastically affected rancheros' source of income. Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869. Property boundaries loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. Given the size of their holdings, the initiation of property taxes proved onerous for many southern California ranchers. Rancheros often were encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944).

Ventura County was officially divided from Santa Barbara County in 1873. The Saugus to Santa Barbara Branch (or Santa Paula Branch) of the Southern Pacific Railroad was constructed in the mid-1880s, encouraging travel through and settlement of the Santa Clara River Valley; it also created a large distribution network for citrus and other products grown in the area (Sperry 2006). In the 1880s, a dramatic boom occurred in southern California, fueled by various factors including increasingly accessible rail travel, agricultural development and improved shipment methods, and favorable advertisement (Dumke 1944). In 1883, the California Immigration Commission published an advertisement declaring the state as "the Cornucopia of the World" (Poole 2002:36). New southern California towns were promoted as havens for good health and economic opportunity. The first version of the Southern Pacific's Coast Line, between Los Angeles and Santa Barbara, was completed in 1900 through the Santa Clara Valley. A later version through Santa Susana Pass and bypassing the Saugus Branch was completed in 1904, offering a coastal alternative to the Central Valley mainline.

Meiners Oaks

The community of Meiners Oaks was developed on lands south of the Santa Ynez and Topatopa Mountains and east of the Ventura River. John Meiners was a native of Germany who immigrated to the United States in the late 1840s and acquired the lands as payment for a debt. With this, Meiner acquired the largest oak grove on level land in southern California.

Meiners lived on the ranch intermittently from 1880 until his death in 1898. During this time, he increased the acreage and production of oranges, lemons, prunes, apricots, and apples (Wenig 1969). Additionally, Meiners leased lands to other ranchers and farmers to graze cattle and cultivate oats, wheat, and barley. Interest in Meiners' ranch drew many pioneers to the Ojai Valley where they stayed and established the area.

3 Background Research

Background research for this cultural resources assessment included a record search, a review of historical maps and aerial photographs, and Native American outreach. A summary of findings of each of these efforts is provided below.

3.1 Cultural Resources Record Search

On March 25, 2020, Rincon requested a search of cultural resource records housed at the California Historical Resources Information System (CHRIS), South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The search was conducted to identify previously conducted cultural resources studies within the APE and a 1.0-mile radius, and to identify previously recorded cultural resources in or near the APE. The search included a review of the NRHP, the CRHR, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. The records search also included a review of all available historic United States Geological Survey 7.5- and 15-minute quadrangle maps. The cultural resources records search results are included in Appendix A.

The SCCIC records search identified 33 previous cultural resources studies conducted within a 1.0-mile radius of the APE; two of which encompass portions of the APE (Table 1).

Table 1 Previous Cultural Resource Studies Conducted within 1.0 mile of the APE

Report Number	Author	Year	Title	Relationship to APE
VN-00133	Cottrell	1978	*Cultural Resources Survey Conducted for Rancho Matilija, Ventura County, California*	**Within**
VN-00141	Horne	1973	*Archaeological Survey of Ojai West Fuel Break, East of Ventura River*	Outside
VN-00142	Horne	1972	*Will and Rice Canyon Fuel Break Archaeological Resources Report*	Outside
VN-00152	Horne and Johnson	1978	*Archaeological and Historical Overview Matilija Fuel Management Block Ojai Ranger District Los Padres National Forest*	Outside
VN-00216	Lopez	1979	*An Archaeological Reconnaissance of Lot A – The Forest River Park Subdivision No. 2 Ventura County, California*	Outside
VN-00578	Wlodarksi	1988	*An Archaeological Reconnaissance Report for 17 Acres of Land Location in Meiners Oaks, Ventura County*	Outside
VN-00748	Lopez	1978	*An Archaeological Reconnaissance of 1.5-Acre Home Site in the Unincorporated Territory of Ventura County, California*	Outside
VN-00887	Callison	1979	*Survey Data Sheet: PM-3388: Adjacent and North of Camarillo Drive*	Outside
VN-00888	Callison	1979	*Survey Data Sheet: PM-3056: Request for Data from John Crowley*	Outside

Report Number	Author	Year	Title	Relationship to APE
VN-01014	Callison	1979	*Survey Data Sheet PM-3374: Initial Data Request*	Outside
VN-01181	Simon and Whitley	1992	*Phase I Archaeological Survey and Cultural Resources Assessment for the McDonald Canyon Drain Unit 2, Ojai Valley, Ventura County, California*	Outside
VN-01260	Lopez	1993	*An Archaeological Reconnaissance of the Ten Acres Located at the Southwest Corner of El Roblar Drive and La Luna Avenue within the Unincorporated Community of Meiners Oaks, Ventura County, California*	Outside
VN-01289	MacFarlane	1994	*Phase I Archaeological Survey Lot Line Adjustment Parcels APN. 17-16-11, 17-22-07 (6.75 Acres) and APN 17-16-10, 17-16-06 (41 Acres) Meiners Oaks, California*	Outside
VN-01290	MacFarlane	1994	*Phase 1 Archaeological Survey Lot Line Adjustment Parcels APN 17-16-11, 17-11-07 (6.75 Acres) and APN 17-16-10, 17-16-06 (41 Acres) Meiners Oaks, California*	Outside
VN-01450	Garcia	1996	*Rice-Wills Road Erfo Project Ojai Ranger District, Los Padres National Forest Ventura County, California*	Outside
VN-01452	Garcia	1996	*Cozy Dell Road (5n34) Erfo Project Ojai Ranger District, Los Padres National Forest Ventura County, California*	Outside
VN-01560	Lopez and Galbraith	1998	*Heritage Resource Report for Negative Findings: Foothill Prescribed Burn Project*	Outside
VN-01562	Horne	1997	*Heritage Resource Report for Negative Findings: Sisar Canyon Land Exchange*	Outside
VN-01563	Garcia	1996	*Heritage Resource Report: Rice-wills Grazing Allotment Survey Ojai Ranger District Ventura County, California*	Outside
VN-01935	Unknown	1976	*Environmental Analysis Report for the Highway 33 Sign Plan*	Outside
VN-02065	Lopez	2001	*An Archaeological Reconnaissance of the 15.14 Acres Located at 963 Fairview Road, Ojai, Ventura County, California*	Outside
VN-02188	Lopez	2001	*An Archaeological Reconnaissance of the Church of the Living Christ's 71.2 Acre Meiners Oaks Property, Ventura County, California*	Outside
VN-02278	Lopez	2003	*Data Report: Boundary Identification and Test Excavations on CA-VEN-621, Meiners Oaks, Ventura County, California*	Outside
VN-02279	King	2001	*Archaeological Survey of the Rice-Willis Road*	Outside
VN-02386	Jordan and Patterson	2006	*Archaeological Survey Report for the Southern California Edison Company Replacement of 71 Deteriorated Poles on the Patricia 16kV, Thacher 16kV, Matilda 16kV, Tico 16kV, Seaquit 4kV, Maguire 16kV, Galahad 16kV, Brennan B4 16kV, Strathern 16kV, Gabbert B2*	Outside

Report Number	Author	Year	Title	Relationship to APE
VN-02621	Lopez	2003	*Data Report: Test Excavations in a Portion of CA-VEN-139 on the Church of the Living Christ's Meiners Oaks Property, Ventura County, California*	Outside
VN-02624	Cruz	2004	*Cultural Resources Survey of the Proposed Ainsworth Orchard Cellular Communications Site, Ojai, Ventura County, California*	Outside
VN-02733	Parr	2009	*Cultural Resource Assessment for the Replacement of Eleven Deteriorated Power Poles in the Ojai Valley, Ventura County, California*	Outside
VN-02792	Williams	2010	*Archaeological Letter Report: SCE Red Mountain, Seacliff, Matilija, and Patricia 16kV Deteriorated Pole Replacement Projects, Ventura County*	Outside
VN-02872	Fortier	2009	*TEA-21 Rural Roadside Inventory: Native American Consultants and Ethnographic Study for Caltrans District 7, Ventura Count*	Outside
VN-02914	Orfila	2010	*Archaeological Survey for the Southern California Edison Company: Replacement of Fourteen Deteriorated Power Poles on the Tico 16kV, Thacher 16kV, Castro 16kV, and Timber Canyon 16kV Circuits near Ojai and Fillmore in Ventura County, California*	Outside
VN-03099	Corbett and Guttenberg	2012	*A Phase I Archaeological Reconnaissance Survey of a Portion of the Ventura River Preserve, Meiners Oaks, Ventura County, California*	**Within**
VN-03272	Foster	2017	*Archaeological Inventory, 821 Oso Road, Ojai, California*	Outside

Source: SCCIC 2020

Additionally, the SCCIC records search identified five previously recorded cultural resources within a 1.0-mile radius of the APE (Table 2); none of which are located within the APE.

Table 2 Previously Recorded Resources within 1.0 mile of the APE

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/ CRHR Status
56-000139	CA-VEN-000139	Prehistoric village	Extensive midden including burials	Blackburn 1961; Greenwood 1963; MacFarlane 1994	Not evaluated
56-000140	CA-VEN-000140	Prehistoric camp	Lithic scatter with groundstone implements	Blackburn 1961	Not evaluated
56-000194	CA-VEN-000194	Prehistoric village	Extensive midden	Blackburn 1968	Not evaluated
56-000306	CA-VEN-000306	Prehistoric site	Lithic scatter with human remains	Horne 1972; Scott and Garcia 1995; King 2001	Not evaluated
56-000621	CA-VEN-000621	Prehistoric site	Lithic scatter	Aiello 1979	Not evaluated

Source: SCCIC 2020

3.2 Previous Projects within the APE

As part of the current study, Casitas provided Rincon with a Reclamation Finding of No Significant Impact report for the 2019 Robles Forebay Restoration Project (Lopez 2019). This report included documentation confirming the Robles Diversion Dam and Fish Passage Facility were previously recorded and evaluated in 2010 as part of the Ventura River Project. At the time, the property was determined ineligible for the NRHP by Reclamation, a finding that received concurrence from the California State Historic Preservation Officer in September 2010.

3.3 Review of Historical Topographic Maps and Aerial Imagery

A review of aerial photographs and topographical maps was conducted to elucidate the history of land use in the APE. The Southern Pacific Railroad (Nordhoff Branch) is depicted in 1904 topographic maps as running through the Ojai Valley south of the APE (NETRonline 2020). The area remained largely undeveloped aside from the existence of the railroad until the 1940's and 1950s as illustrated by the establishment of the Meiners Oak, Ojai, and Mira Monte communities near the railroad tracks through the valley as seen in 1946 and 1953 topographic maps (USGS 1946; 1953). Between the 1950s and 1960s, agricultural use of the Ojai Valley increased as evidenced by 1967 aerial photographs. Aerial photos do not display the structures affiliated with the diversion of the Ventura River and construction of the Robles Diversion Dam Facility until 1967, but according to the Reclamation website, the dam was constructed in 1958 (Reclamation 2020). Meyer Road lies within the southern portion of the APE and appears to have been established around 1953. The road historically cut across the dam's downstream spillway, but it has degraded from years of water erosion and sediment deposit. Maintenance of the spillway and other dam facilities has occurred since the establishment of the Facility in 1958.

3.4 Native American Outreach

Rincon contacted the Native American Heritage Commission (NAHC) on March 24, 2020 to request a Sacred Lands File search of the project site. The NAHC replied on April 2, 2020 with positive results and listed six contacts who may have local knowledge of the area. As the CEQA lead agency, Casitas will conduct Native American consultation for the project in compliance with AB 52. Although consultation efforts are ongoing, Rincon understands that as of the submission of this report draft, Native American consultation undertaken to comply with AB 52 has resulted in Julie Tumamait-Stenslie, Chairperson of the Barbareño/Ventureño Band of Mission Indians, requesting Native American monitoring during project-related ground disturbance associated with Activities 1A and 1B. The Reclamation is the lead federal agency and will conduct Section 106 consultation separately.

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4 Field Survey

4.1 Methods

Rincon archaeologist Mary Pfeiffer conducted a cultural resources survey of the APE on April 3, 2020. Ms. Pfeiffer walked transects spaced no greater than 5 meters apart and examined all exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historical debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows were inspected visually.

The field survey also included a visual inspection of built environment features within the APE, all of which are associated with the Robles Diversion Dam Facility, in order to assess the overall condition and integrity, and to identify and document any potential character-defining features. Field documentation included digital photographs of the property to support field observations.

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5 Results

5.1 Archaeological Resources

Ground visibility within the APE was approximately 25 percent, with gravel and vegetation inhibiting further visibility (Figure 10 through Figure 14). Portions of the APE are graded and leveled with fill made up of local and imported soils. Low-density deposits of modern freshwater clam shells are present throughout local fill areas along the eastern peripheries of the APE. Large granitic boulders associated with the river are also scattered throughout the APE. Two brown cryptocrystalline silicate tertiary flakes on the Robles Diversion Dam Facility were identified in an imported soil context. Casitas staff Steve Sharp confirmed the provenance of the soil where the artifacts were identified as imported fill during the survey (Sharp 2020). The isolated flakes were removed from their original context and stripped of any associations and/or data potential; thus, they were not formally recorded during the survey. No other archaeological resources were identified during the pedestrian survey.

Figure 10 Portion of Eastern Extent of APE, View North

Figure 11 Portion of Western Extent of APE, View Northeast

Figure 12 Portion of Northern Extent of APE, View Northeast

Figure 13 Northern Portion of APE along Ventura River, View North

Figure 14 Central Portion of APE in the Riverbed, View East

5.2 Built Environment Resources

One previously recorded historic-era built environment resource, the Robles Diversion Dam Facility, was identified in the APE and recorded on Department of Parks and Recreation 523 Series Forms (Appendix C). No other built environment resources were identified during the survey.

5.2.1 Robles Diversion Dam Facility

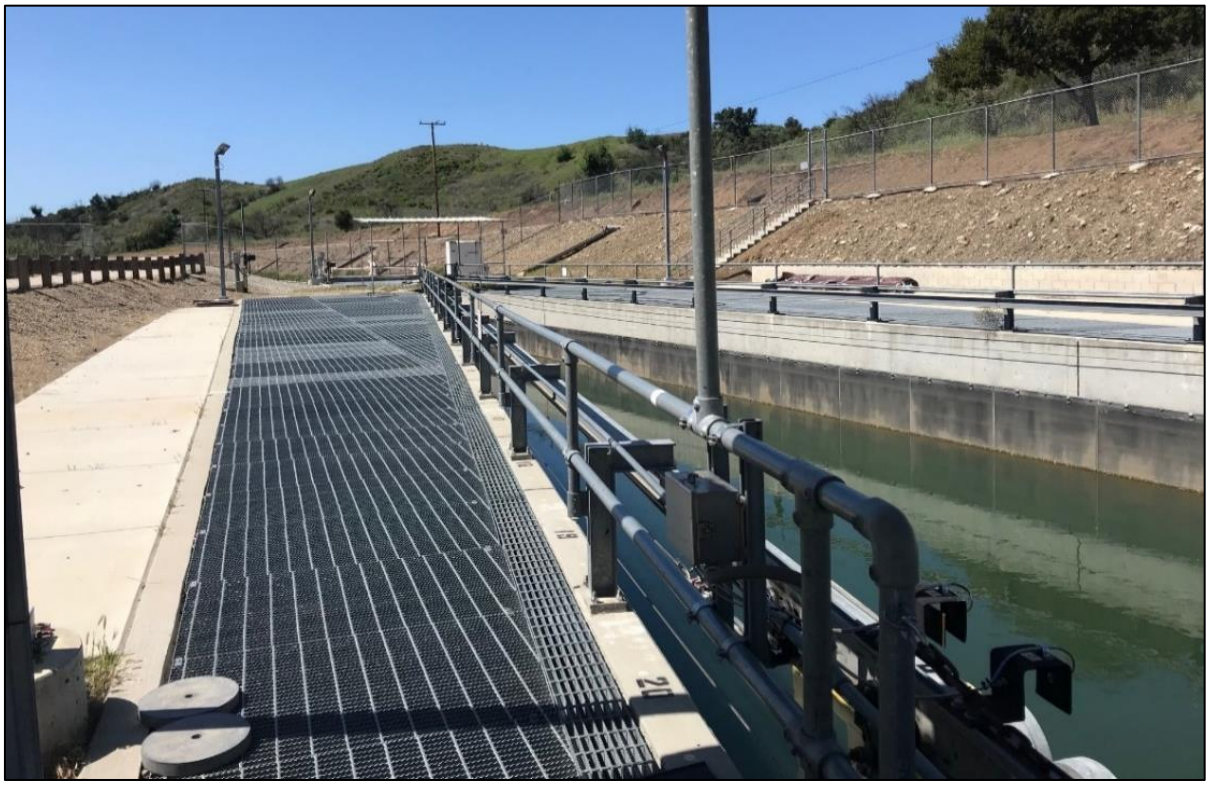
The Robles Diversion Dam Facility is located 1.5 miles south of the confluence of Matilija Creek and North Fork Matilija Creek in the community of Meiners Oaks, Ventura County. The Facility was built in 1957-1959 by M. H. Hasler Construction Company and F. W. Case Corporation as part of the Ventura River Project. In 2004, a fish passage Facility was added to the Facility, and the dam spillway and gate control house were altered.

In 1973, the Los Angeles Section of the American Society of Civil Engineers recognized the Ventura River Project, of which Robles Diversion Dam is a part, as one of the organization's Historic Civil Engineering Landmarks (Norby and Trickey 2010). In 2010, Heather Norby and Andrea Trickey of JRP Historical Consulting, evaluated the Robles Diversion Dam Facility. The Facility was described as including the Robles Diversion Dam, its inlet-outlet structures, a generation building, and the gate control house (Figure 15 through Figure 17). At that time, the Facility was found ineligible for listing in the NHRP (it was not evaluated for the CRHR; Norby and Trickey 2010). The California State Historic Preservation Officer concurred with the findings of ineligibility for listing in the NRHP in 2010 (Lopez 2019).

Figure 15 Overview of the Robles Diversion Dam Facility, View West

Figure 16 Robles Diversion Dam Gates View North

Figure 17 Robles Diversion Dam Facility, View Southwest toward Screen Bay



The current survey update of the Facility was conducted in support of Annual Repair and Maintenance Programmatic Permitting effort for the Casitas' Robles Diversion and Fish Passage Facility project in Ventura County, California. Since the Facility was originally recorded as a cultural resource and evaluated for its eligibility for the NRHP in 2010, there have been no visible alterations. To comply with CEQA, the Facility was evaluated for listing in the CRHR as part of this study.

As discussed above, the Robles Division Dam Facility was previously determined ineligible for listing in the NRHP. There is no information to suggest this finding is no longer valid. As part of the current study, the property is also recommended ineligible for listing in the CRHR, pursuant to any applicable designation criteria. The subject property was developed in 1957 to1959 during construction of the Ventura River Project. Research did not suggest the Facility is associated with an event or series of events that made a significant contribution to the broad patterns of history in the city, region, state, or nation (Criterion 1). Research did not indicate that any persons associated with the Facility can be considered significant to local, state, or national history (Criterion 2). The Facility is utilitarian in design and materials and is a common example of a dam Facility. It does not embody distinctive characteristics of a type, period, or method of construction (Criterion 3). A review of available evidence and records search results did not indicate the Facility might yield information important to history or prehistory (Criterion 4).

6 Findings and Recommendations

The current study consisted of a cultural resources records search, Native American outreach that includes a positive SLF result, a pedestrian survey, evaluation of an historic period built-environment resource, and the preparation of this technical report. Research completed under the current study concluded the Dam Facility Robles Diversion Dam Facility does not possess significant architectural or historical associations and is not eligible for listing in the NRHP or CRHR; it therefore does not qualify as a historical resource under CEQA or as a historic property under Section 106 of the NHPA. The background research and survey concluded no other known built environment or archaeological resources are in the APE. Two isolated lithic flakes were identified in imported fill-soil during the pedestrian survey. Due to the lack of discernable context, the flakes were not formally recorded. No other archaeological resources were identified within the APE. All soils to be disturbed during the current project consist of recently built-up sediments and are unlikely to contain intact archaeological resources. However, the SLF results were positive and the records search identified five prehistoric archaeological sites within a 1.0-mile radius of the APE. Although none of these sites extend into the APE, two are large habitation sites (P-56-000139 and P-56-000194) and two are confirmed to contain human remains (P-56-000139 and P-56-000306). These resources are located upstream from the Diversion Dam and it is possible that artifacts or remains associated with the sites could have washed downstream. These factors increase the likelihood of encountering buried archaeological deposits during project-related ground disturbance. However, these deposits would have been the result of recent erosion and not the result of prehistoric human activity.

Significant project-related ground disturbance is limited to Activities 1A, 1B, which include periodic removal and downstream redeposition of accumulated sediments, and may occur during road grading and excavation during Activity 6E. Therefore, Rincon recommends archaeological and Native American monitoring as a standard condition for project-related ground disturbance during Activities 1A and 1B and for grading and excavation during Activity 6E, detailed below. Although any encountered resources in these areas are likely to be within a secondary context, the heritage value of any such resources to local tribal groups remains. Monitoring is consistent with tribal concerns and precedent existing for the general area.

Based on the results of this cultural resources assessment, Rincon recommends a finding of ***no impact to historical resources*** and ***less than significant impact with mitigation to archaeological resources*** under CEQA. In addition to archaeological and Native American monitoring, Rincon presents the following recommendation in case of unanticipated discovery of cultural resources during project development. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below. Although the APE is archaeologically sensitive, no historic properties are known to exist within the APE; therefore, Rincon recommends a finding of ***no historic properties affected*** under Section 106 of NHPA.

6.1 Archaeological and Native American Monitoring

Rincon recommends archaeological and Native American monitoring of all project-related ground disturbance during Activities 1A and 1B and for grading and excavation during Activity 6E by a qualified archaeologist and Native American consultant. Archaeological monitoring should be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983). Native American

monitoring should be provided by a locally affiliated tribal member. Monitors will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological or Native American monitoring or both may be reduced to spot-checking or eliminated at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of rough grading. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the APE and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

6.2 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be eligible for the NRHP and/or CRHR, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts/adverse effects.

6.3 Human Remains

The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner would notify the Native American Heritage Commission, which would determine and notify an MLD. The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

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Appendix A to CRA (IS-MND Appendix H)

Records Search Results

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-00133		1978	Cottrell, Marie G.	Cultural Resources Survey Conducted for Rancho Matilija, Ventura County, California	ARM	56-000306, 56-000594, 56-000595, 56-000596
VN-00141		1973	Horne, Stephen	Archaeological Survey of Ojai West Fuelbreak East of Ventura River (Arr 05-07-18).	U.S. Forest Service	56-000304, 56-000305
VN-00142		1972	Horne, Stephen	Will and Rice Canyon Fuelbreak Archaeological Resources Report Arr 05-07-21a.	U.S. Forest Service	56-000306
VN-00152		1978	Horne, Stephen and John Johnson	Archaeological and Historical Overview Matilija Fuel Management Block Ojai Ranger District Los Padres National Forest	USFS: Los Padres National Forest	56-000048, 56-000061, 56-000114, 56-000115, 56-000132, 56-000150, 56-000194, 56-000404
VN-00216		1979	Lopez, Robert	An Archaeological Reconnaissance of Lot a Re-plat of The" Forest River Park Subdivision No. 2 Ventura County, California (19mr62/pm-3388)	Robert Lopez, Archaeological Consultant	
VN-00578		1988	Wlodarski, Robert J.	An Archaeological Reconnaissance Report for 17 Acres of Land Located in Meiners Oaks, Ventura County,	Historical, Environmental, Archaeological, Research, Team	
VN-00748		1978	Lopez, Robert	An Archaeological Reconnaissance of 1.5 Acre Home Site in the Unincorporated Territory of Ventura County, California		
VN-00887		1979	Callison, Sheila	Survey Data Sheet: Pm-3388- Eac 8-9-79, Adjacent & North of Camarillo Drive	Ventura County	
VN-00888		1979	Callison, Sheila	Survey Data Sheet: Pm-3056 - Request for Data From John Crowley	Ventura County	
VN-01014		1979	Callison, Sheila	Survey Data Sheet: Pm-3374 Initial Data Request	Ventura County	
VN-01181		1992	Simon, Joseph M. and D. Whitley	Phase I Archaeological Survey and Cultural Resources Assessment for the Mcdonald Canyon Drain Unit 2, Ojai Valley, Ventura County, California	W & S Consultants	
VN-01260		1993	Lopez, Robert	An Archaeological Reconnaissance of the Ten Acres Located at the Southwest Corner of El Roblar Drive and La Luna Avenue Within the Unincorporated Community of Meiners Oaks, Ventura County, California	Archaeological Consultant	
VN-01289		1994	MacFarlane, Heather	Phase 1 Archaeological Survey Lot Line Adjustment Parcels A.p.n. 17-16-11, 17-22-07 (6.75 Acres) and A.p.n. 17-16-10, 17-16-06 (41 Acres) Meiners Oaks, California	MacFarlane Archaeological Consultants	19-001109, 56-000139, 56-000194, 56-000306, 56-000621, 56-000641

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-01290		1994	MacFarlane, Heather	Phase 1 Archaeological Survey Lot Line Adjustment Parcels A.p.n. 17-16-11, 17-11-07, (6.75 Acres) and A.p.n. 17-16-10, 17-16-06 (41 Acres) Meiners Oaks, California	MacFarlane Archaeological Consultants	56-000139
VN-01450		1996	Garcia, Juanita D.	Rice-wills Road Erfo Project Ojai Ranger District, Los Padres National Forest Ventura County, California	U.S. Forest Service	56-000306, 56-000307, 56-000308, 56-000309, 56-000310
VN-01452		1996	Garcia, Juanita D.	Cozy Dell Road (5n34) Erfo Project Ojai Ranger District, Los Padres National Forest Ventura County, California	U.S. Forest Service	
VN-01560		1998	Lopez, James M. and Steve Galbraith	Heritage Resource Report for Negative Findings: Foothill Prescribed Burn Project	U.S. Forest Service	
VN-01562		1997	Horne, Stephen	Heritage Resource Report for Negative Findings: Sisar Canyon Land Exchange	U.S. Forest Service	
VN-01563		1996	Garcia, Juanita D.	Heritage Resource Report: Rice-wills Grazing Allotment Survey Ojai Ranger District Ventura County, California	U.S. Forest Service	56-000307
VN-01935		1976		Environmental Analysis Report for the Highway 33 Sign Plan	USFS: Los Padres National Forest	
VN-02065		2001	Lopez, Robert	An Archaeological Reconnaissance of the 15.14 Acres Located at 963 Fairview Road, Ojai, Ventura County, California	Robert Lopez, Archaeological Consultant	56-000621
VN-02188		2001	Lopez, Robert	An Archaeological Reconnaissance of the Church of the Living Christ's 71.2 Acre Meiners Oaks Property, Ventura County, California	Moorpark College Archaeological Program	56-000139
VN-02278		2003	Lopez, Robert	Data Report: Boundary Identification and Test Excavations on CA-VEN-621, Meiners Oaks, Ventura County, California	Robert Lopez, Archaeological Consultant	56-000621
VN-02279		2001	King, Chester	Archaeological Survey of the Rice-willis Road [4n06]	Topanga Anthropological Consultants	56-000306, 56-000307, 56-000308, 56-000309, 56-000310, 56-001696
VN-02386		2006	Jordon, Stacey C. and Patterson, Joshua D.	Archaeological Survery Report for the Southern California Edison Company Replacement of 71 Deteriorated Poles on the Patricia 16kv, Thacher 16kv, Matilda 16kv, Tico 16kv, Seaquit 4kv, Maguire 16kv, Galahad 16kv, Brennan B4 16kvm Strathern 16kv, Gabbert B2	Mooney, Jones & Stokes	19-001041, 19-001402, 19-002075, 19-002076, 19-120027, 56-000137, 56-000140, 56-000192, 56-000193, 56-001109, 56-001265, 56-001266, 56-100048, 56-100049, 56-152750

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-02621		2003	Lopez, Robert	Data Report: Test Excavations in a Portioin of CA-VEN-139 on the Church of the Living Christ's Meiners Oaks Property, Ventura County, California.	Lopez, Robert	56-000139
VN-02624		2004	Cruz, Michael J.	Cultural Resources Survey of the Proposed Ainsworth Orchard Cellular Communications Site, 95-047-505d05/v149, Ojai, Ventura County, California	SWCA Environmental Consultants, Inc.	
VN-02733		2009	Parr, Robert E.	Cultural Resource Assessment for the Replacement of Eleven Deteriorated Power Poles in the Ojai Valley, Ventura County, California	Cal Heritage	
VN-02792		2010	Williams, Audry	Archaeological Letter Report: WO 6039-4800 9-4842; TD 352285: SCE Red Mountain, Seacliff, Matilija, and Patricia 16kV Deteriorated Pole Replacement Projects, Ventura County	Compass Rose Archaeological, Inc.	
VN-02872		2009	Fortier, Jana	TEA-21 Rural Roadside Inventory: Native American Consultants and Ethnographic Study for Caltrans District 7, Ventura County	ICF Jones & Stokes	
VN-02914		2010	Orfila, Rebecca	Archaeological Survey for the Southern California Edison Company: Replacement of Fourteen Deteriorated Power Poles on the Tico 16kV, Thacher 16kV, Castro 16kV, and Timber Canyon 16kV Circuits near Ojai and Fillmore in Ventura County, California	RSO Consulting	56-000641
VN-03099		2012	Corbett, Ray and Guttenberg, Richard	A Phase I Archaeological Reconnaissance Survey of a Portion of the Ventura River Preserve, Meiners Oaks, Ventura County, California	John Minch and Associates	56-000134, 56-000139
VN-03272		2017	Foster, John M.	ARCHAEOLOGICAL INVENTORY, 821 Oso Road, Ojai, California	Greenwood and Associates	

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-56-000139	CA-VEN-000139		Site	Prehistoric	AP02; AP09; AP15; AP16	1961 (BLACKBURN); 1963 (Greenwood); 1994 (Heather Macfarlane, MacFarlane Archaeological Consultants)	VN-00076, VN-01289, VN-01290, VN-02188, VN-02621, VN-03099
P-56-000140	CA-VEN-000140		Site	Prehistoric	AP02; AP15	1961 (BLACKBURN)	LA-07849, VN-01102, VN-02386
P-56-000194	CA-VEN-000194		Site	Prehistoric	AP02; AP15	1968 (Blackburn)	VN-00152, VN-01289
P-56-000306	CA-VEN-000306	Resource Name - RICE / WELLS 1972-#1; USFS - 0507-55-33; Resource Name - Los Padres National Forest 55-33	Site	Prehistoric	AP02; AP09; AP15	1972 (Stephen Horne); 1995 (David J. Scott and Juanita D. Garcia); 2001 (Chester King, Topanga Anthropological Consultants)	VN-00133, VN-00142, VN-01289, VN-01450, VN-02279
P-56-000621	CA-VEN-000621		Site	Prehistoric	AP02; AP04; AP15; AP16	1979 (Paul V. Aiello, Ventura College)	VN-00414, VN-01289, VN-02065, VN-02278

Appendix B to CRA (IS-MND Appendix H)

Sacred Lands File Search Results

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Via Email to: ggranger@rinconconsultants.com
Cc: jtumamait@hotmail.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Environmental Support for the Casitas Municipal Water District Annual Repair and Maintenance Programmatic Permits (Phase II) Project, Ventura County

Dear Ms. Granger:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

  All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the Barbareno/Ventureno Band of Mission Indians on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Sarah.Fonseca@nahc.ac.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Ventura County
4/2/2020

Barbareno/Ventureno Band of Mission Indians
Julie Tumamait-Stenslie, Chairperson
365 North Poli Ave
Ojai, CA, 93023
Phone: (805) 646 - 6214
jtumamait@hotmail.com
Chumash

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA, 93307
Phone: (661) 322 - 0121
chumashtribe@sbcglobal.net
Chumash

Coastal Band of the Chumash Nation
Gino Altamirano, Chairperson
P. O. Box 4464
Santa Barbara, CA, 93140
cbcn.consultation@gmail.com
Chumash

Northern Chumash Tribal Council
Fred Collins, Spokesperson
P.O. Box 6533
Los Osos, CA, 93412
Phone: (805) 801 - 0347
fcollins@northernchumash.org
Chumash

San Luis Obispo County Chumash Council
Mark Vigil, Chief
1030 Ritchie Road
Grover Beach, CA, 93433
Phone: (805) 481 - 2461
Fax: (805) 474-4729
Chumash

Santa Ynez Band of Chumash Indians
Kenneth Kahn, Chairperson
P.O. Box 517
Santa Ynez, CA, 93460
Phone: (805) 688 - 7997
Fax: (805) 686-9578
kkahn@santaynezchumash.org
Chumash

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Environmental Support for the Casitas Municipal Water District Annual Repair and Maintenance Programmatic Permts (Phase II) Project, Ventura County.

Appendix C to CRA (IS-MND Appendix H)

Resource Record Update (California DPR 523 Series Forms)

***Recorded by:** Alexandra Madsen, Rincon Consultants, Inc. ***Date:** March 25, 2020 ☐Continuation ■Update

The Robles Diversion Dam Complex is located one and a half miles south of the confluence of Matilija Creek and North Fork Matilija Creek in the community of Meiners Oaks, Ventura County. The complex was built in 1957-1959 by M. H. Hasler Construction Company and F. W. Case Corporation as part of the Ventura River Project. In 2004, a fish passage structure was added to the complex and the dam spillway and gate control house were altered.

In 1973, the Los Angeles Section of the American Society of Civil Engineers recognized the Ventura River Project, of which Robles Diversion Dam was a part, as one of the organization's Historic Civil Engineering Landmarks (Myers 1974). In 2010, Heather Norby and Andrea Trickey of JRP Historical Consulting, LLC evaluated the Robles Diversion Dam Complex. The complex was listed as including the Robles Diversion Dam, its inlet-outlet structures, a generation building, and the gate control house. At that time, the complex was found ineligible for listing in the National Register of Historic Places. It was not evaluated for the California Register of Historical Resources (CRHR; Norby and Trickey 2010). The State Historic Preservation Officer concurred with the findings of ineligibility for listing in the NRHP in 2019 (Lopez 2019).

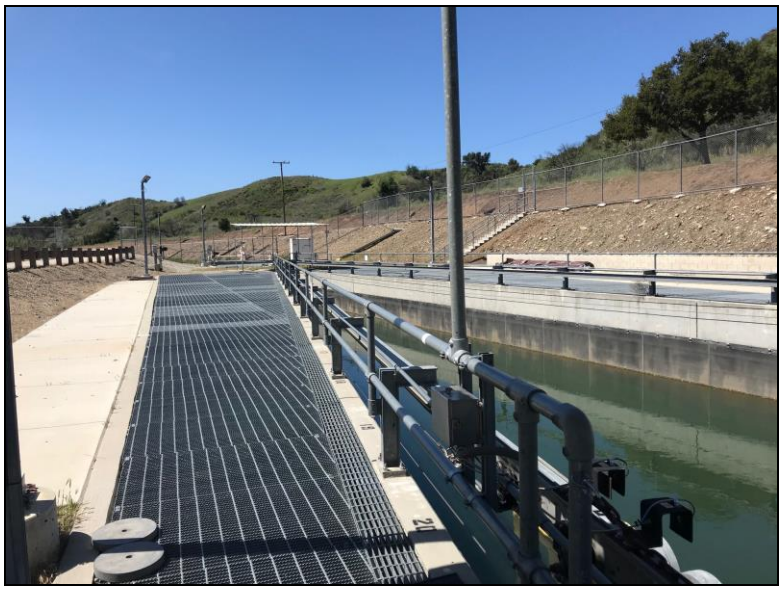
The current survey update of the complex was conducted in support of Phase II of the Annual Repair and Maintenance Programmatic Permitting effort for the Casitas' Robles Diversion and Fish Passage Facility project in Ventura County, California. Since the complex was recorded in 2010, there have been no visible alterations. To comply with the California Environmental Quality Act (CEQA), the complex was evaluated for listing in the CRHR as part of this study.

The Robles Division Dam Complex is recommended ineligible for listing in the CRHR pursuant to any applicable designation criteria. The subject property was developed in 1957-1959 during construction of the Ventura River Project. Research did not suggest the complex is associated with an event or series of events that made a significant contribution to the broad patterns of history in the city, region, state, or nation (Criterion 1). Research did not indicate that any persons associated with the complex can be considered significant to local, state, or national history (Criterion 2). The complex is utilitarian in design and materials and is a common example of a dam complex. It does not embody distinctive characteristics of a type, period, or method of construction (Criterion 3). A review of available evidence and records search results did not indicate the complex might yield information important to history or prehistory (Criterion 4).

Photograph 1. Overview of Robles Diversion Dam Complex, view northwest. Photo taken April 3, 2020.

Photograph 2. Robles Diversion Dam Gates, view north. Photo taken April 3, 2020.

Photograph 3. Robles Diversion Dam Complex, view southwest toward screen bay. Photo taken April 3, 2020.



References:

Lopez, Brian. 2019. Finding of No Significant Impact: Robles Forebay Restoration Project (FONSI-19-023). U.S. Department of the Interior, Bureau of Reclamation.

Myers, A. 1974. Historic Civil Engineering Landmarks of Southern California. History and Heritage Committee, Los Angeles Section American Society of Civil Engineers. Los Angeles: Southern California Edison Company.

NETROnline. Var. Historic Aerials. Accessed on March 25, 2020 at: https://www.historicaerials.com/viewer

Norby, Heather and Andrea Trickey. 2010. Department of Parks and Recreation Form, Robles Diversion Dam Complex. JRP Historical Consulting, LLC.

Appendix I

Noise Modeling

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/24/2020
Case Description: Casitas R&M MND - Activity 1

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Dozer	No	40	81.7	50.0	0.0	
Dump Truck	No	40	76.5	50.0	0.0	
Grader	No	40	85.0	50.0	0.0	

Results

	Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	83.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/30/2020
Case Description: Casitas R&M MND - Activity 2

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Pumps	No	50		80.9	50.0	0.0
Pumps	No	50		80.9	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	80.9	77.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	80.9	77.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.9	83.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/24/2020
Case Description: Casitas R&M MND - Activity 3

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/24/2020
Case Description: Casitas R&M MND - Activity 3

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Dozer	No	40	81.7	50.0	0.0	
Dump Truck	No	40	76.5	50.0	0.0	
Excavator	No	40	80.7	50.0	0.0	

Results

	Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81.7	80.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/24/2020
Case Description: Casitas R&M MND - Activity 5

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50.0	0.0
Dump Truck	No	40		76.5	50.0	0.0
Pumps	No	50		80.9	50.0	0.0
Concrete Mixer Truck	No	40		78.8	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	80.9	77.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Mixer Truck	78.8	74.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.9	82.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/11/2020
Case Description: Casitas R&M MND - Activity 6A

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compactor (ground)	No	20		83.2	50.0	0.0
Dump Truck	No	40		76.5	50.0	0.0
Excavator	No	40		80.7	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compactor (ground)	83.2	76.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	83.2	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/24/2020
Case Description: Casitas R&M MND - Activity 6C

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Backhoe	No	40	77.6	50.0		0.0
Pickup Truck	No	40	75.0	50.0		0.0
Pickup Truck	No	40	75.0	50.0		0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Noise Limits (dBA) Day Leq	Noise Limits (dBA) Evening Lmax	Noise Limits (dBA) Evening Leq	Noise Limits (dBA) Night Lmax	Noise Limits (dBA) Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Noise Limit Exceedance (dBA) Day Leq	Noise Limit Exceedance (dBA) Evening Lmax	Noise Limit Exceedance (dBA) Evening Leq	Noise Limit Exceedance (dBA) Night Lmax	Noise Limit Exceedance (dBA) Night Leq
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75.0	71.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75.0	71.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.6	76.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/24/2020
Case Description: Casitas R&M MND - Activity 6C

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	50.0	0.0
Pickup Truck	No	40		75.0	50.0	0.0
Pickup Truck	No	40		75.0	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75.0	71.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75.0	71.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75.0	74.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/24/2020
Case Description: Casitas R&M MND - Activity 6E

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residential	Residential	50.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Summed Noise Calculations

Addition			
	Activity No. 1 (dBA)	Activity No. 6E (dBA)	Total Summed Noise Level (dBA)
1	63.0	65.0	67.1

Appendix C
Rincon FHWA Traffic Noise Model

rincon

Model Input

Project Name :	Casitas R&M Program
Project Number :	19-08905
Modeling Condition :	Existing
Ground Type :	Soft
Metric (L_{eq}, L_{dn}, CNEL) :	CNEL

Peak ratio to ADT:	10
Traffic Desc. (Peak or ADT) :	ADT

Segment Number	Roadway	Segment		Traffic Volume	Speed (mph)	Distance to Centerline	Vehicle Cassification Mix (%)					24-Hour Traffic Distribution (%)			K-Factor
		From	To				Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Day	Evening	Night	
1	Rice Road			2,000	25	15	97			3	0	80	5	15	
2															
3															
4															
5															

rincon

Model Results

Project Number :	Casitas R&M Program
Modeling Condition :	19-08905
Ground Type :	Existing
Metric (Leq, Ldn, CNEL) :	CNEL

Segment Number	Roadway	Segment		Noise Levels (dB) CNEL					
		From	To	Automobiles	Motorcycles	Bus	Medium Trucks	Heavy Trucks	Total
1	Rice Road			59.6	0.0	0.0	55.4	0.0	61.0
2									
3									
4									
5									

Distance to Traffic Noise Contours (feet)				
70 dB	65 dB	60 dB	55 dB	50 dB
4	8	17	38	81

Groundborne Noise and Vibration Modeling

Notes
The reference distance is measured from the nearest anticipated point of construction equipment to the nearest structure.

	Reference Level Inputs			
Equipment	**PPV_{ref} (in/sec)**	**Lv_{ref} (VdB)**	**RMS_{ref} (in/sec)**	**Reference Distance**
Vibratory Roller	0.21	94	0.050	25
Large bulldozer	0.089	87	0.022	25
Loaded trucks	0.076	83	0.014	25
Small bulldozer	0.003	58	0.001	25

	Vibration Level at Receiver			
Equipment	**Distance (feet)**	**PPV_x (in/sec)**	**Lv_x (VdB)**	**RMS_x (in/sec)**
Vibratory Roller	600	0.0064	64	0.002
Large bulldozer	200	0.0090	67	0.002
Loaded trucks	200	0.0077	63	0.001
Small bulldozer	200	0.0003	38	0.000

Source
California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual. April 2020. Available at: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf. Last Updated: 4/30/2020

Appendix J

Responses to Comments on the Draft IS-MND

Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program

Responses to Comments on the Draft MND

Final Initial Study – Mitigated Negative Declaration

prepared by

Casitas Municipal Water District
1055 North Ventura Avenue
Oak View, California 93022
Contact: Kelley A. Dyer, P.E.
Assistant General Manager

prepared with the assistance of

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

October 2024

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Responses to Comments on the Draft MND

This section includes comments received during the circulation of the Draft Mitigated Negative Declaration (MND) prepared for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program (proposed project).

The Draft MND was circulated for a 30-day public review period which began on October 24, 2021 and ended on November 24, 2021. Casitas Municipal Water District (District or Casitas) received three comment letters on the Draft MND within the comment period. An additional letter from the California Department of Fish and Wildlife (CDFW) was received after the comment period ended. While this letter was not received within the 30-day public review period, CDFW requested an extension for its review and responses to CDFW comments are provided.

The four comment letters received on the Draft IS-MND are identified below, along with the number of the first page within this Responses to Comments document upon which the respective set of comments is addressed.

Letter No.	Commenter (Name, Title, Agency, Division)	Page No.
1	Nicole Collazo, Air Quality Specialist Ventura County Air Pollution Control District, Planning Division	xx
2	Dave Ward, Planning Director Ventura County Resource Management Agency, Planning Division	xx
3	Peter Sheydayi, Deputy Director County of Ventura Public Works Agency, Watershed Planning and Permits Division	xx
4	Erinn Wilson-Olgin, Environmental Program Manager California Department of Fish and Wildlife, South Coast Region	xx

The comment letters and responses follow. The comment letters have been numbered sequentially and each separate issue raised by the commenter, if more than one, has been assigned a number. The responses to each comment identify first the number of the comment letter, and then the number assigned to each issue (Response 1.1, for example, indicates the response is for the first issue raised in Letter No. 1).

Since the end of the public review period, there have been minor changes to the project description and Draft IS-MND, some in response to the comments received. As described in the *Introduction* Section of the Final IS-MND, these changes merely clarify and/or amplify existing information within the IS-MND and do not require recirculation of the IS-MND. Changes made in response to the comments on the Draft IS-MND are shown in <u>underline</u> for text additions and ~~strikethrough~~ for text deletions.

Letter 1

Ventura County
Air Pollution
Control District

4567 Telephone Rd
Ventura, California 93003

tel 805/303-4005
fax 805/456-7797
www.vcapcd.org

Dr. Laki Tisopulos, P.E.
Air Pollution Control Officer

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Kelley Dyer, Assistant General Manager

DATE: November 23, 2021

FROM: Nicole Collazo, Air Quality Specialist, Planning Division

SUBJECT: Public Comment for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program MND (RMA 21-022)

Air Pollution Control District (APCD) staff have reviewed the subject Notice of Intent (NOI) and draft Mitigated Negative Declaration (MND) for the project referenced above. The project is for the continued maintenance and repair of the existing Robles Diversion and Fish Passage facility, which include sediment/debris removal, vegetation control, repair/maintenance of radial and other gates, instrumentation and road maintenance. The Lead Agency for the project is the Casitas Municipal Water District. APCD as a Commenting Agency has the following comments about the draft MND as it pertains to air quality and/or greenhouse gas environmental impact sections. 1-1

GENERAL COMMENTS

Air Quality Section

Item 1, Page 26. BMP-13 -14 and -17, having to do with potential release of fugitive dust and particulate matter, should include some language on using water trucks as an option to control concrete particulates into the atmosphere. 1-2

Item 2, Page 47. The MND states that the project will be in compliance with APCD Rule 55 by ensuring "construction emissions would not be generated in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or endanger the comfort, repose, health, or safety of any such person or the public (underline added)". The underline portion is language from our APCD Rule 51, Nuisance, which is a complaint-driven rule. As such, Rule 55 would not have compliance ensured from a complaint-driven rule if it there is no nexus for enforcement to occur. We recommend installing a sign with the APCD 24-hr Complaint Hotline phone number, 805-303-3700, in a viewable location for any member of the public who wishes to log a dust complaint, especially the residences living approximately 100 feet away from the project site. This may be added as a dust control measure in the Fugitive Dust Emissions portion of the MND and/or added to the BMP list in Section 10, and as a condition of approval of the discretionary permit issued to the Lead Agency for the project. 1-3

Thank you for the opportunity to comment on the project's MND. You may reach me at nicole@vcapcd.,org should you have any questions.

Letter 1

COMMENTER: Nicole Collazo, Planning Division, Ventura County Air Pollution Control District

DATE: November 23, 2021

Response 1-1

This comment is introductory and summarizes the project. This comment does not pertain to the analysis within the Draft IS-MND. No response is required.

Response 1-2

The commenter requests that Best Management Practice (BMP)-13, BMP-14, and BMP-17 be revised to include language on using water trucks as an option to control the release of concrete particulates into the atmosphere.

The language of neither BMP-13 nor BMP-17 was modified in response to this comment, because these BMPs do not address the type of issue (release of particulate matter into the atmosphere) that would be minimized or avoided through the application of water on the ground surface; specifically, BMP-13 is directed at preventing a spill or leak of materials from contaminating the Ventura River in stormwater runoff, and BMP-17 is directed at preventing concrete washout to the Ventura River during the execution of Activity 5. However, BMP-14 is related to controlling the release of loose materials, which would be minimized through the application of water via water trucks, and applies to all six project activities. Therefore, BMP-14 is the appropriate measure to revise in response to this comment.

In response to this comment, as shown in the Errata to the Draft IS-MND, BMP-14, *Tracking Loose Material (Activities 1-6)*, has been revised as follows:

> 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. <u>In addition, fugitive dust control measures, such as periodic watering via water trucks, will be implemented as appropriate to minimize the release of particulates into the air.</u>

Response 1-3

The commenter states that the statement in Section 3, *Air Quality*, of the Draft IS-MND regarding compliance with VCAPCD Rule 55 is not correct because VCAPCD Rule 51 (Nuisance) would not ensure project compliance with VCAPCD Rule 55 (Fugitive Dust Control), and the commenter recommends installation of a sign with the VCAPCD 24-hour Complaint Hotline phone number in a viewable location for any member of the public who wishes to log a dust complaint.

To clarify, the project would be required to comply with the VCAPCD Rules independently of each other, and the cited statement addresses the threshold of significance recommended by VCAPCD in its Ventura County Air Quality Assessment Guidelines (2003) for assessing fugitive dust impacts; the 2003 Guidelines states (page 3-5 of the VCAPCD Guidelines):

> A project that may be reasonably expected to generate fugitive dust emissions in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or

> safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property (see California Health and Safety Code, Division 26, §41700) will have a significant adverse air quality impact.

Section 6.2 of the 2003 VCAPCD Guidelines, which provides guidance on assessing project-specific, localized, non-ozone impacts, states that the VCAPCD "recommends minimizing fugitive dust, especially during grading and excavation operations, rather than quantifying fugitive dust emissions. Therefore, the mitigation measures described in Section 7.4.1, 'Fugitive Dust Mitigation Measures,' should be applied to all project-related dust-generating operations and activities" (VCAPCD 2003). The fugitive dust control measures listed in Section 7.4.1 of the 2003 VCAPCD Guidelines are functionally equivalent to VCAPCD Rule 55, which was adopted in 2008; these measures include: securing tarps over truck loads, removing vehicle track-out using PM_{10} efficient sweepers, and watering bulk material. As a result, based on the 2003 VCAPCD Guidelines, it is reasonable to conclude that compliance with VCAPCD Rule 55 would mean that the project would not generate fugitive dust emissions in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property. Therefore, the suggested language regarding posting signage has not been incorporated; however, BMP-14 has been revised to require the use of fugitive dust control measures including watering via water trucks.

Letter 2

COUNTY of VENTURA

RESOURCE MANAGEMENT AGENCY
DAVE WARD, AICP
Planning Director

November 24, 2021

Casitas Municipal Water District
1055 North Ventura Avenue
Oak View, CA 93022

SUBJECT: Response to Draft Initial Study and Notice of Intent to Adopt a Mitigated Negative Declaration for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program
Case No. Casitas MND (RMA #21-022)
Assessor's Parcel Number 11-02-7002

Dear Assistant General Manager Kelley Dyer,

Thank you for providing the Ventura County Planning Division with the opportunity to provide comments regarding the Casitas Municipal Water District's (Casitas) notice of intent to adopt a Mitigated Negative Declaration for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program. The existing facility allows a portion of the Ventura River to be diverted to Lake Casitas and includes a fish ladder for upstream and downstream travel of fish. Casitas is seeking regulatory permits for a period of 10 years or more to conduct annual maintenance activities. Previously, Casitas was seeking maintenance activities on an as needed basis. The proposed project covers the maintenance and repair of the existing diversion facility including sediment and brush removal, road maintenance, vegetation control, concrete work, replacement of wood timbers, and debris fencing. Project activity will occur 2 miles downstream of Matilija dam in an unincorporated area of Ojai.

Analysis:

The Planning Division submits the following comments regarding Air Quality and Biological Resources sections in the Mitigated Negative Declaration.

1. **Truck trips and Criteria Air Pollutants**

Annually, there will be approximately 626 round trips for trucks carrying sediment offsite throughout the 60-day work period duration from the project site to the Simi Valley Landfill and Recycling Center. These vehicles would be using North Rice Road and Fairview Road as an access route to reach the diversion facility from SR 33. However, the analysis did not identify the complete truck routes that would be taken, through which cities, and which unincorporated areas. Please identify the truck trip route(s) and share them with the County of Ventura and affected cities. 2-1

Since the truck trips will originate in Ojai, and the diversion facility is located in an Air Quality Attainment Basin regulated by the Ojai Valley Clean Air Ordinance (see attached maps), the Section 3 Air Quality analysis should determine, given the portions of truck trip routes that are located within the boundary of Clean Air Ordinance, whether the threshold for NOx 2-2

HALL OF ADMINISTRATION #1740
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would be exceeded. The Ojai Valley Area Plan[1] includes a section on the Adverse Impacts on Regional Air Quality (OV-55.1) and states that the County shall find discretionary development in the Ojai Valley to have a significant adverse impact on the regional air quality if daily emissions would be greater than 5 pounds per day of Reactive Organic Compounds (ROC) and/or greater than 5 pounds per day of Nitrogen Oxides (NOx). Based on the Ojai Valley Area Plan (OV-55.1) Casitas should evaluate the daily NOx emissions from round-trip truck trips, also known as truck loads, for the portion of trips that are in the areas under the Ojai Valley Clean Air Ordinance jurisdiction. Based on the analysis the permits should identify a maximum number of daily truck trips allowed, and those trips should be limited to off-peak traffic hours (OV-Program R). 2-2

Planning Division staff also noted that the description for Activity 1, removal of forebay sediment, included 626 round trip truck trips, but the mitigation measure for Checklist Item 3b, number AQ-2 for Increased Truck Capacity, incudes 478 one-way trips. The analysis should consistently use round trips or else it should describe how using larger trucks eliminates the need for round trips. 2-3

Furthermore, truck trip lengths, and associated air pollutants, would be reduced if Casitas could partner with a local agency to deposit the sediment on or near the coast. The County supports using sediment from flood control projects for beach nourishment. For example, General Plan policy PFS-6.7, Flood Control and Beach Sand Nourishment, states the County shall include beach sand nourishment as an important factor in the design and maintenance of flood control facilities. As opposed to taking sediment to the landfill, it could be used to restore a portion of the sediment supply to the beaches, which is the natural geomorphic process for the Ventura River. Methods to restore sediment transport to the coast and for deposition of appropriate sediments on beaches should be included in Best Management Practices (BMPs). Regional agencies such as BEACON are often working with local jurisdictions, including for funding opportunities, on beach nourishment projects. We encourage Casitas to engage with BEACON and the County about this opportunity. 2-4

2. Locally Important Species

The Ventura County General Plan Goal COS-1 and Policy COS-1.1 identify Locally Important Species as significant biological resources to be protected from incompatible land uses and development. Within the Biological Resource section of the Environmental Checklist, the statement is made that Locally Important Species are not expected to be within the project area. After reviewing the biological assessment conducted for the project area (Appendix A – Biological Assessment), additional information is needed to determine that there is no potential of locally important species occurring on the site.

Planning Division staff recommend that the Locally Important Species list available on our website https://vcrma.org/ventura-county-locally-important-species-list be reviewed for their potential presence on the project site and included within a table in the revised CEQA document. For example, the threespine stickleback (*Gasterosteus aculeatus microcephalus*) has been documented within San Antonio Creek and above the Matilija Dam. The potential for Prickly Sculpin (*Cottus asper*) and the Pacific Lamprey (*Lampetra tridentata*) also have the potential to be present within the Ventura watershed. In addition, the Matilija 2-5

[1] The Ojai Valley Area Plan can be accessed here:
11E. Ojai Valley Area Plan (vcrma.org)

Shoulderband Snail (*Helminthoglypta willeti*) and California glossy snake (*Arizona elegans occidentalis*) also have the potential to be present. After a thorough re-review of the Locally Important Species list, if the potential exists for any listed species listed occur, then either additional field surveys should be conducted to document their presence, or the appropriate mitigation measures should be included to reduce the potential project impacts to less than significant. 2-5

Planning Division staff also recommends that the BMPs are updated to address the presence of any locally important species that have the potential to occur on the site, particularly regarding maintenance and repairs of the fish ladder. In addition, we recommend that the District consider the following modifications to the proposed BMPs:

BMP-1: Provide a fishery monitor if a repair is necessary when water is still present and a pump is in use, to ensure smaller special status species of fish are not adversely impacted by the repair activity.

BMP-2: Include descriptions of potential Locally Important Species that have the potential to occur for the Worker Environmental Awareness Program.

BMPs-3, 4, and 5: Pre-construction surveys should include other special status species that have the potential to occur on the site. For example, snakes or other special status reptiles.

BMP- 7: Cover Excavations. Excavations should be covered that would trap other special status species in addition to the California Reg Legged Frog. 2-6

BMP- 8: Please correct the nesting bird season to reflect that the nesting bird season for Ventura County runs January 1st through September 15th due to the presence of species such as hummingbirds, hawks, and doves which are all protected by the Migratory Bird Treaty Act and Fish and Game Code.[2]

BMP-13: Material Storage. Because of the location of the site within the wildlife corridor, site materials should be stored in a manner where wildlife cannot become injured or killed (e.g., construction debris such as fencing or netting that can entrap snakes or other wildlife).

BMP-18: Site Materials and Refuse Management. All trash should be picked up and disposed of properly within the project area each day during the construction period. Plastics, wrappers, water bottles, construction debris, etc. have the potential to be carried off site by wind or rain long before the end of the project. California condors have also been observed to feed on micro-trash.

And finally, the County encourages two additional BMPs for the District to consider: 1) erosion control netting should be wildlife safe, and 2) include specifications for the protection of the presence of special status species and animal movement within the 2-7

[2] Please see Protection of Nesting Birds Public Information here:
https://docs.vcrma.org/images/pdf/planning/bio/VC_Protection_of_Nesting_Birds_2020.pdf

corridor if night work must be conducted (See Ventura County General Plan Conservation and Open Space Element COS-1).[3] 2-7

Thank you for the opportunity to comment on the NOI to Adopt a Mitigated Negative Declaration for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program. Please keep the County and local jurisdictions updated with any changes in maintenance plans that may occur in the future. 2-8

While project maintenance activities are unlikely to require a permit from the Planning Division, Planning staff would like to meet with Casitas Municipal Water District staff and/or its representatives to confirm this direction. The Public Works Agency, Watershed Protection District may also be interested in attending this meeting. 2-9

For any questions about the air pollution discussion in this letter, please contact Aaron Engstrom at 805.654.2936 or Aaron.Engstrom@ventura.org. For any questions about the biological resources discussion in this letter, please contact Abigail Convery, at 805.654.2489 or via email at Abigail.Convery@ventura.org.

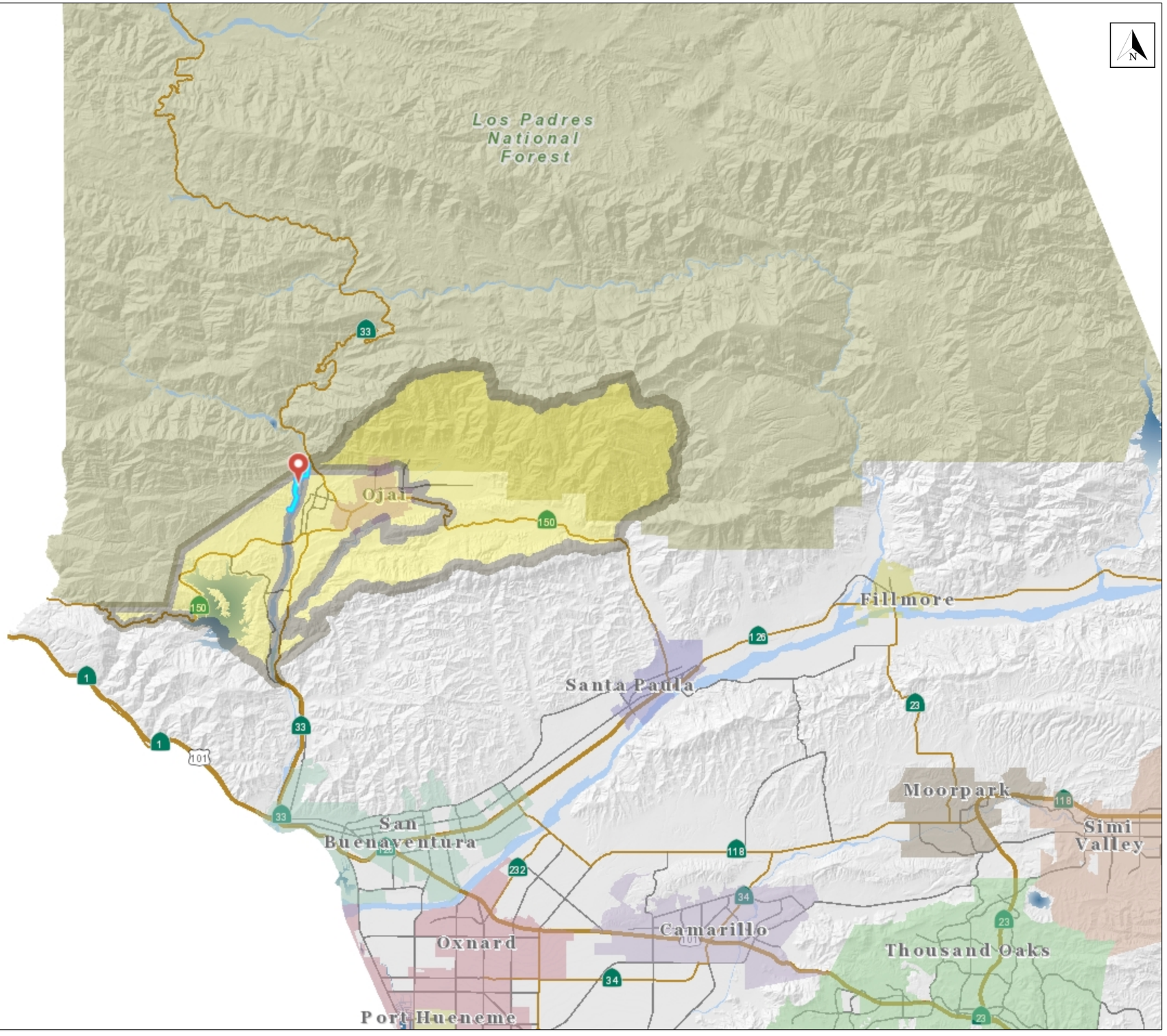
Sincerely,

Aaron Engstrom for;

Dave Ward, AICP I Planning Director
County of Ventura, Planning Division

[3]Please see the General Plan Conservation and Open Space element here: https://docs.vcrma.org/images/pdf/planning/plans/Final_2040_General_Plan_docs/VCGPU_06_COS_Element_2020_09_15_web.pdf

RMA GIS



Legend

- Ojai Clean Air Ordinance
- City Boundary
  - Camarillo
  - Fillmore
  - Moorpark
  - Ojai
  - Oxnard
  - Port Hueneme
  - San Buenaventura
  - Santa Paula
  - Simi Valley
  - Thousand Oaks

0 24,074.61 48,149.2 Feet

1: 288,895

Notes

RMA GIS

Legend

- Ojai Clean Air Ordinance
- Parcels
- City Boundary
  - Camarillo
  - Fillmore
  - Moorpark
  - Ojai
  - Oxnard
  - Port Hueneme
  - San Buenaventura
  - Santa Paula
  - Simi Valley
  - Thousand Oaks

0 1,504.66 3,009.3 Feet

1: 18,056

Notes

Letter 2

COMMENTER: Dave Ward, Ventura County, Planning Division, Resource Management Agency

DATE: November 24, 2021

Response 2-1

The commenter requests identification of the truck routes that would be taken for hauling sediment off-site as part of Activity No. 1 and requests that the truck trip routes be shared with the County of Ventura and affected cities.

Casitas' normal and preferred method for the disposal of sediment removed from the forebay is to either deposit it in the Ventura River, using designated sediment placement areas, or deposit it in on-site stockpiles, using designated soil disposal areas. As such, under normal operational conditions, Casitas would dispose of 100 percent of the removed forebay sediment without requiring any truck trips from the site. However, there are certain natural events which result in high-sediment conditions, such as during post-fire conditions when sediment load in the river increases substantially due to hydrophobic conditions on the hillsides surrounding the channel. During such high-sediment conditions, more sediment than usual accumulates in the forebay, and the space available for in-channel placement or on-site stockpiling becomes limited. As a result, it may be necessary to export a portion of the excess sediment for off-site disposal; prior to using trucks to haul sediment off-site, all feasible in-channel and on-site areas would be maximized, thereby minimizing the quantity of haul trips required.

When the use of trucks to haul sediment off-site is unavoidable, haul trucks would use one of the access routes identified below, from the project site; note, of the four access routes identified below, the preferred routes are those on the east side of the river, as Cooper Canyon Road on the west can be difficult to traverse with larger sized trucks.

- East side of the river:
    - North Rice Road to Fairview Road to State Route (SR) 33 to U.S. 101 to SR 23 to SR 118 to Madera Road to Viewline Drive, or
    - North Rice Road to Fairview Road to SR 33 to U.S. 101 to SR 126 to SR 118 to Madera Road to Viewline Drive
- West side of the Ventura River:
    - Cooper Canyon Road to Ranch Road to SR 150 to SR 33 to U.S. 101 to SR 23 to SR 118 to Madera Road to Viewline Drive
    - Cooper Canyon Road to Ranch Road to SR 150 to SR 33 to SR 126 to SR 118 to Madera Road to Viewline Drive

These haul routes pass through unincorporated Ventura County as well as the cities of Ojai, Ventura, Oxnard, Camarillo, Thousand Oaks, Moorpark, and Simi Valley. The Notice of Intent to Adopt an IS-MND was sent directly to the County of Ventura and the City of Ojai at the start of the public review period for the Draft IS-MND, which identified that haul trips would occur between the project site and the Simi Valley Landfill and Recycling Center. Haul truck trips through Oxnard, Camarillo, Thousand Oaks, Moorpark, and Simi Valley would occur on established truck routes, which would primarily consist of highways operated and maintained by the California Department of Transportation; therefore, specific notification of these cities is not necessary.

Response 2-2

The commenter requests that the air quality analysis determine whether the project's emissions would exceed the threshold of five pounds per day of nitrogen oxides (NO_X) established for the Ojai Valley Plan Area. The commenter suggests that the project permits should identify a maximum number of daily truck trips allowed and that truck trips should be limited to off-peak hours.

Section 3, *Air Quality*, of the Draft IS-MND, includes Table 5, *Reasonable Worst-Cast Emissions – Unmitigated*, which compared the project's NO_x emissions generated within the Ojai Valley Plan Area to the threshold of five pounds per day, and emissions were found to exceed this threshold. As a result, Mitigation Measures AQ-1, AQ-2, and AQ-3 would be required for the proposed project. Mitigation Measure AQ-2 specifically requires the use of larger haul trucks to reduce the number of daily truck trips, which is consistent with the commenter's suggestion. Table 6, *Reasonable Worst-Cast Emissions – Mitigated*, shows that implementation of these mitigation measures would reduce NO_X emissions in the Ojai Valley Plan Area to below the threshold of significance of five pounds per day. Limiting haul truck trips to off-peak hours is not necessary to mitigate this impact because Mitigation Measures AQ-1, AQ-2, and AQ-3 are sufficient to mitigate the impact to a less-than-significant level.

Response 2-3

The commenter requests that the analysis in the Draft IS-MND consistently characterize the estimated truck trips in terms of roundtrips.

In response to this comment, as shown in the Errata to the Draft IS-MND, Section 3, *Air Quality*, of the Draft IS-MND has been revised to correct the typo related to roundtrips, as shown below.

> **Haul trips.** It was assumed up to 5,000 cubic yards of soil would be disposed of at the Simi Valley Landfill and Recycling Center. Assuming haul trucks have a capacity of 16 cubic yards, approximately 626 ~~round-trip~~ one-way truck trips would be required throughout the 60-day duration of Activity No. 1. For the purposes of modeling, these haul trips were split into two phases. One phase accounts for the geographic portion of the haul trips occurring within the boundaries of the Ojai Valley Planning Area, totaling approximately ten miles. The second phase accounts for the geographic portion of the haul trips occurring outside the Ojai Valley Planning Area, totaling 40 miles.

This revision corrections a typo and does not change the air quality modeling or analysis, which relies on the assumption of 626 one-way truck trips (5,000 cubic yards divided by 16 cubic yards = 313 roundtrips, which is equivalent to 626 one-way trips). Correcting this typo to express haul truck trips in terms of one-way trips brings this excerpt of Section 3, *Air Quality*, of the Draft IS-MND into consistency with the rest of the document, including the remainder of Section 3, *Air Quality*, as well as Section 13, *Noise*, in which haul truck trips are expressed in terms of one-way trips. It is noted that expressing haul truck trips in terms of one-way trips does not mean that the need for roundtrips is eliminated. Rather, expressing haul truck trips in terms of one-way trips is simply a different metric conveying the same overall number of haul truck trips (each roundtrip includes two one-way trips).

Response 2-4

The commenter notes haul truck trip lengths and their associated air pollutant emissions would be reduced if Casitas partnered with a local agency to deposit the sediment on or near the coast and expresses County support for using sediment from flood control projects for beach nourishment. The commenter requests the inclusion of methods to restore sediment transport to the coast and for the deposition of appropriate sediments on beaches to be included in the project's BMPs. The County encourages Casitas to engage with BEACON and the County to further discuss this opportunity.

As described for Activity 1A under *Description of Maintenance and Repair Program*, Casitas would remove varying quantities of sediment/debris from the forebay annually, ranging from no removal in some years to approximately 56,500 cubic yards in other years when storm load deposition is high. Then, as described for Activity 1B under *Description of Maintenance and Repair Program*, Casitas would utilize the removed sediment to restore storm-eroded areas within 1,100 linear feet downstream of the timber cut-off wall, which would be consistent with the County's goal of maintaining sediment transport to the coast via the Ventura River. However, before initiating sediment removal actions, Casitas would 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 would be stockpiled above the ordinary high-water mark of the Ventura River in designated soil disposal areas (see Figure 2 of the Draft IS-MND) or exported off-site. If sediment is stockpiled in designated disposal areas on site, Casitas would evaluate whether stockpiled sediment can be placed back into the river each year, pending capacity established in the survey of the deposition area. Therefore, soil would be exported off-site only under limited circumstances when placement of the sediment downstream of the timber cut-off wall, which would maintain sediment transport via the Ventura River, or stockpiling on-site for placement in the river in future years is not practicable. Nevertheless, Casitas decision makers will consider the County's recommendation to utilize the excess sediment that cannot be replaced downstream of the timber cutoff wall for beach nourishment as they review the project.

Response 2-5

The commenter states additional information is needed to determine there is no potential of Locally Important Species occurring on the site and recommends the Locally Important Species list be reviewed. The commenter lists several species believed to have the potential to occur in the watershed. The commenter requests for any listed species with a potential to occur, then either additional field surveys should be conducted to document their presence, or the appropriate mitigation measures should be included to reduce the potential project impacts to less-than-significant.

As described on Page 38 of the Biological Resources Assessment (Appendix A of the Draft IS-MND), the list of Locally Important Species was part of the literature review, and the species listed were considered during the assessment. Although some aquatic species on the County's list have potential to occur in the Biological Study Area (BSA), project activities would involve a minimal footprint and would be conducted during dry conditions and these species would not be affected.

Response 2-6

The commenter recommends the BMPs are updated to address the presence of any locally important species that have the potential to occur on the site. Specifically, the commenter recommends modifications to BMPs 1 through 5, 7, 8, 13, and 18. As described below, the measures have been retained because they are adequate and effective as originally presented.

The commenter recommends providing a fishery monitor for repair work be included in BMP-1. The language of BMP-1 was not modified in response to this comment because BMP-9 stipulates a qualified biological monitor (with all of the required collection permits) will be on-site during all project operations involving 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.

The commenter recommends including a description of potential Locally Important Species in the Worker Environmental Awareness Program (BMP-2). This comment has been noted, but language of BMP-2 does not require modification as locally important species are considered sensitive species which are already described in the BMP.

The commenter recommends BMP-3, -4, and -5 reference other special-status species which should be surveyed for. The language of these BMP does not require modification in response to this comment because BMP-3 stipulates a qualified biologist will conduct a survey within the project area locations and document existing conditions and search for special status species. Therefore, any pre-construction survey would be inclusive of all special-status species, not just those listed in the BMP.

The commenter recommends modifying BMP-7 to clarify covers for excavations should be provided for all special-status species, not just California red-legged frog (CRLF). The language of BMP-7 was not modified in response to this comment because the intent of the measure is not only to prevent entrapment of CRLF, but all species capable of becoming entrapped in such manner. Thus, per BMP-7 any steep-walled excavation left open overnight which may trap wildlife shall be covered.

The commenter recommends modifying BMP-13 to initiate the nesting bird season on January 1 instead of February 1, to account for certain bird species in the area. The comment has been noted and the information is appreciated. The language of BMP-8 was not modified in response to this comment because BMP-3 requires pre-construction surveys within a week of project activities. The pre-construction survey is not limited to just special-status wildlife. Should maintenance activities occur between January 1 and February 1, any birds nesting in the area would be observed and avoided through compliance with BMP-3. In addition, the project would comply with pre-construction survey conditions as required by the Regulatory Agencies, including CDFW, United States Fish and Wildlife Service (USFWS), and the Ventura County Watershed Protection District (VCWPD).

The commenter recommends modifying BMP-13 to state materials should be stored in a manner where wildlife cannot become injured or killed. The language of BMP-13 was not modified in response to this comment because BMP-2 (Environmental Training) requires crew members to review measures required to avoid and minimize impacts to biological resources within the work area, which includes appropriate staging of materials (e.g., fencing, tarping) to prevent wildlife entanglement. The comment has been noted and the information is appreciated.

The commenter recommends modifying BMP-18 to include all trash and construction materials, not just food-related trash. The language of BMP-18 was not modified in response to this comment because BMP-2, Environmental Training (Activities 1-6), BMP-11 (Pollutant Management), BMP-12 (Pollution Prevention), and BMP-14 (Tracking Loose Material) describe measures to control trash and construction-related debris.

Response 2-7

The commenter recommends two additional BMPs be included: 1) erosion control netting should be wildlife safe, and 2) include specifications for the protection of the presence of special status species and animal movement within the corridor if night work must be conducted. The comment has been noted and the information is appreciated; however, BMP-2 (Environmental Training), BMP-9 (Biological Monitoring), and BMP-22 (Speed Limits) serve to address these concerns.

First, BMP-2 states the Environmental Training 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.

With respect to night work, per BMP-2, night work will be avoided to the maximum extent possible; however, if night work must occur, the speed limit for transport and spreading material shall be reduced to 10 miles per hour. In addition, BMP-9 requires a qualified biological monitor be on-site during all work within sensitive habitat areas where sensitive species may be present.

Response 2-8 and 2-9

The commenter requests the County and local jurisdictions be updated with any changes in maintenance plans that may occur in the future. The comment has been noted. The County and other local jurisdictions are listed as recipients of the maintenance plan and any updates to the plan. A comment letter from Watershed Protection was received and responses to that letter are provided under Letter 3.

Letter 3

PUBLIC VENTURA COUNTY WORKS

WATERSHED PROTECTION

WATERSHED PLANNING AND PERMITS DIVISION
800 South Victoria Avenue, Ventura, California 93009
Peter Sheydayi, Deputy Director – (805) 650-4077

M E M O R A N D U M

DATE: November 18, 2021

TO: Anthony Ciuffetelli, RMA Planner
County of Ventura

FROM: Peter Sheydayi, Deputy Director, Watershed Planning and Permits

SUBJECT: RMA21-022 Robles Diversion and Fish Passage Facility
Watershed Protection (WP) District Project Number: WC2021-0075

Pursuant to your request dated October 21, 2021, this office has reviewed the submitted materials and provides the following comments. 3-1

PROJECT LOCATION:

The Robles Facility is located on the Ventura River near the City of Ojai, two miles downstream of Matilija Dam in unincorporated Ventura County, CA

PROJECT DESCRIPTION:

The proposed project is for the continued maintenance and repair of the existing Robles Facility. Typical maintenance activities 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 repair activities occur in and around the Ventura River where such activities are regulated by several state and federal agencies. The modification to the bed, bank, and/or vegetation in a natural drainage is regulated by the California Department of Fish and Wildlife (CDFW) under Section 1600 *et seq*. of the Fish and Game Code. Activities that result in the discharge of dredged or fill material in watercourses are also regulated by the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Issuance of a 404 permit also requires a 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 (BO) issued to CMWD by the National Marine Fisheries Service (NMFS) in 2003 for affects to steelhead trout (0. mykiss) from the construction and operation of the Facility. In addition, the United States Fish and Wildlife Service (USFWS) issued a BO 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 BO. In 2003, CMWD acquired agreements and permits from CDFW, USACE, Los Angeles RWQCB, and USFWS for construction of the Robles Diversion Fish Passage Facility; however, the permits issued did not cover maintenance of the Facility, and CMWD acquires agreements and permits on an as-needed basis for individual maintenance activities to the Facility. With the proposed project, CMWD is seeking permits with a duration of 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.

WATERSHED PROTECTION COMMENTS:

1. The environmental checklist, Section 4 (e) states that, "*The Robles Diversion and Fish Passage Facility is owned by Reclamation and is exempt from Ordinance WP-2*." This statement is incorrect. Ventura County Ordinance WP-2 Article 2, Section 203 (b) provides exceptions "*to work performed by organizational components of the Federal government, the State of California, the County, the District, or their contractors,"* however this does not apply in this instance. Casitas Municipal Water District is the operator of the facility and will conduct and/or contract, and oversee the maintenance and repair activities, therefore is subject to the requirements listed in Article 2, Section 202. 3-2

2. Please include Ventura County Public Works Agency - Watershed Protection (VCPWA-WP) as a recipient of the annual maintenance and repair plan in Section 11, *Annual Monitoring and Reporting Program*. 3-3

3. The proposed work will require a watercourse permit and additional information on the permitting process can be found at the following website: https://www.onestoppermits.vcrma.org/departments/watercourse-encroachment 3-4

If you have any questions, please feel free to contact me by email at Peter.Sheydayi@ventura.org or by phone at (805) 650-4077.

END OF TEXT

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Letter 3

COMMENTER: Peter Sheydayi, Deputy Director, Watershed Planning and Permits Division, County of Ventura Public Works Agency

DATE: November 18, 2021

Response 3-1

The commenter states Ventura County Watershed Protection District (VCWPD) reviewed the CEQA document for the project. The comment has been noted and the information is appreciated.

Response 3-2

The commenter states that the description of the Robles Diversion on page 63 of the IS-MND as it relates to exemption from Ventura County Ordinance WP-2 is incorrect. The commenter provides a description of Ordinance WP-2, stating that "Section 203 (b) provides exceptions 'to work performed by organizational components of the Federal government, the State of California, the County, the District, or their contractors,' however this does not apply in this instance." The commenter states because the District will conduct and/or contract, and oversee the maintenance and repair activities, therefore the District is subject to the requirements listed in Article 2, Section 202. In response to this comment, the District is a contractor under the Federal Government (i.e., contracted under the Bureau of Reclamation to oversee and operation of the facility). Further, the District is a State Agency under the Municipal Water District Act of 1911. Thus, the District is exempt from Ventura County Ordinance WP-2 pursuant to Section 203(b).

Response 3-3

The commenter requests VCWPD be added as a recipient of the annual maintenance and repair plan as described in Section 11, Annual Monitoring and Reporting Program.

In response to this comment, the following revisions have been made to page 28 of the Draft IS-MND, as shown in the Errata to the Draft IS-MND:

> 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 Facility will be submitted to the USACE, CDFW, RWQCB, USFWS, NMFS, VCWPD, and Reclamation at that time.
>
> 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, RWQCB, USFWS, NMFS, VCWPD, and Reclamation for their records.

As shown in the errata above, Watershed Protection is represented using the abbreviation "VCWPD"; this stands for "Ventura County Watershed Protection District," which is the terminology used throughout the Draft IS-MND.

Response 3-4

The commenter states the proposed work will require a watercourse permit from VCWPD and provides a website with additional information. This information is appreciated. All required permits for the proposed work will be acquired prior to start of construction activities.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

Letter 4

December 8, 2021

Mrs. Kelley Dyer
Casitas Municipal Water District
71055 North Ventura Avenue
Oak View, California 93022
KDyer@casitaswater.com

Subject: Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program, Draft Mitigated Negative Declaration, SCH# 2021100456, Ventura County

Dear Mrs. Dyer:

The California Department of Fish and Wildlife (CDFW) has reviewed the Casitas Municipal Water District's (District; Lead Agency) Draft Mitigated Negative Declaration (MND) for the Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program (Project).

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code. 4-1

CDFW's Role

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & Game Code, §§ 711.7, subdivision (a) & 1802; Public Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines, [§ 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect state fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA (Public Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & Game Code, § 1600 *et seq.*). Likewise, to the extent implementation of the Project as proposed may result in "take", as defined by State law, of any species protected under the California Endangered Species Act (CESA) (Fish & Game Code, § 2050 *et seq.*), or CESA-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish & Game Code, §1900 *et seq.*), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

Project Description and Summary

Objective: Casitas Municipal Water District (Casitas) operates the Robles Diversion and Fish Passage Facility (Facility), which includes the dam, forebay, and 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). The Facility diverts Ventura River flows into the Robles Canal, which transports the water to Lake Casitas for storage/municipal use. The fish passage components of the Facility provide upstream passage of adult Southern California steelhead (*Oncorhynchus mykiss*; steelhead) and downstream passage of juvenile steelheads.

Project 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 also include concrete work within the existing footprint of the Facility and replacement of wood timbers to maintain the structural integrity of the timber cut-off wall and debris fence.

Location: 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). The project is in the Matilija U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.

Comments and Recommendations

CDFW offers the comments and recommendations below to assist the District in adequately identifying, avoiding, and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources. CDFW recommends the measures below be included in a science-based monitoring program that contains adaptive management strategies as part of the Project's CEQA mitigation, monitoring, and reporting program (Public Resources Code, § 21081.6; CEQA Guidelines, § 15097) (see Attachment A). 4-2

Comment #1: Impacts to Aquatic and Riparian Resources; Lake and Streambed Alteration Agreement (LSAA)

Issue #1: Project activities, subject to Fish and Game Code, section 1600 *et. seq*., are expected to occur within the Ventura River.

Issue #2: CDFW is concerned flows may be insufficient for native fish [e.g., steelhead, arroyo chub (*Gila orcutti*), and partially-armored threespine stickleback (*Gasterosteus aculeatus macrocephalus*)] volitional passage up and down stream (see Fish and Game Code, § 5901). 4-3

Issue #3: CDFW is concerned flows may be insufficient to keep native fish that may be planted or exist below the diversion in good condition (see Fish and Game Code, § 5937). 4-4

Issue #4: CDFW is concerned that biological resources (potentially including groundwater dependent ecosystems) may be impacted by the proposed Project. 4-5

Issue #5: CDFW is concerned the hardened crossing below the diversion impedes upstream migration of southern California steelhead. 4-6

Specific Impact: The Project proposes to modify the Ventura River and its flow regime. Modification of the Ventura River may result in the loss of streams and associated watershed function and biological diversity. Frequent sediment management activities on or near streams is likely to diminish on site and downstream water quality. Project activities may also alter natural hydrologic and geomorphic processes of the Ventura River.

Why Impact Would Occur: The Project will impact the hydromorphological processes, soils, and associated vegetation of the Ventura River. These actions may also result in changes to the streams, altering hydrologic, and geomorphic processes, which may impact plant and wildlife species. 4-7

Evidence Impact Would Be Significant: The Project may substantially adversely affect the existing stream, which absent specific mitigation, could result in substantial impacts to fish and wildlife. Debris, soil, silt, oil or other petroleum products, or any other substances which could be hazardous or deleterious to aquatic life, wildlife, or riparian habitat resulting from Project related activities may enter the stream.

Recommended potentially feasible mitigation measure(s):

Mitigation Measure #1: The Project applicant (or "entity") must provide written notification to CDFW pursuant to section 1600 *et seq.* of the Fish and Game Code. Based on this notification and other information, CDFW shall determine whether a Lake and Streambed Alteration (LSA) Agreement is required prior to conducting the proposed activities. A notification package for a LSA may be obtained by accessing CDFW's web site at https://www.wildlife.ca.gov/conservation/lsa. 4-8

CDFW's issuance of an LSA Agreement for a Project that is subject to CEQA will require CEQA compliance actions by CDFW as a Responsible Agency. As a Responsible Agency, CDFW may consider the CEQA document of the Lead Agency for the Project. To minimize additional requirements by CDFW pursuant to section 1600 *et seq.* and/or under CEQA, the CEQA document should fully identify the potential impacts to streams or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the LSA Agreement.

Mitigation Measure #2: Any LSA Agreement issued for the Project by CDFW may include additional measures protective of the stream and fish and wildlife at the Project site and downstream of the Project. To compensate for any on-site and off-site impacts to riparian resources, additional mitigation conditioned in any LSA Agreement may include the following: avoidance of resources, on-site or off-site creation, enhancement, or restoration, and/or protection and management of mitigation lands in perpetuity. 4-9

Mitigation Measure #3: CDFW recommends fully avoiding impacts to streams, riparian, and wetland vegetation communities. If feasible, CDFW recommends redesigning the Project to avoid impacts to the existing drainage features that support sensitive vegetation communities. Design alternatives should attempt to retain as much surface flow and natural hydrologic processes as possible. 4-10

Mitigation Measure #4: If impacts to riparian habitat, such as arroyo willow thicket, mulefat thicket, and cattail marshes cannot be avoided, CDFW suggests mitigation should be achieved entirely on site. CDFW recommends that an on-site Habitat Mitigation and Monitoring Plan (HMMP) be developed. An HMMP should provide specific, detailed, and enforceable measures. 4-11

Mitigation Measure #5: CDFW recommends fish passage improvement downstream of the diversion include the removal of the hardened crossing and replaced with a permanent fish passage improvement project providing uninterrupted fish passage for migrating steelhead. 4-12

Recommendation #1: CDFW recommends the District provide an in-stream flows analysis (including measurements of inflows to inform operations of the fishway) and an evaluation of potential impacts on biological resources as part of the final environmental document. At a minimum, the analysis should provide the following:

Changes to Hydrology and Hydraulics

- CDFW recommends the District define the extent of upstream and downstream reach of the Ventura River that may be directly and indirectly affected by the proposed Project and assess potential Project-related impacts on biological resources within this study reach (including any potential groundwater dependent ecosystems).
- An analysis of potential Project-related changes to river hydraulics in both concrete and soft-bottom reaches. This includes water depth (percent change), wetted perimeter (acres gained/lost), and velocity (percent change). Comparing total wetted area may be useful in quantifying the effects on groundwater dependent ecosystems, assuming that infiltration rates are proportional to wetted area. 4-13
- CDFW recommends using a 2-D hydraulic model of proposed versus existing habitat to determine whether habitat changes are expected.
- A map of potential changes to channel hydraulics overlain on a map of plant communities and habitat for sensitive wildlife species and birds.
- A discussion of Project-related impacts on biological resources in relation to changes in hydrology throughout the reach.
- CDFW recommends using Normalized Difference Vegetation Index (NDVI).
- Normalized Difference Moisture Index (NDMI) to assess habitat health for the reach on an annual basis.
- Previous and continuous monitoring of flows at the Facility to inform operations of the fishway.

Recommendation #2: CDFW met with the District on November 15, 2021, to discuss the *Instream Flow Evaluation: Southern California Steelhead Passage Through the Intermittent Reach of the Ventura River, Ventura County* report. CDFW recommend the District continue to collaborate with the necessary resource agencies (including CDFW) to ensure adequate flows for biological resources. These discussions should address monitoring of flows to the Facility, incorporating flow recommendations into the in-stream flows analysis for the intermittent reach of the Ventura River (see Fish and Game Code §§ 3901 – 3938). 4-14

Comment #2: Impacts to Least Bell's Vireo 4-15

Issue: The District is proposing to perform Project activities in the Ventura River outside of the nesting bird season. CDFW agrees with this approach. However, Project activities, such as vegetation crushing/clearing, may result in the destruction of least Bell's vireo nests and known historic nesting habitat. A search of the California Natural Diversity Database (CNDDB) indicates Least Bell's vireo are known to occur within the vicinity of the proposed Project (CDFWa). Least Bell's vireo are known to have high site fidelity (Salata 1983b).

Specific impact: Project construction and related activities may result in the destruction of nesting habitat, which may result in temporal or permanent loss of bird nesting habitat.

Why impacts would occur: The Project as proposed would clear/trim vegetation that could provide bird nesting habitat (e.g., ground cover and shrubs). The temporal or permanent loss of vegetation may substantially impact birds that could return to the Project site year after year (Figueira et al. 2020; Haas 1998). Site fidelity exhibited across the avian taxa reflects the benefits associated with previous knowledge of a particular location, likely improving territory acquisition, foraging efficiency, potential breeding partners, and predator avoidance (Figueira et al. 2020). Least Bell's vireo exhibit especially high rates of site fidelity, with many birds not only returning to the same territory but placing nests in the same shrub used the previous year (Salata 1983b). 4-15

Evidence impacts would be significant: Nests of all birds and raptors are protected under State laws and regulations, including Fish and Game Code, sections 3503 and 3503.5. Take or possession of migratory nongame birds designated in the Federal Migratory Bird Treaty Act of 1918 (Code of Federal Regulations, Title 50, § 10.13) is prohibited under Fish and Game Code section 3513. The loss of occupied habitat or reductions in the number of sensitive and special status bird species, either directly or indirectly through nest abandonment or reproductive suppression, would constitute a significant impact absent appropriate mitigation.

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #1: Impacts to known historic least Bell's vireo nesting habitat should be avoided. 4-16

Recommendation #1: Take under the federal Endangered Species Act (ESA) is more broadly defined than CESA; take under ESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. 4-17

Comment #3: Impacts to Species of Special Concern (SSC)

Issue: CDFW is concerned that Project-related activities may result in significant impacts to ESA-listed red-legged frog (*Rana draytonii*) and western pond turtle (*Emys marmorata*). Both species are listed as an SSC. 4-18

Specific impact: Project construction and related activities, directly or through habitat modification, may result in direct injury or mortality of SSC.

Why impact would occur: Project implementation includes grading, potential vegetation clearing, and other activities that may result in direct mortality, population declines, or local extirpation of pond turtle.

Evidence impact would be significant: An SSC is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- Is extirpated from the State or, in the case of birds, is extirpated in its primary season or breeding role;
- Is listed as ESA-, but not CESA-listed, meets the State definition of threatened or endangered but has not formally been listed;
- Is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; and,
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for CESA status (CDFW 2020c).

4-18

Project construction and activities, directly or through habitat modification, may result in direct mortality, reduced reproductive capacity, population declines, or local extirpation of SSC. CEQA provides protection not only for CESA- and ESA-listed species, but for any species including but not limited to SSC which can be shown to meet the criteria for CESA-listing. These SSC meet the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines, § 15065). Take of SSC could require a mandatory finding of significance by the District, (CEQA Guidelines, § 15065).

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #1: Pursuant to the California Code of Regulations, title 14, section 650, the District/qualified biologist must obtain appropriate handling permits to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with Project construction and activities. Please visit CDFW's Scientific Collection Permits webpage (https://wildlife.ca.gov/Licensing/Scientific-Collecting) for information (CDFW 2020d). An LSA may provide similar take or possession of species as described in the conditions of the agreement.

4-19

CDFW has the authority to issue permits for the take or possession of wildlife, including mammals; birds, nests, and eggs; reptiles, amphibians, fish, plants; and invertebrates (Fish & Game Code, §§ 1002, 1002.5, 1003). Effective October 1, 2018, a Scientific Collecting Permit is required to monitor project impacts on wildlife resources, as required by environmental documents, permits, or other legal authorizations; and, to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with otherwise lawful activities (Cal. Code Regs., tit. 14, § 650).

Mitigation Measure #2: The District should retain a qualified biologist(s) with experience surveying for and familiarity with the life history of each of the species mentioned above. The qualified biologist should conduct focused surveys for SSC and suitable habitat no more than one month from the start of any ground-disturbing activities or vegetation removal where there may be impacts to SSC. In addition, the qualified biologist should conduct daily biological monitoring during any activities involving vegetation clearing or modification of natural habitat. Positive detections of SSC and suitable habitat at the detection location should be mapped and photographed. The qualified biologist should provide a summary report of SSC surveys to the District prior to implementing any Project-related ground-disturbing activities and vegetation removal. Depending on the survey results, a qualified biologist should develop species-specific mitigation measures for implementation during the Project. 4-20

Mitigation Measure #3: Wildlife should be protected, allowed to move away on its own (non-invasive, passive relocation), or relocated to adjacent appropriate habitat on site or to suitable habitat adjacent to the project area. SSC should be captured only by a qualified biologist with proper handling permits. The qualified biologist should prepare a species-specific list (or plan) of proper handling and relocation protocols and a map of suitable and safe relocation areas. A relocation plan should be submitted to the District prior to implementing any Project-related ground-disturbing activities and vegetation removal. 4-21

Mitigation Measure #4: The District, in consultation with a qualified biologist, should prepare a worker environmental awareness training. The qualified biologist should communicate to workers that upon encounter with an SSC (e.g., during construction or equipment inspections), work must stop, a qualified biologist must be notified, and work may only resume once a qualified biologist has determined that it is safe to do so. 4-22

Mitigation Measure #5: If any SSC are harmed during relocation or a dead or injured animal is found, work in the immediate area should stop immediately, the qualified biologist should be notified, and dead or injured wildlife documented. A formal report should be sent to CDFW and the District within three calendar days of the incident or finding. Work in the immediate area may only resume once the proper notifications have been made and additional mitigation measures have been identified to prevent additional injury or death. 4-23

Comment #4: Impacts to Non-Game Mammals and Wildlife

Issue: Wildlife may still move through the Project site during the daytime or nighttime. CDFW is concerned that any wildlife potentially moving through or seeking temporary refuge on the Project site may be directly impacted during Project activities and construction.

Specific impacts: Project activities and construction equipment may directly impact wildlife and birds moving through or seeking temporary refuge on site. This could result in wildlife and bird mortality. Furthermore, depending on the final fencing design, the Project may cumulatively restrict wildlife movement opportunity. 4-24

Why impacts would occur: Direct impacts to wildlife may occur from: ground disturbing activities (e.g., staging, access, excavation, grading); wildlife being trapped or entangled in construction materials and erection of restrictive fencing; and wildlife could be trampled by heavy equipment operating in the Project site.

Evidence impact would be significant: Mammals occurring naturally in California are considered non-game mammals and are afforded protection by State law from take and/or harassment (Fish & Game Code, § 4150; Cal. Code of Regs, § 251.1).

4-24

Recommended Potentially Feasible Mitigation Measure(s): CDFW recommends the following four mitigation measures to avoid and minimize direct impacts to wildlife during Project construction and activities.

Mitigation Measure #1: If fencing is proposed for use during construction or during the life of the Project, fences shall be constructed with materials that are not harmful to wildlife. Prohibited materials include, but are not limited to, spikes, glass, razor, or barbed wire. Fencing shall also be minimized so as not to restrict free wildlife movement through habitat areas.

4-25

Mitigation Measure #2: To avoid direct mortality, a qualified biological monitor shall be on site prior to and during ground and habitat disturbing activities to move out of harm's way special status species or other wildlife of low mobility that would be injured or killed by grubbing or Project-related construction activities. Salvaged wildlife of low mobility shall be removed and placed onto adjacent and suitable (i.e., species appropriate) habitat out of harm's way.

4-26

It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting Program impacts associated with habitat loss.

Mitigation Measure #3: Grubbing and grading shall be done to avoid islands of habitat where wildlife may take refuge and later be killed by heavy equipment. Grubbing and grading shall be done from the center of the Project site, working outward towards adjacent habitat off site where wildlife may safely escape.

4-27

Additional Recommendations

Alternatives. CDFW recommends the District consider an alternative that would fully avoid or minimize impacts to streams, sensitive plants and wildlife. CDFW recommends the District recirculate the environmental document after including alternative locations in order to foster meaningful public participation and informed decision making [CEQA Guidelines, §§ 15088.5, 15126.6(f)]. If the District concludes that no feasible alternative locations exist, or the use of alternative locations as a mitigation measure is infeasible, the District must disclose the reasons in the final environmental document and recirculate [CEQA Guidelines, §§ 15088.5(a)(3), 15126.6(f)(2)].

4-28

Mitigation and Monitoring Reporting Plan. Per Public Resources Code section 21081.6(a)(1), CDFW has provided the District with a summary of our suggested mitigation measures and recommendations in the form of an attached Draft Mitigation and Monitoring Reporting Plan (MMRP; Attachment A). A final MMRP shall reflect results following additional plant and wildlife surveys and the Project's final on and/or off-site mitigation plans.

4-29

Filing Fees

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the District and serve to help defray the cost of environmental review by CDFW. Payment of the fee is

4-30

required for the underlying Project approval to be operative, vested, and final (Cal. Code Regs., tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089). 4-30

Conclusion

We appreciate the opportunity to comment on the Project to assist the District in adequately analyzing and minimizing/mitigating impacts to biological resources. CDFW requests an opportunity to review and comment on any response that the District has to our comments and to receive notification of any forthcoming hearing date(s) for the Project [CEQA Guidelines, § 15073(e)]. If you have any questions or comments regarding this letter, please contact Baron Barrera, Environmental Scientist, at Baron.Barrera@wildlife.ca.gov. 4-31

Sincerely,

DocuSigned by:
B6E58CFE24724F5...
Erinn Wilson-Olgin
Environmental Program Manager I
South Coast Region

EC: CDFW
Steve Gibson – Los Alamitos – Steve.Gibson@wildlife.ca.gov
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GAVIN NEWSOM, Governor
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Attachment A: Draft Mitigation and Monitoring Reporting Plan

CDFW recommends the following language to be incorporated into a future environmental document for the Project. A final MMRP shall reflect results following additional plant and wildlife surveys and the Project's final on and/or off-site mitigation plans.

Biological Resources (BIO)			
Mitigation Measure (MM) or Recommendation (REC)		**Timing**	**Responsible Party**
MM-BIO-1-Impacts to Aquatic and Riparian Resources; Lake and Streambed Alteration Agreement	**Mitigation Measure #1:** The Project applicant (or "entity") must provide written notification to CDFW pursuant to section 1600 *et seq.* of the Fish and Game Code. Based on this notification and other information, CDFW shall determine whether a Lake and Streambed Alteration (LSA) Agreement is required prior to conducting the proposed activities. A notification package for a LSA may be obtained by accessing CDFW's web site at https://www.wildlife.ca.gov/conservation/lsa. CDFW's issuance of an LSA Agreement for a Project that is subject to CEQA will require CEQA compliance actions by CDFW as a Responsible Agency. As a Responsible Agency, CDFW may consider the CEQA document of the Lead Agency for the Project. To minimize additional requirements by CDFW pursuant to section 1600 *et seq.* and/or under CEQA, the CEQA document should fully identify the potential impacts to streams or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the LSA Agreement.	Prior to/After Project construction and activities	Lead Agency/ Applicant
MM-BIO-2-Impacts to Aquatic and Riparian	Any LSA Agreement issued for the Project by CDFW may include additional measures protective of streambeds on and downstream of the Project such as additional erosion and pollution control measures. To compensate for any on-site and off-site impacts to	Prior to Project construction and activities	Lead Agency/ Applicant

Resources; Lake and Streambed Alteration Agreement	riparian resources, additional mitigation conditioned in any LSA Agreement may include the following: avoidance of resources, on-site or off-site creation, enhancement, or restoration, and/or protection and management of mitigation lands in perpetuity.		
MM-BIO-3- Impacts to Aquatic and Riparian Resources; Lake and Streambed Alteration Agreement	CDFW recommends fully avoiding impacts to streams and riparian/wetland vegetation communities. If feasible, CDFW recommends redesigning the Project to avoid impacts to the existing drainage features that support sensitive vegetation communities. Design alternatives should attempt to retain as much surface flow and natural hydrologic processes as possible.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-4- Impacts to Aquatic and Riparian Resources; Lake and Streambed Alteration Agreement	If impacts to riparian habitat, such as arroyo willow thicket, mulefat thicket, and cattail marshes cannot be avoided, CDFW suggests mitigation should be achieved entirely on site if possible. CDFW recommends that impacts be mitigated at no less than 3:1. CDFW recommends that an on-site Habitat Mitigation and Monitoring Plan (HMMP) be developed. An HMMP should provide specific, detailed, and enforceable measures.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-5- Impacts to Aquatic and Riparian Resources; Lake and Streambed Alteration Agreement	CDFW recommends fish passage improvement downstream of the diversion include the removal of the hardened crossing and replaced with a permanent fish passage improvement project providing uninterrupted fish passage for migrating steelhead.	Prior to Project construction and activities	Lead Agency/ Applicant

MM-BIO-6-Impacts to Aquatic and Riparian Resources; Lake and Streambed Alteration Agreement	CDFW recommends the District provide an in-stream flows analysis (including measurements of flows to inform operations of the fishway) and an evaluation of potential impacts on biological resources as part of the final environmental document. At a minimum, the analysis should provide the following: *Changes to Hydrology and Hydraulics* • CDFW recommends the District define the extent of up- and downstream reach of the Ventura River that may be directly and indirectly affected by the proposed Project and assess potential Project-related impacts on biological resources within this study reach (including any potential groundwater dependent ecosystems). • An analysis of potential Project-related changes to river hydraulics in both concrete and soft-bottom reaches. This includes water depth (percent change), wetted perimeter (acres gained/lost), and velocity (percent change). Comparing total wetted area may be useful in quantifying the effects on groundwater dependent ecosystems, assuming that infiltration rates are proportional to wetted area. • CDFW recommends using a 2-D hydraulic model of proposed versus existing habitat to determine whether habitat changes are expected. • A map of potential changes to channel hydraulics overlain on a map of plant communities and habitat for sensitive wildlife species and birds. • A discussion of Project-related impacts on biological resources in relation to changes in hydrology throughout the reach. • CDFW recommends using Normalized Difference Vegetation Index (NDVI) and Normalized Difference Moisture Index (NDMI) to assess habitat health for the reach on an annual basis.	Prior to Project construction and activities	Lead Agency/ Applicant

	• Previous and continuous monitoring of flows at the Facility to inform operations of the fishway.		
MM-BIO-7- Impacts to Aquatic and Riparian Resources; Lake and Streambed Alteration Agreement	CDFW met with the District on November 15, 2021, to discuss the *Instream Flow Evaluation: Southern California Steelhead Passage Through the Intermittent Reach of the Ventura River, Ventura County* report. CDFW recommend the District continue to collaborate with the necessary resource agencies (including CDFW) to ensure adequate flows for biological resources. These discussions should address monitoring of flows to the Facility, incorporating flow recommendations into the in-stream flows analysis for the intermittent reach of the Ventura river (see Fish and Game Code 3901 – 3938).	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-8- Impacts to Least Bell's Vireo	Impacts to known historic least Bell's vireo nesting habitat should be avoided.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-9- Impacts to Least Bell's Vireo	Take under the federal Endangered Species Act (ESA) is more broadly defined than CESA; take under ESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-10- Impacts to California Species of Special Concern	The District should retain a qualified biologist(s) with experience surveying for or is familiar with the life history of each of the species mentioned above. The qualified biologist should conduct focused surveys for SSC and suitable habitat no more than one month from the start of any ground-disturbing activities or vegetation removal where there may be impacts to SSC. In addition, the qualified biologist should conduct daily biological monitoring during any activities involving vegetation	Prior to Project construction and activities	Lead Agency/ Applicant

	clearing or modification of natural habitat. Positive detections of SSC and suitable habitat at the detection location should be mapped and photographed. The qualified biologist should provide a summary report of SSC surveys to the District prior to implementing any Project-related ground-disturbing activities and vegetation removal. Depending on the survey results, a qualified biologist should develop species-specific mitigation measures for implementation during the Project.		
MM-BIO-11- Impacts to California Species of Special Concern	Wildlife should be protected, allowed to move away on its own (non-invasive, passive relocation), or relocated to adjacent appropriate habitat on site or to suitable habitat adjacent to the project area. SSC should be captured only by a qualified biologist with proper handling permits. The qualified biologist should prepare a species-specific list (or plan) of proper handling and relocation protocols and a map of suitable and safe relocation areas. A relocation plan should be submitted to the District prior to implementing any Project-related ground-disturbing activities and vegetation removal.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-12- Impacts to California Species of Special Concern	The District, in consultation with a qualified biologist, should prepare a worker environmental awareness training. The qualified biologist should communicate to workers that upon encounter with an SSC (e.g., during construction or equipment inspections), work must stop, a qualified biologist must be notified, and work may only resume once a qualified biologist has determined that it is safe to do so.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-13- Impacts to California Species of Special Concern	If any SSC are harmed during relocation or a dead or injured animal is found, work in the immediate area should stop immediately, the qualified biologist should be notified, and dead or injured wildlife documented. A formal report should be sent to CDFW and the District within three calendar days of the incident or finding. Work in the immediate area may only resume once the proper notifications have been made and additional mitigation measures have been identified to prevent additional injury or death.	Prior to Project construction and activities	Lead Agency/ Applicant

MM-BIO-14- Impacts to Non-Game Mammals and Wildlife	If fencing is proposed for use during construction or during the life of the Project, fences shall be constructed with materials that are not harmful to wildlife. Prohibited materials include, but are not limited to, spikes, glass, razor, or barbed wire. Fencing shall also be minimized so as not to restrict free wildlife movement through habitat areas.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-15- Impacts to Non-Game Mammals and Wildlife	To avoid direct mortality, a qualified biological monitor shall be on site prior to and during ground and habitat disturbing activities to move out of harm's way special status species or other wildlife of low mobility that would be injured or killed by grubbing or Project-related construction activities. Salvaged wildlife of low mobility shall be removed and placed onto adjacent and suitable (i.e., species appropriate) habitat out of harm's way. It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting Program impacts associated with habitat loss.	Prior to Project construction and activities	Lead Agency/ Applicant
MM-BIO-16- Impacts to Non-Game Mammals and Wildlife	Grubbing and grading shall be done to avoid islands of habitat where wildlife may take refuge and later be killed by heavy equipment. Grubbing and grading shall be done from the center of the Project site, working outward towards adjacent habitat off site where wildlife may safely escape.	Prior to Project construction and activities	Lead Agency/ Applicant

Letter 4

COMMENTER: Erinn Wilson-Olgin, California Department of Fish and Wildlife

DATE: December 8, 2021

Casitas and CDFW have worked together for many years on the construction and operation of the Robles Fish Passage Facility (Facility). The Facility design was developed collaboratively through the Robles Technical Advisory Committee (TAC), which included both National Marine Fisheries Service (NMFS) and CDFW representatives to meet respective fish passage criteria and instream flow objectives. The resulting design and operation of the Facility is evaluated on an annual basis through the Robles Biological Committee (BC) established by the Robles Biological Opinion (BO). The Robles BC also includes NMFS and CDFW representatives. Annual progress reports have been developed through the BC collaborative process detailing the Robles Monitoring and Evaluation Study components. These annual progress reports can be found on the Casitas MWD website.

Casitas acquired agreements and permits for construction of the Facility from CDFW, United States Army Corps of Engineers (USACE), Los Angeles Regional Water Quality Control Board (LARWQCB), NMFS, and USFWS. With the exception of the BO issued by NMFS, 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. For example, Casitas obtained a Lake and Streambed Alteration (LSA) Agreement from CDFW pursuant to Section 1600 et seq. of the Fish and Game Code for removal and relocation of trapped sediment in the forebay in 2005 and 2019, along with required permits and authorizations from several other agencies.

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 and is seeking longer-term programmatic permits to provide a more streamlined administrative process and comprehensive basis for protecting environmental resources.

While the IS-MND refers to the proposed Repair and Maintenance Program as a “project,” this is CEQA terminology, used only for the purposes of the environmental review process. As defined in the State CEQA Guidelines, the term “project” refers to a discretionary action by a governmental agency, and includes the whole of the action taken. The Repair and Maintenance Program assessed in the Draft IS-MND does not include any proposed construction projects. Rather, the primary objective of the proposed repair and maintenance activities is to ensure effective operation of the existing fish passage and water diversion operations under the design developed with NMFS and CDFW.

Response 4-1

The commenter states CDFW reviewed the CEQA document for the project and appreciates the opportunity to provide comments regarding those aspects of the project.

The comment has been noted and the information is appreciated.

Response 4-2

The commenter states the provided comments and recommendations are to assist the District in adequately identifying and avoiding direct and indirect impacts on fish and wildlife (biological) resources. In addition, CDFW recommends the measures described in its letter be included in a "science-based monitoring program that contains adaptive management strategies" as part of the project's Mitigation Monitoring and Reporting Program (MMRP).

The intent of the proposed operational activities is to provide a comprehensive repair and maintenance program with a primary objective of ensuring the continued and proper operation of the Facility. By maintaining the Facility consistent with its original design, the District reduces or prevents ineffective operation of the water diversion and fish ladder. As described in Section 12, *Annual Reporting*, on page 41 of the Final IS-MND, the District will provide annual reports to the regulatory agencies with information regarding 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 of each year, and will include an adaptive management strategy consisting of a summary of the proposed approach for sediment removal in August/September of the respective year (including quantities of sediment to be removed and relocated). These existing stipulations included as part of the repair and maintenance program provide for monitoring activities in excess of those requested in this comment. Therefore, no changes to the mitigation measures or MMRP have been incorporated in response to this comment.

The commenter states project activities would occur in the Ventura River and are subject to Fish and Game Code, section 1600 et. seq., such that CDFW should receive written notification from the District of these activities. Notification was provided to CDFW on May 5, 2023. Information pertaining to operation and planned routine maintenance activities are described in the Project Description section of the Notification and further detailed in a standalone Project Description that was provided as an attachment to the Notification. CDFW has determined an LSA Agreement is required prior to the District conducting the routine repair and maintenance activities which comprise the project. Due to its discretionary permitting authority over the project, as stated by the commenter, CDFW is a CEQA Responsible Agency for the project and therefore must adopt a CEQA document for its own CEQA compliance purposes. Based upon consideration of the District's CEQA document, CDFW may use the District's CEQA document for this purpose. The commenter states the CEQA document should fully identify the potential impacts to streams or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the LSA Agreement.

The IS-MND addresses all potential impacts to biological resources under the jurisdiction of CDFW. Casitas is aware of the LSA program and has met with CDFW on several occasions dating back to 2019 to discuss the terms of an LSA for routine maintenance at the site. Minor changes have been made to the Draft IS-MND, reflected in the revised Final IS-MND, which are intended to update the project description in accordance with feedback received from CDFW regarding the LSA Agreement for the proposed project.

Response 4-3

The commenter states CDFW is concerned flows in the river may be insufficient for native fishes' volitional passage up and down stream, particularly steelhead (*Oncorhynchus mykiss*), arroyo chub

(*Gila orcutti*), and partially-armored threespine stickleback (*Gasterosteus aculeatus macrocephalus*). The commenter references Fish and Game Code, § 5901 with respect to this concern.

The District acknowledges this concern, and has coordinated closely with CDFW and NMFS regarding the design of the Facility through the Robles TAC, which included both NMFS and CDFW representatives working collaboratively to design the Facility to meet each agency's respective fish passage criteria and instream flow release objectives. The fish ladder and fish passage was evaluated by the NMFS, in their BO for the Facility (NMFS 2003). In their Opinion, they concluded that construction and operation of the fish passage facility was not likely to jeopardize the continued existence of steelhead. The Opinion included Reasonable and Prudent Measures to minimize the incidental take of steelhead. These measures apply equally to other native fish, including arroyo chub and partially-armored threespine stickleback. The proposed maintenance and repair of the existing Facility would improve fish passage, by allowing the District to keep the fish ladder and associated entrance pool in working order and free from obstructions.

Casitas constructed the 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 Facility that provide for the safe upstream and downstream passage of adult steelhead and the safe downstream passage of juveniles. The maintenance and repair activities do not include a change to the Facility's design. The activities 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). Typically, these maintenance and repair activities will occur in the dry season when surface water is absent, and fish would not be present. Therefore, no adverse impacts to fish passage would occur as a result of the repair and maintenance activities; to the contrary, operation and maintenance of the Facility, including with implementation of the BMPs detailed in the IS-MND, would have beneficial effects to fish passage, by nature of the purpose of the Facility being to provide fish passage as designed in coordination with NMFS and CDFW through the Robles TAC.

In addition, the continued maintenance and repair of the existing Facility would not change existing water rights (i.e., authorized diversion rates); thus, the maintenance and repair activities would neither reduce the amount of water available for native fish nor result in insufficient instream flow for native fish, and the Facility would continue to be maintained in the design informed by NMFS and CDFW through the Robles TAC.

Response 4-4

The comment states CDFW is concerned flows may be insufficient to keep native fish that may be planted or exist below the diversion in good condition, and references Fish and Game Code, § 5937.

As described in Response 4-3, instream flows would be sufficient to support native fish within the Ventura River. Climatic conditions within the Ventura River are highly variable and subject to dramatic oscillation. This observation is described in Molinari et. al. (2015) and Inman and Jenkins (1999) where they state that water and sediment flow in southern California, and specifically in the Los Padres National Forest and neighboring lands, has a history of dramatic fluctuations that have been largely driven by multi-decadal climate variability and the El Nino/Southern Oscillation (ENSO) events.

In CDFW's Habitat and Instream Flow Evaluation for Steelhead in the Ventura River Study Plan (CDFW 2017), CDFW indicated the Ventura River watershed experiences a high level of interannual variability, where cycles of wet and dry years can last decades. Beller et al. (2011 in CDFW 2017) describes the extremely inconsistent hydrologic regime of the Ventura River being caused by climatic variability. The Study Plan notes over the last 75 years, mean annual discharge has varied from 5 to 3,400 cubic feet per second (Leydecker and Grabowsky 2006 in CDFW 2017). Average annual rainfall does not accurately portray the extreme variability in the watershed. Regardless, the proposed maintenance and repair activities do not include a change to the Facility's design or propose changes to existing water rights (i.e., authorized diversion rates); thus, the activities would neither reduce the amount of water available for native fish nor result in insufficient instream flow for native fish.

Response 4-5

The comment states CDFW is concerned that biological resources (potentially including groundwater dependent ecosystems) may be impacted. While the maintenance and repair activities would remove sediment and riparian vegetation in the downstream portion of the entrance pool, sediment clean out is necessary to allow proper fish entrance gate operation, and overall uniform hydraulic flow patterns throughout entrance pool. As described in the IS-MND, immature willows in a dynamic fluvial area would be removed during operational activities; sediment in this area is routinely scoured and redeposited by river flows, such that permanent vegetation cannot persist. Therefore, removal of these willows, which would occur during removal of accumulated sediment, would not affect mature trees or permanent vegetation. Additionally, maintenance of the vegetation along the wall helps to ensure overtopping flows are dissipated across larger area to minimize erosion at constricted sections within the Ventura River and reduce water elevations in forebay as designed. The sediment management activities would provide overall benefit to biological resources, including native species and riparian habitat (e.g., groundwater dependent ecosystems).

Response 4-6

The comment states CDFW is concerned the hardened crossing below the diversion impedes upstream migration of southern California steelhead. For context, 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. 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 Facility. The previous modifications to the existing Facility provide for the safe upstream and downstream passage of adult steelhead and the safe downstream passage of juveniles. Reclamation owns the Facility, and Casitas operates and maintains this Facility. The Facility design was developed through the Robles TAC. The TAC included both NMFS and CDFW representatives and works collaboratively to design the facility to meet their respective fish passage criteria and instream flow release objectives.

The hardened crossing below the diversion does not impede upstream migration of southern California steelhead, as *O. mykiss* have been observed passing through the VAKI Riverwatcher fish counter since the hardened crossing was constructed in 2004.

Fish monitoring conducted by Casitas using a VAKI Riverwatcher at the fish passageway detected 11 adult-sized steelhead passing the Facility, but the last detection occurred in 2011, before the extended drought. During the 2021 fish migration season, the VAKI Riverwatcher detected one *O. mykiss* passing downstream through the Facility. Therefore, the hardened crossing below the diversion does not impede upstream migration of southern California steelhead. Further, the project entails maintenance only and would not change the design or functional characteristics of the crossing. No mitigation is warranted as the maintenance and repair activities would not cause significant impacts related to fish passage.

Response 4-7

This comment reiterates CDFW's concerns and provides specific details regarding impacts to aquatic and riparian resources, and suggests that the project proposes to modify the Ventura River and its flow regime and may substantially adversely affect the existing stream, which absent specific mitigation, could result in substantial impacts to fish and wildlife. Debris, soil, silt, oil or other petroleum products, or any other substances which could be hazardous or deleterious to aquatic life, wildlife, or riparian habitat resulting from project-related activities may enter the stream. As noted in Responses 4-2 – 4-6 above, the project is limited to maintenance of existing authorized infrastructure in the river. The proposed maintenance activities are necessary to keep the diversion and associated fish passage facility in working condition, and would improve conditions for fish by enabling maintenance to occur promptly when needed. Sediment management would occur during dry conditions only, and would not adversely affect water quality. While limited removal of immature riparian vegetation would occur, this vegetation is in the dynamic river channel where it would be removed by natural processes rather than growing to maturity. Considering this information, the project would not have negative effects on stream functions.

Response 4-8

This comment recommends additional mitigation related to providing written notification to CDFW pursuant to section 1600 et seq. of the Fish and Game Code. The comment has been noted, and the commenter is referred to Response 4-2 above. The District is engaged with CDFW staff regarding authorization of the project under Sections 1600 et seq. of the Fish and Game Code.

Response 4-9

This comment clarifies that any LSA Agreement issued for the project by CDFW may include additional measures protective of the stream and fish and wildlife at the project site and downstream of the project. To compensate for any on-site and off-site impacts to riparian resources, the comment notes that additional mitigation conditioned in any LSA Agreement may include the following: avoidance of resources, on-site or off-site creation, enhancement, or restoration, and/or protection and management of mitigation lands in perpetuity. The District is familiar with the LSA program and is engaged with CDFW regarding Section 1600 authorization for the project. The District is committed to implementing a suite of BMPs during annual repair and maintenance activities. The suite of BMPs have been required pursuant to previously issued permits, authorizations and consultations with state and federal resource agencies, including under section 7 of the federal Endangered Species Act (ESA). Casitas has implemented these BMPs during past maintenance and repair activities. 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. BMPs include pre-construction surveys for special status species, on-site biological monitoring, material storage, noxious vegetation removal, worker environmental training, etc. The intent of the BMPs proposed is to protect the stream and fish and wildlife at the project site and downstream of the site.

Response 4-10

This commenter recommends fully avoiding impacts to streams, riparian, and wetland vegetation communities, suggesting a redesign of the project to avoid impacts to the existing drainage features that support sensitive vegetation communities.

The Facility design was developed through the Robles TAC, which included both NMFS and CDFW representatives. The proposed maintenance and repair activities at the Facility would 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). Typically, these maintenance and repair activities will occur in the dry season when surface water is absent, and fish would not be present.

Complete avoidance of the Ventura River is not feasible for the project, because it entails maintenance of existing infrastructure in the river. The project does not include a change to the Facility's design and a redesign is not warranted because 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 in the entrance pool depending on storm events. The extent of vegetation in the entrance pool changes from year to year, under natural conditions. Indirect impacts from construction materials (e.g., stockpiled materials, construction equipment, and trash) stored on site 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. Implementation of BMP-10 through BMP-21 would avoid potential indirect impacts to riparian and wetland vegetation. Therefore, the maintenance and repair activities avoid impacts to the Ventura River and its associated riparian and wetland vegetation communities and a redesign of the Facility is not warranted.

Response 4-11

This comment recommends on-site mitigation for impacts to riparian vegetation and recommends an on-site Habitat Mitigation and Monitoring Plan (HMMP) be developed. As described in the IS-MND and clarified in Response 4-10 above, the project would not result in significant impacts to riparian vegetation.

Response 4-12

This comment recommends fish passage improvement downstream of the diversion include the removal of the hardened crossing and replaced with a permanent fish passage improvement project providing uninterrupted fish passage for migrating steelhead. The comment has been noted;

however, redesigning the facility to replace the existing hardened road crossing is beyond the scope of the current proposed repair and maintenance program.

Response 4-13

The commenter recommends the District provide an in-stream flows analysis (including measurements of inflows to inform operations of the fishway) and an evaluation of potential impacts on biological resources as part of the final environmental document.

The Facility design was developed through the TAC. The TAC included both NMFS and CDFW representatives working collaboratively to design the facility to meet their respective fish passage criteria and instream flow release objectives. The resulting design and operation of the Facility was to be evaluated, once construction was completed, on an annual basis through the Robles BC established by the Robles BO, as discussed in the background information provided above Response 4-1. The Robles BC also includes NMFS and CDFW representatives. Annual progress reports have been developed through the BC collaborative process detailing the Robles monitoring and evaluation study components. These annual progress reports can be found on the Casitas Municipal Water District website. Additional analysis of instream flows is not needed to support environmental analysis of the proposed project, especially considering that the project does not include new or expanded water diversion rights.

Response 4-14

The comment states CDFW met with the District on November 15, 2021, to discuss the *Instream Flow Evaluation: Southern California Steelhead Passage Through the Intermittent Reach of the Ventura River, Ventura County* report, and recommends the District continue to collaborate with the necessary resource agencies (including CDFW) to ensure adequate flows for biological resources. The comment is noted. As stated above, the District and CDFW will continue to collaborate together via the TAC. However, altering the operational parameters or monitoring regime of the Facility is outside the scope of the proposed repair and maintenance program and the associated IS-MND.

Response 4-15

The commenter notes that the District is proposing to perform maintenance and repair activities in the Ventura River outside of the nesting bird season and states that CDFW agrees with this approach, but adds that proposed activities such as vegetation crushing/clearing, may result in the destruction of least Bell's vireo nests and known historic nesting habitat as described in the California Natural Diversity Database (CNDDB). Therefore, CDFW requests impacts to known historic least Bell's vireo nesting habitat be avoided.

Casitas conducted protocol surveys within the project area for Least Bell's vireo (LBVI) during the 2020 nesting season and no LBVI individuals, nesting behavior, or nest structures were observed. In addition, LBVI have not been documented within the project area although they are known to occur in the larger Ventura River watershed. Because repair and maintenance activities would occur outside the nesting season, individual LBVI would not be impacted or taken during project activities. Impacts to habitat would not be significant because the willow area to be removed is small and is situated in an area where river flows naturally scour the vegetation before it reaches maturity.

The USFWS has issued a letter concurring with Reclamation's determination that implementation of the maintenance and repair program is not likely to adversely affect the endangered LBVI.

Response 4-16

This comment recommends additional mitigation related to avoiding impacts to known historic least Bell's vireo nesting habitat. The comment has been noted and the commenter is referred to Response 4-15 above.

Response 4-17

This comment clarifies that take under the federal ESA is more broadly defined than CESA; take under ESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. The comment has been noted and the commenter is referred to Response 4-15 above.

Response 4-18

The comment states CDFW is concerned that project-related activities may result in significant impacts to ESA-listed red-legged frog (CRLF; *Rana draytonii*) and southwestern pond turtle (WPT; *Actinemys pallida*). The commenter states that both species are listed as species of special concern and provides evidence suggesting that the project's impacts would be significant because project construction and activities, directly or through habitat modification, may result in direct mortality, reduced reproductive capacity, population declines, or local extirpation of SSC.

As described in the BRA, the upstream portion of the Ventura River (above the Facility) provides suitable habitat for WPT and the species is known to be present within the study area. However, the river 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 the 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 (2019) within a two-mile reach upstream and downstream of the Facility. No CRLF were observed within these reaches. Between October 10, 2019 and November 3, 2019, protocol surveys were conducted again by Rincon within a two-mile reach upstream and downstream of the Facility, and no CRLF were observed.

As described in the IS-MND potential adverse effects to CRLF and WPT during maintenance and repair activities include, but are not limited to 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, these species 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. For CRLF, 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. The proposed activities 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 activities with the species' dispersal period (May 1 and July 1). The proposed activities 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. Based on the limited spatial and temporal extent of proposed activities, the limited work schedule (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 the project BMPs, including but not limited to the Environmental Training, Biological Monitoring, and focused pre-construction surveys, the effects from the proposal Annual Repair and Maintenance Program to CRLF and WPT would be less than significant.

Response 4-19

The commenter recommends additional mitigation related to qualifying biologists and issuance of Scientific Collecting Permits. Pursuant to the California Code of Regulations, title 14, section 650, the commenter recommends the District/qualified biologist must obtain appropriate handling permits to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with project construction and activities. This comment is noted and no change is warranted as BMP-9 stipulates that 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.

Response 4-20

The commenter requests the District retain a qualified biologist(s) with experience surveying for and familiarity with the life history of each of the species mentioned above. The commenter is referred to Response 4-19 above.

The commenter also recommends that the qualified biologist should conduct focused surveys for SSC and suitable habitat no more than one month from the start of any ground-disturbing activities or vegetation removal where there may be impacts to SSC. In addition, the commenter requests that the qualified biologist conduct daily biological monitoring during any activities involving vegetation clearing or modification of natural habitat. The BRA documents the results of several focused surveys that were conducted for the proposed project area. These surveys included focused rare plant and special-status wildlife surveys conducted during the appropriate time period (i.e., rare plants) and based on coordination with the USFWS and NMFS (CRLF and steelhead). The potential for special-status species within the project area is well established; thus, pre-construction surveys a month ahead of project initiation is not warranted. Furthermore, BMP-3, -4, -5, -6, and -8 require qualified biologists to conduct pre-construction surveys for special-status wildlife and nesting birds.

The commenter further adds that positive detections of SSC and suitable habitat at the detection location should be mapped and photographed and that a summary report of SSC surveys to the District prior to implementing any project-related ground-disturbing activities and vegetation removal. Depending on the survey results, a qualified biologist should develop species-specific mitigation measures for implementation during the project. The project's BMPs include procedures to document and report positive observations; thus, this additional mitigation is not warranted.

Response 4-21

This comment states that wildlife should be protected, allowed to move away on its own (non-invasive, passive relocation), or relocated to adjacent appropriate habitat on site or to suitable habitat adjacent to the project area. As described on page 69 of the IS-MND, pre-construction surveys (BMP-5), conducting activities in the dry season (BMP-1), environmental training (BMP-2), and relocation of individuals prior to construction (BMP-3) would limit impacts to special-status species.

The commenter suggests that a species-specific list (or plan) of proper handling and relocation protocols and a map of suitable and safe relocation areas be prepared and submitted to the District prior to implementing any project-related ground-disturbing activities and vegetation removal. This comment has been noted, and as stated in the IS-MND for 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).

Response 4-22

This comment states that the District, in consultation with a qualified biologist, should prepare a worker environmental awareness training. BMP-2 stipulates that the environmental training program shall be prepared, and 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.

Response 4-23

The commenter recommends that the training should include procedures if there is an injury to any SSC during relocation or when a dead or injured animal is found. Specifically, CDFW recommends that work in the immediate area should stop immediately, the qualified biologist should be notified, and dead or injured wildlife documented. A formal report should be sent to CDFW and the District within three calendar days of the incident or finding. This information is appreciated, and the comment has been noted, but no change or additional mitigation is warranted.

Maintenance and repair activities are not expected to result in direct mortality or injury to wildlife. With the implementation of BMP-1, BMP-2, BMP-6, BMP-9, BMP-23, and BMP-24, which are identified in the Project Description and would be implemented as part of the project, the effects from the proposed Annual Repair and Maintenance Program would be discountable and less than significant.

Response 4-24

This comment recommends additional mitigation related to impacts to non-game mammals and wildlife that may move through the project site. The comment has been noted and the commenter is referred to Response 4-18 – 4-20 above. No additional mitigation or changes are warranted.

Response 4-25

This comment recommends additional mitigation should fencing be proposed during construction or during the life of the project. The comment has been noted and the commenter is referred to Responses 2-6 and 4-2 above. No additional mitigation or changes are warranted.

Response 4-26

This comment recommends a biological monitor be on site prior to and during ground and habitat disturbing activities. As described in BMP-9, 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. No additional mitigation or changes are warranted.

Response 4-27

This comment recommends grubbing and grading be done from the center of the project site, working outward towards adjacent habitat off site where wildlife may safely escape. The comment has been noted, the suggestion is appreciated, and the commenter is referred to Responses 2-6 and 4-2 above. The project does not include substantial habitat removal through grading, and no additional mitigation or changes are warranted.

Response 4-28

This comment recommends the District consider an alternative that would fully avoid or minimize impacts to streams, sensitive plants, and wildlife. CDFW further recommends the District recirculate the environmental document after including alternative locations in order to foster meaningful public participation and informed decision making. The District operates the 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 were listed as endangered under the federal Endangered Species Act. In 2003, Casitas acquired agreements and permits from CDFW, USACE, LARWQCB, NMFS and USFWS for construction of the Robles Diversion Fish Passage 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). As such, there are no alternatives to maintaining the existing Facility. However, as described in the IS-MND and clarified in the responses to comments, all potential impacts would be mitigated to a less than significant level. No changes or recirculation are warranted.

Response 4-29

The comment notes that CDFW has provided the District with a summary of suggested mitigation measures and recommendations in the form of an attached Draft MMRP. An MMRP is included with the Final IS-MND as required by CEQA. No changes to project mitigation measures are warranted as a result of this comment letter; thus, no additional response is necessary.

Response 4-30

The commenter states that the project is subject to a filing fee and that payment of the fee is required. This comment has been noted and all applicable fees will be paid as required. No additional response is necessary.

Figure Changes

In response to minor changes to the project description and Draft IS-MND, Figure 2, Figure 3, Figure 6, and Figure 8 have been updated in the Final IS-MND to reflect the revised locations of project components. Figure 9 has been updated in the Final IS-MND to reflect the revised annual monitoring and reporting flow.

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Appendix K

Mitigation Monitoring and Reporting Program

Robles Diversion and Fish Passage Facility Annual Maintenance and Repair Program

Mitigation Monitoring and Reporting Program

Final Initial Study – Mitigated Negative Declaration

prepared by

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December 2024

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Mitigation Monitoring and Reporting Program

CEQA requires that a reporting or monitoring program be adopted for the conditions of project approval that are necessary to mitigate or avoid significant effects on the environment (Public Resources Code 21081.6). This mitigation monitoring and reporting program is intended to track and ensure compliance with adopted mitigation measures during the project implementation phase. For each mitigation measure recommended in the Final Initial Study-Mitigated Negative Declaration (Final IS-MND) specifications are made herein that identify the action required, the monitoring that must occur, and the agency or department responsible for oversight.

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification Initial	Compliance Verification Date	Compliance Verification Comments
Air Quality							
AQ-1 Tier 4 Equipment							
All off-road equipment greater than 50 horsepower shall meet United States Environmental Protection Agency Tier 4 emission standards.	Verify compliance of offroad equipment greater than 50 horsepower with United States Environmental Protection Agency Tier 4 emission standards.	Prior to commencement of each program activity involving off-road equipment greater than 50 horsepower.	Once annually for each program activity.	Casitas Municipal Water District			
AQ-2 Increased Dump Truck Capacity							
On-road dump trucks used to export sediment during Activity No. 1 shall be double-bottom or tandem dump trucks, with a minimum capacity of 21 cubic yards of soil.	Verify compliance of haul trucks with capacity standard.	Prior to commencement of Activity No. 1.	Once annually for Activity No. 1.	Casitas Municipal Water District			
AQ-3 Haul Trip Timing							
During years in which sediment removal under Activity No. 1 requires off-site export of excess sediment, Activity No. 1 shall not occur simultaneously with any other program activity.	Schedule program activities such that off-site sediment export during Activity No. 1 does not overlap with any other program activity.	Prior to commencement of Activity No. 1.	Once annually.	Casitas Municipal Water District			
Cultural Resources							
CR-1: Archaeological Monitoring							
Archaeological monitoring of all project-related ground disturbance during Activities 1-6 shall be performed by a qualified archaeologist. Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983). Monitors will have	Retain qualified archaeologist.	Prior to the initiation of project-related ground disturbance for Activities 1A and 1B and during grading and excavation for Activity 6E.	Once annually.	Casitas Municipal Water District			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification Initial	Compliance Verification Date	Compliance Verification Comments
the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the California Register of Historical Resources and National Register of Historic Places. Archaeological monitoring may be reduced to spot-checking or eliminated at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of rough grading. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the Area of Potential Effects and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Sediment already monitored during removal does not require monitoring during subsequent placement unless excavation is occurring as part of that activity.	Field verify monitoring is being conducted and daily logs are being completed.	During all project-related ground disturbance for Activities 1A and 1B and during grading and excavation for Activity 6E.	Annually at the onset of ground disturbance for Activities 1A and 1B and at the onset of grading and excavation for Activity 6E and periodically thereafter.				
	If archaeological resources are encountered, verify work is halted and the find is evaluated for listing in the California Register of Historical Resources and National Register of Historic Places.	During all project-related ground disturbance for Activities 1A and 1B and during grading and excavation for Activity 6E.	If needed.				
	Review and approve final monitoring report.	After completion of project-related ground disturbance for Activities 1A and 1B and after completion of grading and excavation for Activity 6E and prior to report submittal to the South Central Coastal Information Center.	Once annually if Activities 1A, 1B, and/or 6E are executed.				

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification Initial	Compliance Verification Date	Compliance Verification Comments
CR-2: Unanticipated Discovery of Cultural Resources							
If cultural resources are encountered during ground-disturbing activities, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be eligible for the National Register of Historic Places and/or California Register of Historical Resources, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts/adverse effects.	Confirm qualified archaeologist is retained.	Prior to commencement of program activities.	Once.	Casitas Municipal Water District			
	In the event of an unanticipated discovery of archaeological resources, confirm required procedures are followed.	During ground-disturbing activities.	If needed.				
Geology and Soils							
GEO-1: Worker's Environmental Awareness Program							
Prior to any project ground disturbance, a WEAP will be prepared and used to train all site personnel prior to the start of work. The WEAP training will include at a minimum the following information: ▪ Review of local and state laws and regulations pertaining to paleontological resources ▪ Types of fossils that could be encountered during ground disturbing activity ▪ Photos of example fossils that could occur on site for reference ▪ Instructions on the procedures to be implemented should unanticipated fossils be encountered during construction, including stopping work in the vicinity of the find and contacting a qualified professional paleontologist	Review and approve Worker's Environmental Awareness Program.	Prior to commencement of ground-disturbing program activities.	Once annually.	Casitas Municipal Water District			
	Review documentation that Worker's Environmental Awareness Program was conducted.	Prior to commencement of ground-disturbing program activities.	Once annually.				

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification Initial	Compliance Verification Date	Compliance Verification Comments
GEO-2 Unanticipated Discovery of Paleontological Resources							
In the event an unanticipated fossil discovery is made during the course of project development, construction activity should be halted in the immediate vicinity of the fossil, and a qualified professional paleontologist shall be notified and retained to evaluate the discovery, determine its significance, and determine if additional mitigation or treatment is warranted. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction work. Any significant paleontological resources found during construction monitoring shall be prepared, identified, analyzed, and permanently curated in an approved regional museum repository under the oversight of the qualified paleontologist.	Confirm qualified professional paleontologist is retained.	Prior to commencement of program activities.	Once.	Casitas Municipal Water District			
	In the event of an unanticipated discovery of fossils, confirm required procedures are followed	During ground-disturbing activities.	If needed.				
Tribal Cultural Resources							
TCR-1 Avoidance of Tribal Cultural Resources							
When feasible, project construction shall avoid tribal cultural resources.	Avoid tribal cultural resources.	During program activities.	Continuous.	Casitas Municipal Water District			
TCR-2 Tribal Cultural Resources Treatment Plan							
Prior to construction of the project, Casitas shall prepare a tribal cultural resources treatment plan. The plan would include suspension of all earth-disturbing work in the vicinity of the find, avoidance of the resource or, if avoidance of the resource is infeasible, the plan would outline the appropriate treatment of the resource in coordination with the affiliated tribe and, if applicable, a qualified archaeologist. Examples of appropriate treatment for tribal cultural resources include, but are not limited to,	Prepare and approve tribal cultural resources treatment plan.	Prior to the commencement of program activities.	Once.	Casitas Municipal Water District			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification Initial	Compliance Verification Date	Compliance Verification Comments
protecting the cultural character and integrity of the resource, protecting traditional use of the resource, protecting the confidentiality of the resource, or heritage recovery.							
TCR-3 Native American Monitoring							
For all earth-disturbing work during Activities 1A, 1B, and 6E associated with the project, Casitas shall provide tribes the opportunity to conduct a Worker Environmental Awareness Training prior to beginning work activities, as well as opportunity for Native American monitoring during the work activities. Native American monitoring may be reduced to spot-checking or eliminated at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of rough grading. If Native American monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the APE and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). Sediment already monitored during removal does not require monitoring during subsequent placement unless excavation is occurring as part of that activity. In the event of a discovery of tribal cultural resources, the steps identified in the tribal cultural resources plan prepared under measure TCR-2 shall be implemented.	Retain a local Native American monitor.	Prior to the start of earth-disturbing work for Activities 1A, 1B, and 6E.	Once annually	Casitas Municipal Water District			
	Field verify monitoring is being conducted and daily logs are being completed.	During all earth-disturbing work for Activities 1A, 1B, and 6E.	Annually at the onset of earth-disturbing work for Activities 1A, 1B, and 6E and periodically thereafter.				
	If tribal cultural resources are encountered, verify the tribal cultural resources plan is implemented.	During all earth-disturbing work for Activities 1A, 1B, and 6E.	If needed.				