

**CALENDAR ITEM
C90**

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12/18/15
PRC 9174.9
R. Collins

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**RESCISSION OF APPROVAL OF A GENERAL LEASE – PUBLIC AGENCY USE;
ADOPTION OF A MITIGATION MONITORING PROGRAM AND STATEMENT OF
FINDINGS; ISSUANCE OF A GENERAL LEASE – PUBLIC AGENCY USE**

APPLICANT:

California Department of Fish and Wildlife
San Joaquin River Restoration Program
1234 E. Shaw Avenue
Fresno, CA 93710

AREA, LAND TYPE, AND LOCATION:

2,272.9 square feet of sovereign land in the San Joaquin River, adjacent to
17372 Brook Trout Drive, Friant, Fresno County.

AUTHORIZED USE:

Use and maintenance an existing storm drain outfall and construction, use, and
maintenance of a volitional release pipeline.

LEASE TERM:

10 years, beginning December 17, 2014.

CONSIDERATION:

The public benefit, with the State reserving the right at any time to set a monetary
rent if the Commission finds such action to be in the State's best interests.

BACKGROUND INFORMATION:

The Applicant is assisting in the implementation of the San Joaquin River
Restoration Program (Program) to manage and conserve native salmon and their
San Joaquin River habitats. The Applicant's role at this location is to produce a
spring-run Chinook salmon stock on the San Joaquin River by providing a
controlled laboratory environment for conducting fish research immediately west
of its existing San Joaquin Fish Hatchery in the town of Friant. The Applicant
proposes to construct and operate the Salmon Conservation and Research
Facility (SCARF) to produce Chinook salmon for release into the San Joaquin
River.

CALENDAR ITEM NO. **C90** (CONT'D)

OTHER PERTINENT INFORMATION:

1. Applicant has the right to use the upland adjoining the lease premises.
2. On December 17, 2014, the Commission authorized a General Lease – Public Agency Use to the California Department of Fish and Wildlife (CDFW) for use and maintenance of an existing storm drain outfall and construction, use, and maintenance of a volitional release pipeline. The volitional release pipeline is a system which allows juvenile salmon to leave SCARF aquaculture tanks and enter the San Joaquin River at their own will (or volition). Subsequent to authorizing the lease, CDFW notified staff of the need to extend the completion date of the volitional release pipeline and to clarify certain terms of the lease. The Commission did not execute the lease and staff is recommending that the prior authorization be rescinded.
3. The CDFW is now applying for a new General Lease – Public Agency Use. Staff has reviewed new lease terms and conditions with CDFW, and staff recommends issuance of a new lease.
4. **Rescission of Lease Authorization:** Rescission of the lease authorization is not a project as defined by the California Environmental Quality Act (CEQA) because it is an administrative action that will not result in direct or indirect physical changes in the environment.

Authority: Public Resources Code section 21065 and California Code of Regulations, Title 14, section 15378, subdivision (b)(5).

5. Authorization of New Lease:

Existing Storm Drain Outfall: The staff recommends that the Commission find that this activity is exempt from the requirements of CEQA as a categorically exempt project. The project is exempt under Class 1, Existing Facilities; California Code of Regulations, Title 2, section 2905, subdivision (a)(2).

Authority: Public Resources Code section 21084 and California Code of Regulations, Title 14, section 15300 and California Code of Regulations, Title 2, section 2905.

Construction of a Volitional Release Pipeline: An Environmental Impact Report (EIR), State Clearinghouse No. 2012111083, was prepared for this project by the CDFW and certified on June 4, 2014. The California State Lands Commission staff has reviewed such document and Mitigation

CALENDAR ITEM NO. **C90** (CONT'D)

Monitoring Program prepared pursuant to the provisions of CEQA (Pub. Resources Code, § 21081.6) and adopted by the lead agency.

Findings made in conformance with the State CEQA Guidelines (Cal. Code Regs., tit. 14, §§ 15091 and 15096, subd. (h), are contained in Exhibit D, attached.

6. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code section 6370 et seq., but such activity will not affect those significant lands. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.

EXHIBITS:

- A. Land Description
- B. Site and Location Map
- C. Mitigation Monitoring Plan
- D. Findings

RECOMMENDED ACTION:

It is recommended that the Commission:

CEQA FINDING:

Authorization of New Lease:

Existing Storm Drain Outfall: Find that the activity is exempt from the requirements of CEQA pursuant to California Code of Regulations, Title 14, section 15061 as a categorically exempt project, Class 1, Existing Facilities; California Code of Regulations, Title 2, section 2905, subdivision (a)(2).

Construction of a Volitional Release Pipeline: Find that an EIR, State Clearinghouse No. 2012111083, was prepared for this Project by the California Department of Fish and Wildlife and certified on June 4, 2014, and that the Commission has reviewed and considered the information contained therein.

Adopt the Mitigation Monitoring Program, as contained in Exhibit C, attached hereto.

CALENDAR ITEM NO. **C90** (CONT'D)

Adopt the Findings, made in conformance with California Code of Regulations, Title 14, sections 15091 and 15096, subdivision (h), as contained in Exhibit D, attached hereto.

Determine that the Project, as approved, will not have a significant effect on the environment.

SIGNIFICANT LANDS INVENTORY FINDING:

Find that this activity is consistent with the use classification designated by the Commission for the land pursuant to Public Resources Code section 6370 et seq.

AUTHORIZATION:

1. Rescind authorization to issue Lease No. PRC 9174.9, a General Lease – Public Agency Use, approved at the December 17, 2014 meeting.
2. Authorize Issuance of a General Lease – Public Agency Use to the California Department of Fish and Wildlife beginning December 18, 2015, for a term of 10 years, for the use and maintenance of an existing storm drain outfall and for the construction, use, and maintenance of a volitional release pipeline as described in Exhibit A, attached and by this reference made a part hereof; and shown on Exhibit B (for reference purposes only); consideration to be the public benefit, with the State reserving the right at any time to set a monetary rent if the Commission finds such action to be in the State's best interests.

EXHIBIT A

PRC 9174.9

LAND DESCRIPTION

Two parcels of submerged land situate in the bed of the San Joaquin River, lying adjacent to Section 7, Township 11 South, Range 21 East, Mount Diablo Meridian as shown on the Official U.S. Government Township Plat approved October 11, 1939, County of Fresno, State of California and more particularly described as follows:

PARCEL 1 - (Proposed Volitional Release Pipeline)

BEGINNING at a point on the low water line on the left bank of the San Joaquin River, as said line shown on Sheet 2 of the Administrative Maps of the San Joaquin River, dated April 1992, on file in the Sacramento Office of the California State Lands Commission (CSLC), which bears South 54° 10' 50" West 35.83 feet from the point numbered 4037, said point having CCS83, Zone 4 coordinates of Northing (y)=2243231.00 feet, Easting (x)=6351935.00 feet; thence continuing along the low water line depicted on said map South 54° 10' 50" West 24.34 feet; thence leaving said line North 26° 11' 07" West 79.73 feet; thence North 63° 48' 53" East 24.00 feet; thence South 26° 11' 07" East 75.65 feet to the POINT OF BEGINNING.

PARCEL 2 – (Existing Storm Drain Outfall)

BEGINNING at a point on the low water line on the left bank of the San Joaquin River, as said line shown on Sheet 2 of the Administrative Maps of the San Joaquin River, dated April 1992, on file in the Sacramento Office of the California State Lands Commission (CSLC), which bears South 55° 17' 25" West 7.60 feet from the point numbered 4035, said point having CCS83, Zone 4 coordinates of Northing (y)=2243408.00 feet, Easting (x)=6352176.00 feet; thence continuing along the low water line depicted on said map South 55° 17' 25" West 20.03 feet; thence leaving said line North 31° 33' 52" West 20.91 feet; thence North 58° 26' 08" East 20.00 feet; thence South 31° 33' 52" East 19.82 feet to the POINT OF BEGINNING.

EXCEPTING THEREFROM any portion lying landward of the low water mark of the left bank of said river.

The BASIS OF BEARINGS of this description is California Coordinate System of 1983, Zone 4. All Bearings and Distances are Grid and in Feet.

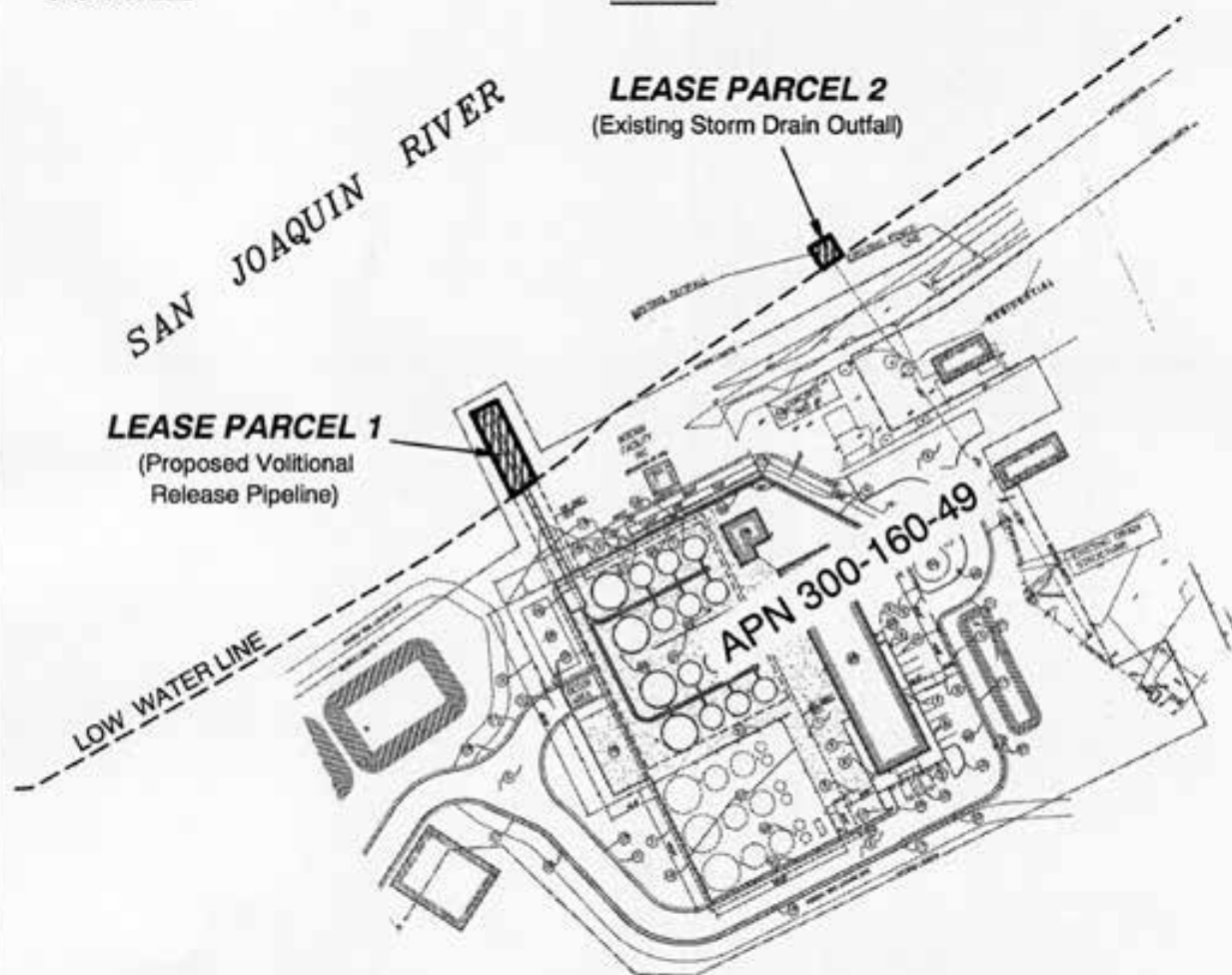
END OF DESCRIPTION

Prepared 11/03/15 by the California State Lands Commission Boundary Unit



NO SCALE

SITE



17372 BROOK TROUT DRIVE, FRIANT

NO SCALE

LOCATION



MAP SOURCE: USGS QUAD

Exhibit B

PRC 9174.9
CALIFORNIA DEPARTMENT
OF FISH AND WILDLIFE
APN 300-160-49
GENERAL LEASE -
PUBLIC AGENCY USE
FRESNO COUNTY



TS 11/03/15

This Exhibit is solely for purposes of generally defining the lease premises, is based on unverified information provided by the Lessee or other parties and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or any other property.

EXHIBIT C
CALIFORNIA STATE LANDS COMMISSION
MITIGATION MONITORING PROGRAM
SAN JOAQUIN RIVER RESTORATION PROGRAM
(PRC 9174, State Clearinghouse No.2012111083)

The California State Lands Commission (Commission) is a responsible agency under the California Environmental Quality Act (CEQA) for the San Joaquin River Restoration Program (Project). The CEQA lead agency for the Project is the California Department of Fish and Wildlife (CDFW).

In conjunction with approval of this Project, the Commission adopts this Mitigation Monitoring Program (MMP) for the implementation of mitigation measures for the portion(s) of the Project located on Commission lands. The purpose of a MMP is to discuss feasible measures to avoid or substantially reduce the significant environmental impacts from a project identified in an Environmental Impact Report (EIR) or a Mitigated Negative Declaration. State CEQA Guidelines section 15097, subdivision (a), states in part:¹

In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

The lead agency has adopted a MMP for the whole of the Project (see Exhibit C, Attachment C-1) and remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with its program. The Commission's action and authority as a responsible agency apply only to the mitigation measures listed in Table C-1 below. Any mitigation measures adopted by the Commission that differ substantially from those adopted by the lead agency are shown as follows:

- Additions to the text of the mitigation measure are underlined; and
- Deletions of the text of the mitigation measure are shown as ~~strikeout~~ or as otherwise noted.

¹ The State CEQA Guidelines are found at California Code of Regulations, Title 14, section 15000 et seq.

Table C-1. Project Impacts and Applicable Mitigation Measures.

Potential Impact	Mitigation Measure (MM) ²	Difference Between CSLC MMP and Lead Agency MMP
FISH-CONSTRUCT-1: Sedimentation and Turbidity in the San Joaquin River from Construction-Related Erosion, Which Could Adversely Impact Fish and Their Habitat	MM GEO-CONSTRUCT-1a: Implement Construction Best Management Practices to Minimize Erosion and the Loss of Topsoil	None.
FISH-CONSTRUCT-2: Risk of Release of Construction-Related Hazardous Materials, Chemicals, and Waste to the San Joaquin River, Potentially Harming Fish	MM GEO-CONSTRUCT-1a: Implement Construction Best Management Practices to Minimize Erosion and the Loss of Topsoil (see above)	None.
FISH-CONSTRUCT-3: Alterations of Riparian or Instream Fish Habitat from SCARF Construction	MM BIO-CONSTRUCT-11a: Minimize Area of Disturbance of Riparian Habitat	None.
	MM BIO-CONSTRUCT-11b: Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction	None.
FISH-CONSTRUCT-4: Alter the Behavior of Cause Physical Harm to Special-Status Fish Species during Construction	MM FISH-CONSTRUCT-4a: Relocate Special-Status Fish Species Outside of the Work Area	None.
	MM FISH-CONSTRUCT-4b: Monitor and Maintain Fish Exclosure	None.
BIO-CONSTRUCT-11: Impacts to Riparian Habitat and Freemont Cottonwood Woodlands	MM BIO-CONSTRUCT-11a: Minimize Area of Disturbance of Riparian Habitat	None.
	MM BIO-CONSTRUCT-11b: Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction	None.
CR-CONSTRUCT-1: A Substantial Adverse Impact on Archaeological Resources from Project	MM CR-CONSTRUCT-1b: Immediately Halt Construction if Cultural	None.

² See Attachment C-1 for the full text of each MM taken from the MMP prepared by the CEQA lead agency.

Potential Impact	Mitigation Measure (MM) ²	Difference Between CSLC MMP and Lead Agency MMP
Construction	Resources are Discovered	
CR-CONSTRUCT-3: Disturb Human Remains, Including Those Interred Outside of Formal Cemeteries within the SCARF Construction Area	MM CR-CONSTRUCT-1b: Immediately Halt Construction if Cultural Resources are Discovered	None.
	MM CR-CONSTRUCT-3: Immediately Halt Construction if Human Remains are Discovered and Implement California Health and Safety Code	None.
GEO-OP-1: Significant Increase in Discharge Flow as a Consequence of SCARF Operations, Resulting in Substantial Soil Erosion along the Return Flow Outfall Channel	MM GEO-OP-1: Conduct <u>Monitoring and an Additional Investigation of Impacted Channels</u> and Implement the Investigation's Recommendations	<p>Due to the increased flow through the return flow outfall channel <u>volitional release pipeline</u>, the CDFW, Department of General Services, or their contractor(s) shall conduct an investigation into the capacity of the channel <u>pipeline</u> and its connection to the San Joaquin River to <u>monitor and verify that the channel pipeline and connection point have the capacity to support maximum potential increased flows.</u> Similarly, the volitional release channel would require the same investigation. The investigation shall identify the maximum capacity of potential increased flows. The geotechnical investigation would be conducted by a qualified hydrogeologist(s) or hydraulic engineer(s) (or team of experts) and detailed in a technical report.</p> <p>If <u>at any time</u> the geotechnical investigation results indicate that the flow capacities of the affected</p>

Potential Impact	Mitigation Measure (MM) ²	Difference Between CSLC MMP and Lead Agency MMP
		<p>channels would not be sufficient to accommodate the Proposed Project's flows <u>and avoid substantial soil erosion</u>, recommended actions will <u>shall</u> be included in the report <u>and implemented by CDFW</u>. CDFW will <u>shall make all reasonable and necessary modifications to the pipeline in order to implement the report's recommended actions and address any impacts to the increased flow capacity</u>. Potential recommendations may include by not be limited to: expansion and/or reinforcement of the existing outfall and volitional release channels, a reduction of flow rates to a level that can be supported by the existing channels, and/or an investigation into and development of alternative channels to support peak flows. As a performance standard, in no case shall the return flows from the outfall or volitional release channel cause channel instability or erosion or sedimentation downstream.</p>
<p>HYD-CONSTRUCT-3: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, Resulting in Substantial Erosion or Siltation On-Site or Off-Site from SCARF Construction</p>	<p>MM GEO-CONSTRUCT-1a: Implement Construction Best Management Practices to Minimize Erosion and the Loss of Topsoil (see above)</p>	<p>None.</p>

ATTACHMENT C-1

**Mitigation Monitoring Program Adopted by the
California Department of Fish and Wildlife**

San Joaquin River Restoration Program: Salmon Conservation and Research Facility and Related Management Actions Project

Mitigation Monitoring and Reporting Plan

SCH# 2012111083

Prepared for:

California Department of Fish and Wildlife
1234 E. Shaw Avenue
Fresno, CA 93710
Contact: Gerald Hatler
559/243-4014

Prepared by:

Horizon Water and Environment
180 Grand Avenue, Suite 1405
Oakland, CA 94612
Contact: Michael Stevenson
510/986-1852

June 2014

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In compliance with Section 21081.6 of the California Environmental Quality Act, the California Department of Fish and Wildlife (CDFW) has prepared this Mitigation Monitoring and Reporting Plan (MMRP) for the Proposed Salmon Conservation and Research Facility (SCARF). Each mitigation measure and the method of monitoring or verifying the completion of the measure are described in the MMRP. CDFW will be the party responsible for verifying implementation of the mitigation measures identified in this MMRP.

The MMRP has been divided into seven separate tables. The first table summarizes all of the mitigation measures and identifies to which category of activity it applies. For the remaining six tables, each is specific to one of the six categories of activities that would be conducted under the Proposed Project. Each table shows just the mitigation measures applicable to that category of activity. By removing the mitigation measures which are not applicable to a particular activity, these tables are intended to streamline use of the MMRP in monitoring and verifying completion of the relevant mitigation measures for each activity.

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Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
AES-CONSTRUCT-3a: Materials and Colors Used in Construction of SCARF Facilities Shall be Compatible with the Surrounding Built and Natural Environments	Department of General Services (DGS), CDFW or the construction contractor shall select materials and colors of the facilities to be compatible with the surrounding developed and natural environments.	X						DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AES-CONSTRUCT-3b: Landscaping of SCARF Facilities Shall Consist of Native Vegetation	CDFW or the construction contractor shall use native plants for landscaping in a manner consistent with Mitigation Measure BIO-CONSTRUCT-11a (Minimize Area of Disturbance of Riparian Habitat) and with Mitigation Measure BIO-CONSTRUCT-11b (Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction).	X						DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AES-CONSTRUCT-3c: Pipelines and Utilities Serving SCARF Facilities Shall be Installed Underground	DGS, CDFW or the construction contractor shall install pipelines and utilities underground, to the extent feasible.	X						DGS	During design	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
AES-CONSTRUCT-4: Exterior Construction Security Lighting Shall Be Hooded and Directed Downward	CDFW shall ensure that exterior construction security lighting is hooded and directed downward toward the SCARF, and away from adjacent properties.	X						DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AES-OP-2a: Permanent Exterior Lighting Shall Be Designed to Protect the Darkness of Nighttime Skies	CDFW shall ensure that permanent lighting utilizes lights that are low wattage, or incorporates appropriate shielding, and that lighting is directed away from sensitive uses and adjacent properties.		X					DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AES-OP-2b: SCARF Structures Shall Be Constructed to Avoid Surface Glare	To reduce glare, CDFW shall ensure that all structures are painted with non-glare surfacing or constructed of materials that do not produce glare.		X					DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
AQ-OP-3: Fish Disposal Limitations	<p>CDFW will implement at least one of the following measures to minimize the likelihood of potential odors from fish disposal activities affecting a substantial number of sensitive receptors:</p> <ul style="list-style-type: none"> Limit fish disposal locations to areas that are at least 1,000 feet from any potential sensitive receptors, including terrestrial recreationists such as hikers. Implement disposal methods that ensure that fish carcasses are weighed down and disposed of within a stream channel instead of on a stream bank. 		X					CDFW	During operation	
AQ-MANAGEMENT-1: Prepare Project-Level Quantitative Analysis of Construction Related Air Quality Emissions, and Implement	As future individual project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component				X		X	CDFW	Prior to implementing a project component or taking actions that commit CDFW to implementing	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Measures to Cap Emissions	<p>or taking actions that commit CDFW to implementing that component, CDFW will prepare a complete, quantitative project-level air quality analysis for that component.</p> <p>The quantitative construction air quality analyses will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. In addition, the analysis will be based on the projected quantity and frequency of vehicle and/or truck trips, and other activities that generate emissions. The analysis will determine whether the combined emissions of the quantified components' construction activities exceed the SJVAPCD's construction air quality thresholds (see the SJVAPCD thresholds presented in Table 5-5 of the DEIR). In addition, the analysis will evaluate whether the</p>				X		X		that component	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>combined emissions from all project components constitute a significant health risk from diesel fueled equipment.</p> <p>If the analysis determines that construction emissions exceed the air quality significance thresholds, then CDFW will identify and implement appropriate mitigation. As a performance standard, the mitigation shall be sufficient to reduce construction emissions so that the Proposed Project's emissions are below the applicable significance thresholds. Examples of appropriate mitigation may include, but not be limited to, SJVAPCD Regulation VIII, alternative fueled equipment, phasing of material hauling trips, use of chemical additives or after-market devices to reduce emissions on existing equipment, use of electrically powered equipment, reduction in total equipment hours, use of newer equipment models, adopting a vehicle idling policy</p>				X		X			

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>requiring all vehicles to adhere to a 5 minute idling policy, and sourcing of material from local sources. Actual emissions efficiency for off-road equipment and motor vehicles will be at least as efficient as the most recent CARB fleet average for off-road equipment and motor vehicles for the current calendar year.</p> <p>In the event that the mitigation strategies (either those listed above or others developed to achieve the performance standard) are calculated to be insufficient to reduce construction emissions levels below significance thresholds, then CDFW will enter into a Voluntary Emission Reduction Agreement (VERA) with SJVAPCD. A VERA is a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds for the SJVAPCD's Emission Reduction Incentive Program (ERIP). The funds are</p>				X		X			

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>disbursed by ERIP in the form of grants for projects that achieve emission reductions. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (e.g., agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. The VERA will be used to offset the project's increase in emissions so that the Proposed Project would have no increase in construction emissions above the significance threshold.</p> <p>Similarly, if the air quality analysis indicates that the activities pose a significant health risk, then CDFW will identify mitigation measures, which, as a performance standard, will ensure health risks are at a less-than-significant level. Examples of appropriate mitigation may</p>				X		X			

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	include, but not be limited to, use of alternative fueled equipment, use of aftermarket control devices such as diesel particulate filters, use of electrical equipment where possible, or reduction in number of hours of equipment use with a minimum reduction in diesel particulate matter of 85% compared to a Tier 2 engine or equivalent to 100 trucks per day based on CARB's Air Quality and Land Use Handbook.				X		X			

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-CONSTRUCT-4a: Relocate Special-Status Fish Species Outside of the Work Area	Prior to commencing instream construction, a barrier will be constructed around the affected area and qualified fisheries biologists shall survey the enclosure by making a minimum of three passes by electrofishing, using protocols developed by NMFS (2000). All fish captured, including special-status species, will be placed into a suitable holding container of cool, aerated stream water and then relocated to a suitable location near the construction area. Construction in the side channel will occur when it is dry or has low flow to the extent feasible; water in the work area will be diverted using coffer dams or similar structures.	X						CFDW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-CONSTRUCT-4b: Monitor and Maintain Fish Exclosure	The fish exclusion structure will remain in place during all instream construction activities and will be monitored daily during instream construction to ensure that it is effectively excluding fish. If the fisheries biologist determines that the exclosure has been compromised, instream construction will be stopped until the biologist has repeated Mitigation Measure FISH-CONSTRUCT-4a and the exclosure has been repaired and is deemed effective.	X						CDFW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-REINTRO-1: Determine Stream-specific Take Totals	CDFW will confer with USFWS and NMFS to determine stream-specific take totals that incorporate estimates of viable population size, life stage-specific survival, and the maintenance of genetic diversity of the donor stock populations. These take totals will be incorporated as specific permit conditions in a ESA section 10(a)(1)(A) permit, which must be issued prior to broodstock collection. At a minimum, the selected threshold(s) shall ensure that the adverse effects of broodstock collection will not be substantial in the context of the overall population of each spring-run donor stock.			X				CDFW	Prior to conducting wild spring-run broodstock collection	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-MANAGEMENT-1: Implement Conservation Measures prior to and during Construction Activities	CDFW shall implement appropriate Conservation Measures from Appendix I, CDFW's Conservation Measures for Biological Resources that May Be Affected by Program-level Actions, prior to and during the construction of fish segregation weirs and barriers. Pre-construction planning shall include a site assessment by a qualified fisheries biologist to determine the potential for special-status species to occur in the vicinity. If the biologist determines that special-status aquatic species may be present, CDFW shall implement the applicable Appendix I avoidance and minimization measures for each species that may be present.				X			CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-MANAGEMENT-5a: Monitor Fish Communities in the Vicinity of Segregation Weirs and Traps	If actions described in Impact FISH-MANAGEMENT-5 are used in the Restoration Area, CDFW shall assess the species composition of fish communities within the 500-foot reach both upstream and downstream of each segregation weir or trap, during the time of year that the weir(s) or trap is in place. The monitoring activities shall focus on large bodied special-status fish species such as green sturgeon and steelhead. Monitoring techniques may include the use of visual surveys, rod and reel angling, set lines, fyke nets, DIDSON™, or seines.				X			CDFW	During operation	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-MANAGEMENT-5b: Develop and Implement Measures that Allow Special-Status Large Bodied Fishes to Bypass Weirs and Traps	If as a result of Mitigation Measure FISH-MANAGEMENT-5a or through other means, CDFW identifies that, outside of the current seasonal operation of the HFB (September to mid-December), the migration of special-status large bodied fishes could be impeded by the operation of the weir(s) or trap and haul activities, then CDFW shall modify the operation of the weir or implement measures that allow fish to bypass the weir so that movement of large bodied special-status fish species such as green sturgeon and steelhead is not impeded. Such measures may include removal or relocation of the weir(s), or operating a trap(s) to allow for manual selection of fish passing across the barrier.				X			CDFW and/or Contractor	During operation	
FISH-MANAGEMENT-8a: Check Traps Daily and Minimize Handling of Fish	To reduce stress on captured fish, all trapping devices will be checked at least once per day. Untargeted wildlife (e.g., snakes, turtles) caught in traps will be released into suitable habitat for the species. Traps				X			CDFW	During operation	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	will be checked more frequently during times when conditions are stressful (e.g., high temperatures, large amounts of debris during high flow events) to reduce the time that fish are subject to trap-related stress. Fish will be carefully handled and given sufficient time to recover (at least 30 minutes) prior to being released back into the river. If rotary screw traps are used, they will be operated in accordance with the USFWS "Draft Rotary Screw Trap Protocol for Estimating Production of Juvenile Chinook Salmon" (USFWS 2008) and/or similar protocols which are at least as protective and developed after conferring with USFWS and, if required, NMFS.				X					

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-MANAGEMENT-8b: Adaptively Manage Trap Operations	If mortalities greater than 2 fish or 2% of total catch are observed in a given day due to high debris loads, traps will be removed or raised out of the water until conditions are suitable for survival of fish (i.e., reduced winds or streamflow, improved weather conditions). For rotary screw traps, if predation causes such mortality, a structural refuge will be installed inside the trap to reduce predation. This will consist of a perforated plastic box or similar refuge for small fish within the rotary screw trap to prevent predation by larger fish captured in the trap.				X			CDFW	During operation	
FISH-MONITORING-2a: Implement Standard Protocols for Active Sampling of Aquatic Species	When conducting active sampling, CDFW shall adhere to fish handling procedures prescribed in Guidelines for the Use of Fishes in Research (Nickum <i>et al.</i> 2004), or any more current protocols which are considered at least as protective.					X		CDFW	During operation	
FISH-MONITORING-2b: Use Passive Sampling	To reduce impacts associated with active instream					X		CDFW	During operation	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
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Techniques in place of Active Sampling Techniques, When Appropriate	monitoring activity such as electrofishing, seining, and use of jet or propeller motor boats by investigators, the use of passive capture equipment will be used in place of active sampling whenever appropriate and feasible. Passive sampling equipment includes entanglement gear such as gill nets and trammel nets, and entrapment gear such as fyke nets and rotary screw traps.					X				
FISH-MONITORING-2c: Use Observational Techniques in place of Traditional Capture Techniques, When Appropriate	Wherever possible and appropriate, observational techniques will be used in place of capture techniques to reduce the need to handle organisms.					X		CDFW	During operation	
FISH-MONITORING-2d: Check Rotary Screw Traps Daily	Rotary screw traps will be operated in accordance with the USFWS "Draft Rotary Screw Trap Protocol for Estimating Production of Juvenile Chinook Salmon" (USFWS 2008) and/or similar protocols which are at least as protective and developed after conferring with USFWS and, if required,					X		CDFW	During operation	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	NMFS. USFWS (2008) includes several measures, as follows. To reduce stress on captured fish, all trapping devices will be checked at least once per day when in the fishing position. Untargeted wildlife (e.g., snakes, turtles) caught in traps will be released into suitable habitat for the species. Traps will be checked more frequently during times when conditions are stressful (e.g., high temperatures, large amounts of debris during high flow events) to reduce the time that fish are subject to trap-related stress. Fish may need to be anesthetized, which would be done using methods acceptable to USFWS and NMFS before they are handled and given sufficient time to recover (at least 30 minutes) prior to being released back into the river.					X				
FISH-MONITORING-2e: Adaptively Manage Trap Operations	If mortalities greater than two fish or 2% of total catch are observed in a given day due to high debris loads, traps will be raised out of the water until					X		CDFW	During operation	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	conditions are suitable for survival of fish (i.e., reduced winds or streamflow, improved weather conditions). If predation causes such mortality, a structural refuge will be installed inside the trap to reduce predation. This will consist of a perforated plastic box or similar refuge for small fish within the rotary screw trap to prevent predation by larger fish captured in the trap.					X				

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
FISH-RECREATION-1: Implement Conservation Measures prior to and during Construction of Recreational Enhancements	CDFW shall implement appropriate conservation measures from Appendix I, CDFW's Conservation Measures for Biological Resources that May Be Affected by Program-level Actions, prior to and during the construction of recreational fishing enhancements. Pre-construction planning shall include a site assessment by a qualified fisheries wildlife biologist to determine the potential for special-status species to occur in the vicinity. If the biologists determine that special-status species may be present, CDFW shall implement the applicable Appendix I avoidance and minimization measures for each species that may be present.						X	CDFW and/or Contractor	Before and during construction	
BIO-CONSTRUCT-1a: Perform Focused Surveys for Special-Status Plant Species	Within one year prior to commencement of ground disturbing activities, a qualified CDFW botanist will perform surveys for special-status plant species with the potential to occur at the SCARF site.	X						CDFW	Before construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	Floristic surveys will be performed according to the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009 or current version). Floristic surveys will include the use of a reference population to increase the likelihood of detection, and will be performed during the appropriate bloom period(s) for each species. If special-status plants are detected within the construction zone or within a 100-foot radius of the construction zone, CDFW will implement Mitigation Measure BIO-CONSTRUCT-1b .	X								
BIO-CONSTRUCT-1b: Avoid or Minimize Impacts to Special-Status Plant Species	If special-status plants are detected within the construction zone or within a 100-foot radius of the construction zone, CDFW will adjust the construction footprint or establish exclusion fencing to avoid impacts to the plants. Locations of special-status plant populations will be	X						CDFW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>clearly identified in the field by staking, flagging, or fencing a minimum 100-foot wide buffer around them prior to the commencement of activities that may cause disturbance. No activity will occur within the buffer area.</p> <p>If avoidance is not feasible, then CDFW will implement measures to minimize the impact to the species. Minimization measures may include transplanting perennial species, seed collection and dispersal for annual species, and other conservation strategies that will protect the viability of the local population. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local population.</p>	X								
BIO-CONSTRUCT-2a:	Prior to implementation of	X						CDFW	Before	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Perform 2 Years of Surveys for Special Status Vernal Pool Branchiopods	construction activities, CDFW biologists will perform surveys for special-status vernal pool branchiopods species in seasonally ponded depression with the potential to be impacted by construction of the SCARF. Surveys will be performed according to the Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (USFWS 1996 or current version).								construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
BIO-CONSTRUCT-2b: Avoid Impacts to Suitable Vernal Pool Branchiopods Habitat	<p>The Proposed Project will be designed to avoid impacts to suitable vernal pool branchiopods' habitat. Such avoidance measures may include adjusting roadway and pipeline alignments, minimizing the footprint of borrow sites, and locating staging/stockpile areas outside of suitable habitat.</p> <p>If vernal pools are present, a 250-foot no disturbance buffer will be established from the high water mark of the vernal pools and seasonal wetlands that provide suitable habitat for vernal pool crustaceans. Wetland habitat will be delineated by staking, flagging or fencing. This buffer will be established prior to ground-disturbing activities, and it will remain until ground-disturbing activities in that area are completed.</p>	X						DGS and Contractor	During design and construction	
BIO-CONSTRUCT-2c: Replace Vernal Pool	If occupied vernal pool branchiopods habitat cannot							CDFW	Prior to any construction with	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Branchiopod Habitat	<p>be avoided, CDFW will first identify if there are potential wetland mitigation opportunities on-site and will preferentially conserve, restore, or construct new wetland habitat at this location. If habitat cannot be restored on-site or in the immediate vicinity of the disturbance location, replacement at a nearby off-site location will be provided. The replacement of habitat will be equivalent to the nature of the habitat lost, and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use. Mitigation ratios to achieve the "no net loss" standard will be determined in consultation with the USFWS.</p> <p>If off-site compensation includes dedication of conservation easements, purchase of mitigation credits or other off-site conservation</p>	X							potential to adversely affect vernal pool branchiopod habitat	

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	measures, the details of these measures will be developed through consultation with USFWS. The plan will include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations. Any impacts that result in a compensation purchase will be required to do so with an endowment for land management in perpetuity prior to any project groundbreaking activities.	X								

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
BIO-CONSTRUCT-3a: Conduct Protocol-Level Surveys for California Tiger Salamander	CDFW will conduct a minimum of 2 years of surveys to determine the presence/absence of CTS at the SCARF site. Surveys will be conducted in accordance with the Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (USFWS 2003). In consultation with the USFWS, CDFW may modify survey protocols to reflect site conditions and potential utilization of habitat by CTS. If protocol surveys result in negative findings of CTS for 2 consecutive years, then Mitigation Measure BIO-CONSTRUCT-3c would not be implemented.	X						CDFW	Before construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
BIO-CONSTRUCT-3b: Avoid Impacts to Suitable Upland California Tiger Salamander.	To the extent feasible, the Proposed Project will be designed to avoid impacts to suitable upland CTS habitat. Such avoidance measures may include adjusting roadway and pipeline alignments, minimizing the footprint of borrow sites, and locating staging/stockpile areas outside of suitable upland habitat.	X						DGS	During design	
BIO-CONSTRUCT-3c: Minimize Construction-related Impacts to California Tiger Salamander	<p>If CTS are detected during protocol surveys conducted under Mitigation Measure BIO-CONSTRUCT-3a, or in the absence of conducting 2 years of protocol-level surveys, CDFW will implement the following actions during construction to minimize potential impacts to CTS.</p> <ul style="list-style-type: none"> Prior to commencing ground disturbing activities, construction workers will be educated regarding CTS and the measures intended to protect this species. 	X						CDFW and/or Contractor	Before and during construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<ul style="list-style-type: none"> When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for CTS. Burrows considered suitable for CTS will be identified by a qualified CDFW biologist. The biologist will delineate and mark the no-disturbance buffer. All suitable burrows directly impacted by construction will be hand excavated under the supervision of a qualified wildlife biologist. If CTS are found, the biologist will relocate the organism to the nearest burrow that is outside of the construction impact area. All ground-disturbing work will occur during daylight hours. In coordination with USFWS, and depending on the level of rainfall and site conditions. CDFW will monitor the National Weather Service 72-hour 	X								

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	forecast for the work area. If a 70% or greater chance of rainfall is predicted within 72 hours of project activity, all activities in areas within 1.3 miles of potential or known CTS breeding sites will cease until no further rain is forecast. If work must continue when rain is forecast, a qualified biologist will survey the project site before construction begins each day rain is forecast. If rain exceeds 0.25 inch during a 24 hour period, work will cease until no further rain is forecast. This restriction is not applicable for areas located greater than 1.3 miles from potential or known CTS breeding sites once they have been encircled with CTS exclusion fencing. However, even after exclusion fencing is installed, this condition would still apply to construction related traffic moving through areas within 1.3 miles of potential or known CTS breeding sites	X								

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	<p>but outside of the salamander exclusion fencing (e.g. on roads).</p> <ul style="list-style-type: none"> For work conducted during the CTS migration season (November 1 to May 31), exclusionary fencing will be erected around the construction site during ground disturbing activities after hand excavation of burrows has been completed. A biological monitor will visit the site weekly to ensure that the fencing is in good working condition. Fencing material and design will be subject to the approval of USFWS. If exclusionary fencing is not used, a qualified biological monitor will be on-site during all ground disturbance activities. Exclusion fencing will also be placed around all spoils and stockpiles. For work conducted during the CTS migration season 	X								

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>(November 1 to May 31), a qualified biologist will survey the active work areas (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no CTS are in the work area.</p> <ul style="list-style-type: none"> • Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches in diameter will be inspected for CTS. If any are found they will be allowed to move out of the construction area under their own accord. • Trenches and holes will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be 	X								

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	<p>inspected prior to filling.</p> <ul style="list-style-type: none"> All food and food-related trash will be enclosed in sealed trash containers at the end of each workday and removed completely from the construction site once every three days to avoid attracting wildlife. A speed limit of 15 mph will be maintained on dirt roads. All equipment will be maintained such that there are no leaks of automotive fluids such as fuels, oils, and solvents. Any fuel or oil leaks will be cleaned up immediately and disposed of properly. Plastic monofilament netting (erosion control matting) or similar material will not be used at the project site because CTS may become entangled or trapped. Acceptable substitutes include coconut coir matting 	X								

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	<p>or tackified hydroseeding compounds.</p> <ul style="list-style-type: none"> Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 100 feet from wetlands and the San Joaquin River channel. If it is not feasible to store hazardous materials 100 feet from wetlands and the river channel, then spill containment measures will be implemented to prevent the possibility of accidental discharges to wetlands and waters. 	X								
BIO-CONSTRUCT-3d: Minimize Construction-related Impacts to Western Spadefoot	<ul style="list-style-type: none"> Prior to commencing ground disturbing activities, construction workers will be educated regarding western spadefoot, and the measures intended to protect these species. For work conducted during the western spadefoot toad 	X						CDFW and/or Contractor	Before and during construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>migration and breeding season (November 1 to May 31), a qualified biologist will survey the active work areas (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no spadefoot toads are in the work area.</p> <ul style="list-style-type: none"> When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for western spadefoot toad. Burrows considered suitable for spadefoot will be identified by a qualified CDFW biologist. The biologist will delineate and mark the no-disturbance buffer. If western spadefoot is toad is found within the construction footprint, it will be allowed to move out of harm's way of its own 	X								

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>volition or a qualified biologist will relocate the organism to the nearest burrow that is outside of the construction impact area.</p> <ul style="list-style-type: none"> Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches (3 cm) in diameter will be inspected for western spadefoot toad. If any are found, they will be allowed to move out of the construction area under their own accord. Trenches and holes will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling. 	X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
		X								
BIO-CONSTRUCT-4: Implement Pre-construction Surveys and Minimization Measures for Western Pond Turtle	<p>Pre-construction surveys for WPT will be conducted by a qualified biologist 14 days before and 24 hours before the start of construction activities where suitable habitat exists (i.e., along riparian areas, ponds and freshwater emergent wetlands). If WPT or their nests are observed during pre-construction surveys, the following measures will be implemented:</p> <ul style="list-style-type: none"> A qualified biologist will be on site to monitor construction in suitable WPT habitat. WPT found within the construction area will be allowed to leave on its own volition or it will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat immediately upstream or downstream from the project site. If WPT nests are identified 	X						CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	in the work area during pre-construction surveys, a 300-foot no-disturbance buffer will be established between the nest and any areas of potential disturbance. Buffers will be clearly marked with temporary fencing. Construction will not be allowed to commence in the exclusion area until hatchlings have emerged from the nest, or the nest is deemed inactive by a qualified biologist.	X								
BIO-CONSTRUCT-5: Implement Pre-construction Surveys and Minimization Measures for Burrowing Owls	Prior to initiating ground-disturbing activities, CDFW will conduct surveys for burrowing owls in accordance with protocols established in the Staff Report on Burrowing Owl Mitigation (CDFG 2012 or current version). If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site will be resurveyed. If burrowing owls are detected, disturbance to burrows will be	X						CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>avoided during the nesting season (February 1 through August 31). CDFW will establish buffers around occupied burrows in accordance with guidance provided in the Staff Report on Burrowing Owl Mitigation, and at the discretion of the qualified CDFW wildlife biologist. Buffers around occupied burrows will be a minimum of 656 feet during the breeding season, and 160 feet during the non-breeding season.</p> <p>Outside of the nesting season (February 1 through August 31), passive owl relocation techniques will be implemented. Owls would be excluded from burrows within 160 feet of construction by installing one-way doors in burrow entrances. The work area will be monitored daily for 1 week to confirm owl departure from burrows prior to any ground-disturbing activities. Where possible</p>	X								

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.</p> <p>If occupied burrows cannot be avoided during the non-breeding season, CDFW will enhance or create burrows in adjacent habitat at a 1:1 ratio (burrows destroyed to burrows enhanced or created) one week prior to implementation of passive relocation techniques. If burrowing owl habitat enhancement or creation takes place, CDFW will develop and implement a monitoring and management plan to assess the effectiveness of the mitigation.</p>	X								
BIO-CONSTRUCT-6a: Implement Pre-construction Surveys and Minimization	Surveys for bald and golden eagle nests will be conducted within 2 miles of any construction area supporting							CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Measures for Bald Eagle and Golden Eagle	suitable nesting habitat and important eagle roost sites and foraging areas. Surveys will be conducted in accordance with the USFWS Interim Golden Eagle Inventory and Monitoring Protocols (USFWS 2010), and CDFW's Bald Eagle Breeding Survey Instructions (CDFG 2010), or current guidance.	X								
	If an active eagle's nest is found, project disturbance will not occur within 0.5 mile of the active nest site during the breeding season (December 30 through July 1), or in any area that may disturb the nesting birds. The 0.5 mile no-disturbance buffer will be maintained throughout the breeding season or until the young have fledged and are no longer dependent upon the nest or parental care for survival.	X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
BIO-CONSTRUCT-6b: Implement Pre-construction Surveys and Minimization Measures for Swainson's Hawk and White-tailed Kite	<p>If construction occurs between February 1 and August 31, CDFW will conduct surveys for nesting raptors, with a focus on Swainson's hawk and white-tailed kite, in accordance with established CDFW raptor survey protocols (e.g., CDFG 2000, or current guidance). Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting raptors are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.</p> <p>If potential nesting trees are to be removed during construction activities, removal will take place outside of Swainson's hawk nesting</p>	X						CDFW and/or Contractor	Before and during construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	season and CDFW will develop a plan to replace known Swainson's hawk nest trees at a ratio of 3:1. If replacement planting is implemented, monitoring will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65% survival of all replacement plantings.	X								
BIO-CONSTRUCT-6c: Implement Pre-construction Surveys and Minimization Measures for Non-listed Raptors	If construction occurs between February 1 and August 31, CDFW will conduct surveys for nesting raptors in accordance with established CDFW raptor survey protocols. Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting raptors are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers around active raptor nests will be 500 feet for non-listed raptors, unless a	X						CDFW and/or Contractor)	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	qualified biologist determines that smaller buffers would be sufficient to avoid impacts to nesting raptors. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival. If potential nesting trees are to be removed during construction activities, removal will take place outside of the raptor nesting season and CDFW will develop a plan to replace known nest trees at a ratio of 3:1. If replacement planting is implemented, monitoring will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65%	X								
		X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	survival of all replacement plantings.									
BIO-CONSTRUCT-7a: Implement Pre-construction Surveys and Minimization Measures for Special-Status Passerine Species	If construction begins between February 1 and August 31, CDFW will conduct surveys for special-status birds within a 1,000-ft radius of the construction area. Surveys will be conducted by biologists adhering to guidance offered in Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology (Halterman et al. 2009); Least Bell's Vireo Survey Guidelines (USFWS 2001); and/or A Survey Protocol for Willow Flycatcher in California (Bombay et al. 2003). If nests are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. No-disturbance buffers around active nests will be a minimum of 500 feet, unless a qualified CDFW biologist determines that smaller buffers would be	X						CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	sufficient to avoid impacts to nesting birds. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.	X								
BIO-CONSTRUCT-7b: Implement Pre-construction Surveys for Birds Protected under the MBTA	Whenever possible, impacts to native nesting birds will be avoided by not conducting project activities that involve clearing of vegetation, generation of mechanical noise, or ground disturbance during the typical breeding season (February 1 to September 1), if	X						CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>species covered under the Migratory Bird Treaty Act and Fish and Game Code sections 3503, 3503.5, and/or 3513 are determined to be present.</p> <p>If construction begins between February 1 and August 31, CDFW will conduct surveys for nesting birds within a 1,000-ft radius of the construction area. If nests are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers around active nests will be a minimum of 250 feet, unless a qualified CDFW biologist determines that smaller buffers would be sufficient to avoid impacts to nesting birds. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and</p>	X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	human activity. Buffers will be maintained until young have fledged or the nests become inactive.	X								
BIO-CONSTRUCT-8a: Conduct Pre-construction Surveys for Bat Species	No less than 7 days and no more than 14 days prior to the beginning of ground disturbance and/or construction activities, a qualified CDFW wildlife biologist, or wildlife biologist approved by CDFW, will conduct surveys for special-status bats during the appropriate time of day to maximize detectability to determine if bat species are roosting near the work area. Survey methodology may include visual surveys of bats (observation of presence of bats during foraging period), inspection for suitable habitat or bat sign (guano), or use of ultrasonic detectors (Anabat, etc.). Visual surveys may consist of a daytime pedestrian survey looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to	X						CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	note the presence or absence of bats and will include trees within 0.25 mile of project construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined.	X								
BIO-CONSTRUCT-8b: Avoid and Minimize Impacts to Roosting/Breeding Sites	CDFW will avoid disturbance to roosts to the greatest extent feasible. If roosts must be removed, the bats will be excluded from the roosting site before it is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures will be developed prior to implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when a site can be confirmed to	X						CDFW and/or Contractor	Before and during construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young).	X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
BIO-CONSTRUCT-8c: Replace Bat Roosting/Breeding Sites	If roosts cannot be avoided or it is determined that construction activities may cause roost abandonment, such activities may not commence until permanent, elevated bat houses have been installed outside of, but near the construction area. Placement and height will be determined by a qualified CDFW wildlife biologist, but the height of bat house will be at least 15 feet. Bat houses will be multi-chambered and be purchased or constructed in accordance with CDFW standards. The number of bat houses required will be dependent upon the size and number of colonies found, but at least one bat house will be installed for each pair of bats (if occurring individually), or of sufficient number to accommodate each colony of bats to be relocated.	X						CDFW and/or Contractor	Before and during construction	
BIO-CONSTRUCT-9: Conduct Pre-construction Surveys and Minimization	No less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or	X						CDFW and/or Contractor	Before construction in locations with potential to affect	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Measures for American Badger	construction activities, CDFW will conduct a survey to determine if American badger den sites are present at the SCARF site. If dens are found, they will be monitored for badger activity. If CDFW determines that dens may be active, the entrances of the dens will be blocked with soil, sticks, and debris for three to five days to discourage the use of these dens prior to project disturbance activities. The den entrances will be blocked to an incrementally greater degree over the three to five-day period. After the qualified CDFW biologist determines that badgers have stopped using active dens, the dens will be hand-excavated with a shovel to prevent re-use during construction. No disturbance of active dens will take place when cubs may be present and dependent on parental care, as determined by a qualified CDFW biologist.	X							badgers	
BIO-CONSTRUCT-10:	A qualified biologist will							CDFW and/or	Before	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Conduct Pre-construction Surveys and Minimization Measures for San Joaquin Kit Fox	<p>conduct pre-construction surveys no less than 14 days and no more than 30 days before the commencement of construction activities to identify potential dens more than 5 inches in diameter. CDFW will implement USFWS Standardized Recommendations for Protection of San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 1999, 2011). CDFW will notify USFWS in writing of the results of the pre-construction survey within 30 days after these activities are completed.</p> <p>If potential dens are located within the proposed work area and cannot be avoided during construction activities, a USFWS-approved biologist will determine if the dens are occupied. If occupied dens are present within the proposed work area, they will be avoided through the use of exclusion zones following the most current USFWS procedures</p>	X						Contractor	construction in locations with potential to affect San Joaquin Kit Fox	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>(currently USFWS 1999, 2011). Furthermore, CDFW will notify USFWS immediately if a natal or pupping den is found in the survey area, and will present the results of pre-activity den searches within 5 days after these activities are completed and before the start of construction activities in the area. CDFW, in coordination with USFWS, will determine if SJKF den removal is appropriate. If unoccupied dens need to be removed, the USFWS-approved biologist will remove these dens by hand-excavating them in accordance with USFWS procedures (USFWS 1999, 2011).</p> <p>Additional conservation measures will be coordinated between USFWS and CDFW, and may include replacing dens, installing off-site artificial dens, acquiring compensatory habitat, or other conservation options. Compensation may include dedicating conservation easements,</p>	X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	purchasing mitigation credits, or other off-site conservation measures, and the details of these measures will be included in the mitigation plan and must occur with full endowments for management in perpetuity. The plan will include information on responsible parties for long-term management, holders of conservations easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable SJKF populations. If conservation measures are implemented, CDFW will monitor their performance annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local SJKF population.	X								
BIO-CONSTRUCT-11a: Minimize Area of Disturbance of Riparian	The disturbance or removal of vegetation will not exceed the minimum necessary to	X						DGS and contractor	During design and construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Habitat	complete construction and will only occur within the defined work area.	X								
BIO-CONSTRUCT-11b: Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction	CDFW will develop a revegetation plan for riparian habitat and sensitive natural communities disturbed by construction. All disturbed soils and new fill in riparian habitat or sensitive natural communities will be revegetated with site-appropriate native species. Any native vegetation 4 inches or greater DBH damaged or removed as result of construction activity will be replaced at a 3:1 ratio; this ratio will increase to 10:1 for native trees of 24 inches DBH and greater. Revegetation areas will be maintained and monitored to ensure a minimum of 65% survival of the plantings after 5 years.	X						CDFW, DGS and/or Contractor	During design and construction	
BIO-CONSTRUCT-12a: Obtain Regulatory Permits for Work	Work within areas defined as waters of the U.S. that includes placement of fill will require a	X						CDFW and/or Contractor	Before construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Activities Taking Place in Wetlands and Waters of the United States and the State	<p>CWA Section 404 permit from the USACE and Section 401 Water Quality Certification from the RWQCB. All work proposed in jurisdictional waters of the U.S. will be authorized by permits from the USACE and RWQCB.</p> <p>In areas where project activities are temporary in nature, jurisdictional wetland and other waters of the U.S. will be restored to their condition prior to disturbance. In areas where permanent disturbance to jurisdictional waters or wetlands will occur, CDFW will first identify if potential mitigation sites are present within close proximity to the area of disturbance, and will construct new or restore degraded wetlands. If waters or wetlands cannot be restored on-site or in the immediate vicinity of the disturbance location, replacement at a nearby off-site location will be provided. The replacement of waters or wetlands will be</p>	X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	equivalent to the nature of the habitat lost, and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use. Mitigation ratios to achieve the "no net loss" standard will be determined in consultation with the USACE and RWQCB.	X								
BIO-CONSTRUCT-12b: Avoidance of and Mitigation for Incidental Fill	Incidental fill of wetland areas will be minimized wherever possible. Temporary construction fencing will be erected around wetlands areas to reduce the potential of incidental fill. Areas affected by construction will be restored to pre-construction contours and revegetated using a mix of native vegetation in accordance with Mitigation Measure BIO-CONSTRUCT-11b.	X						CDFW, DGS, and/or Contractor	During design and construction	
BIO-REINTRO-3:	When project activities are							CDFW and/or	Before and during	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Conduct Project-Level Assessment of Activity, and Implement Conservation Measures to Avoid, Minimize, or Mitigate Impacts	defined to a level that impacts to biological resources can be evaluated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will assess the site to determine the potential for impacts to biological resources. At minimum, the assessment will include a CNDDB search of the site vicinity (minimum 5-mile radius), and a site visit by a qualified botanist and wildlife biologist to evaluate the potential for special-status species and sensitive habitats to be impacted by the activity. If the biologists determine that special-status species or sensitive habitats may be affected by the activity, CDFW will implement the conservation measures listed in Appendix I, CDFW's Conservation Measures for Biological Resources that May Be Affected by Program-level Actions, for each species and habitat type that may be			X				Contractor	construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	affected.			X						
BIO-RECREATION-2: Preserve and Protect Special-Status Plant Populations in the Vicinity of Recreational Enhancement Areas	Prior to developing recreational enhancements, CDFW will implement the Mitigation Measure BIO-REINTRO-3 . If the qualified botanist identifies special-status plants species in the vicinity of the recreational enhancements, CDFW will implement measures to minimize potential impacts. Minimization measures may include constructing pathways, fencing, signage, and other strategies to reduce the potential for trampling or matting that will protect the viability of the local plant population and suitable habitat. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or			X			X	CDFW and/or Contractor (and DGS, depending on the selected measures)	During design, construction, and operation	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	viability of the local population.			X			X			
CR-CONSTRUCT-1a: Evaluate Cultural Resources for Eligibility for Inclusion in the CRHR, and Implement Appropriate Mitigation Measures for Eligible Resources	CDFW shall ensure that all cultural resources identified prior to or during construction of the various Proposed Project components will be evaluated for eligibility for inclusion in the CRHR. Where implementation of the Proposed Project necessitates ground disturbance at sites besides the SCARF (e.g., sites for recreational enhancements), a records search and pedestrian survey shall be conducted prior to construction. Resource evaluations will be conducted by individuals who meet the U.S. Secretary of Interior's professional standards in archaeology and architectural history. If any of the resources that are identified during this evaluation meet the eligibility criteria identified in PRC section 5024.1, or PRC section 21083.2(g), CDFW will develop and implement mitigation measures according to CEQA	X						CDFW and/or Contractor	During design and construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>Guidelines section 15126.4(b) before construction begins or resumes.</p> <p>For resources eligible for listing in the CRHR that would be rendered ineligible by the effects of project construction, CDFW shall implement mitigation measures. Mitigation measures for archaeological resources shall be selected from the following: avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation measures for archaeological resources shall be developed in consultation with responsible agencies, including but not limited to the State Office of Historic Preservation and, as appropriate, interested parties such as Native American tribes. Mitigation measures for historic architectural resources shall be consistent with the U.S.</p>	X								

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Implementation of the approved mitigation would be required before beginning/resuming any construction activities with potential to affect identified eligible resources at the site.	X								
CR-CONSTRUCT-1b: Immediately Halt Construction if Cultural Resources are Discovered	Not all cultural resources are visible on the ground surface. If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within an appropriate radius of at least 50 feet. A qualified archaeologist shall conduct a	X						CDFW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	field investigation of the specific site and recommend mitigation necessary for the protection or recovery of any cultural resource concluded by the archaeologist to represent a historical resource or unique archaeological resource. Mitigation Measure CR-CONSTRUCT-1a would then be implemented.	X								
CR-CONSTRUCT-3: Immediately Halt Construction if Human Remains are Discovered and Implement California Health and Safety Code	If human remains are accidentally discovered during the Proposed Project's construction activities, the requirements of California Health and Human Safety Code section 7050.5 must be followed. Potentially damaging excavation must halt in the area of the remains, with a minimum radius of 50 feet, and the local County Coroner must be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.5[b]).	X						CDFW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	If the Coroner determines that the remains are those of a Native American, he or she must contact NAHC by phone within 24 hours of making that determination (Health and Safety Code section 7050[c]). Pursuant to the provisions of PRC section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods.	X								
GEO-CONSTRUCT-1a: Implement Construction Best Management Practices to Minimize Erosion and the Loss of Topsoil	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> Implement practices to minimize the contact of construction materials, equipment, and maintenance supplies with storm water. Limit fueling and other 	X						Contractor	During construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>activities involving hazardous materials to use in designated areas only; provide drip pans under equipment and conduct daily checks of vehicle condition.</p> <ul style="list-style-type: none"> Implement wildlife-friendly practices to reduce erosion of exposed soil, including stabilization for soil stockpiles, watering for dust control, establishment of perimeter silt fences, and/or placement of fiber rolls. Implement practices to maintain water quality, including silt fences, stabilized construction entrances, and storm-drain inlet protection. Develop spill prevention and emergency response plans to handle potential fuel or other spills. Where feasible, limit 	X								

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>construction to dry periods.</p> <ul style="list-style-type: none"> The performance standard for this mitigation measures is use of the best available technology that is economically achievable. 	X								
GEO-CONSTRUCT-1b: Comply with Cal/OSHA Requirements for Excavation Slopes	<p>CDFW, DGS, or their contractor(s) shall ensure that temporary excavation slopes meet Cal/OSHA requirements, as appropriate. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the last applicable Cal/OSHA standards. Nearby utilities, structures, and other improvements shall be protected from potential damage by earth movements.</p>	X						DGS and/or Contractor	During design and/or construction	
GEO-CONSTRUCT-1c: Design Cut-and-Fill Slopes to Minimize Erosion	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> Construction methods will 	X						DGS and/or Contractor	During design and/or construction	

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	<p>incorporate appropriate erosion-prevention actions. This may include, but will not be limited to, reducing slope steepness as much as possible, re-vegetating slopes as appropriate, and directing surface drainage away from the tops of slopes. Actions shall be taken to compact fill soils uniformly.</p> <ul style="list-style-type: none"> The guidance from the Geocon 2012 Geotechnical Investigation Report (Geocon 2012) shall be used for erosion-prevention techniques, modified if necessary depending on actual field conditions. 	X								
GEO-CONSTRUCT-2a: Test Fill for Recommended Compaction and Moisture Content, and Apply Appropriate Measures to Reach Desired Content When	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> All earthwork operations should be observed by a qualified inspector who is a California licensed 	X						CDFW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Necessary	<p>Professional Geologist and is also a California Certified Engineering Geologist. A test fill will be constructed to determine the suitability of fill material for use at the site. The results of the test fill will be used to determine the appropriate method for conditioning, placement and compaction of fill material necessary at the site to ensure stable foundation conditions are achieved. Within the existing effluent detention pond area, existing fill and loose alluvium should be removed down to competent granite bedrock. The removal should extend at least 5 feet laterally beyond the footprint of the proposed hatchery compound, including the parking area.</p> <ul style="list-style-type: none"> Over-excavation bottoms, areas to receive fill or areas left at-grade should be thoroughly scarified to a minimum depth of 8 inches, 	X								

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	uniformly moisture-conditioned at or near optimum moisture content, and compacted to at least 90% relative compaction. Scarification in exposed, hard bedrock areas is not required.	X								
GEO-CONSTRUCT-2b: Ensure Fill Soils Contain Adequate Binder	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> If fill soils consist of sand and gravel mixtures with silt or clay binder, these soils should be blended with other soils containing sufficient fines to provide adequate binder (usually 10–15% fines by dry weight). If pond-bottom sediment is used, it should be dried and sufficiently blended with other soils such that the resulting fill does not contain organics in excess of 	X						CDFW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	3% by dry weight. • Imported fill material should be primarily granular with a “very low” expansion potential (Expansion Index less than 20) and a Plasticity Index less than 15. Imported fill material should also contain sufficient binder and be free of organic material and construction debris; it should not contain rocks/cementations larger than 6 inches in their greatest dimension.	X								
GEO-CONSTRUCT-3: Accommodate Shallow Groundwater and Potential Perched Groundwater and Seepage throughout the Project Excavation Sites	CDFW, DGS, or their contractor(s) shall implement the following measures: • Drain the settling ponds several weeks prior to grading, and perform earthwork and grading operations during the summer, if possible. • Be prepared to accommodate potential	X						CDFW and/or Contractor	During construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>perched groundwater and seepage in deeper project excavations, such as the pond removal excavations. Depending on the extent of perched groundwater at the time of grading, temporary dewatering measures, such as wellpoints or trench drains, may be required. Some form of subgrade stabilization may be necessary where wet, unstable soils are exposed.</p> <ul style="list-style-type: none"> Depending on conditions found at the time of construction, mitigation alternatives, such as over-excavation and replacement with gravel wrapped in geosynthetic fabric, may be necessary to provide a stable bottom. 	X								
GEO-CONSTRUCT-4: Take Recommended Grading and Fill Actions to Maximize Foundation Stability	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> Foundation design will 							DGS, CDFW and/or Contractor	During design and construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>incorporate appropriate measures to maximize long-term stability. This may address, but will not be limited to, footings and reinforcement specifications, the use of aggregate base and compacted fill or native soils, and methods to permit drainage for areas below the design flood elevation.</p> <ul style="list-style-type: none"> The Geocon 2012 Geotechnical Investigation Report (Geocon 2012) may be used as guidance, but final design and implementation will depend on actual field conditions, and modifications will be made as necessary. A qualified geotechnical engineer will oversee onsite field investigations and approved final design. 	X								
		X								
GEO-OP-1: Conduct and Additional Investigation	Due to the increased flow through the return flow outfall							CDFW, DGS and/or Contractor	During design and construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
into the Flow Capacity of Impacted Channels and Implement the Investigation's Recommendations	<p>channel, CDFW, DGS, or their contractor(s) shall conduct an investigation into the capacity of the channel and its connection to the San Joaquin River to verify that the channel and connection point have the capacity to support potential increased flows. Similarly, the volitional release channel would require the same investigation. The geotechnical investigation would be conducted by a qualified hydrologist(s) or hydraulic engineer(s) (or team of such experts) and detailed in a technical report.</p> <p>If the geotechnical investigation results indicate that the flow capacities of the affected channels would not be sufficient to accommodate the Proposed Project's flows, recommended actions will be included in the report. CDFW will implement the report's recommended actions. Potential recommendations may include but not be limited</p>		X							

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	to: expansion and/or reinforcement of the existing outfall and volitional release channels, a reduction of flow rates to a level that can be supported by the existing channels, and/or an investigation into and development of alternative channels to support peak flows. As a performance standard, in no case shall the return flows from the outfall or the volitional release channel cause channel instability or erosion and sedimentation downstream.		X							

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
GEO-MANAGEMENT-1a: Stabilize Soils to Avoid Increasing Erosion on Streambanks	Project activities will be done in such a manner as to not increase erosion within the banks of the river during or immediately following rainfall events. All disturbed soils at project activity sites will be stabilized to reduce erosion potential, both during and following installation of equipment (e.g., weirs, fyke nets, traps, etc.). After removal of such equipment, soils shall be stabilized and recontoured, as necessary.				X			Contractor	During construction	
GEO-MANAGEMENT-1b: Use Energy Dissipaters to Minimize Turbidity at the Point of Discharge	Water deposited back into the river following Chinook salmon transport shall be done at a rate to minimize water turbidity and erosion. As necessary at each site, temporary energy dissipaters such as rip rap shall be placed at the point of discharge to moderate the return of water to the channel.				X			CDFW	During operation	
GEO-RECREATION-1: Conduct a Geotechnical	A geotechnical investigation must be conducted by a							CDFW and/or Contractor	During design, before	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
Investigation and Incorporate Report Recommendations into the Design and Construction of any Future Recreation Management Roads or Facilities	qualified geotechnical engineer (or team of geotechnical engineers) to evaluate subsurface soil and geologic conditions at future sites of recreation management roads and facilities. The investigation report should provide conclusions and recommendations relative to the geotechnical aspects of designing and constructing the recreation management roads and facilities, which are yet to be determined. Recommendations should address site and geologic conditions, including soil, groundwater, and corrosion. They should also address geologic hazards, such as regional active faults, ground shaking, liquefaction, and flooding. The report should provide seismic design criteria; excavation and cut-and-fill characteristics; criteria for foundations, retaining walls, and pavement; and any other design criteria appropriate for the Proposed Project such that						X		construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>the facilities remain stable.</p> <p>The proposed recreation management activities will incorporate all recommendations put forth by the Geotechnical Investigation Report into the design and construction of the Proposed Project.</p>						X			
GHG-MANAGEMENT-1: Prepare Project-Level Quantitative Analysis of Construction-Related GHG Emissions, and Implement Measures to Reduce and/or Offset Emissions	<p>As future individual Proposed Project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will prepare a complete, quantitative project-level GHG emissions analysis for that component.</p> <p>The GHG emissions analysis will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported;</p>				X		X	CDFW and/or Contractor	Prior to implementing a project component or taking actions that commit CDFW to implementing that component	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>and worker trips required. The analysis will determine whether the combined emissions of the various quantified components' construction activities exceed the construction thresholds (230 metric tons CO₂e/year amortized or district approved BPS).</p> <p>If the analysis determines that construction emissions will exceed the construction thresholds, CDFW will first implement all feasible, applicable GHG emission reduction measures and propose these as BPS for the project, up to a 29% reduction from a defined business-as-usual baseline or 1,100 metric tons CO₂e per year. Potential GHG emission reduction measures to be considered include, but are not limited to the following:</p> <ul style="list-style-type: none"> Utilize alternative fueled vehicles such as electric or biodiesel for equipment and 				X		X			

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	<p>vehicles.</p> <ul style="list-style-type: none"> Utilize newer, more fuel efficient equipment and vehicles for construction. Increase employee vanpool share (2% of vanpool mode share). Utilize locally sourced material. <p>In the event that the mitigation measures are insufficient to reduce construction emissions to be equal to or less than the significance thresholds, then CDFW shall purchase sufficient GHG emission credits to offset the Proposed Project's construction net increase in emissions above the thresholds. These may include GHG credits that have been banked under SJVAPCD Rule 2301 or other GHG credits that are considered acceptable by SJVAPCD.</p>				X		X			
					X		X			

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
HAZ-CONSTRUCT-3: Implement a Construction Management Plan to Minimize Interference with Emergency Response	CDFW, DGS, or the construction contractor, in consultation with the County, will prepare and implement a Traffic Management Plan (TMP). CDFW will be responsible for ensuring that the plan is adequately developed and implemented. CDFW will provide the TMP to the Fresno County Public Works and Planning Department and Caltrans. The TMP will include recommended traffic-control and traffic-reduction measures as identified in the Transportation Management Plan Guidelines issued by the Division of Traffic Operations Office of System Management Operations (Caltrans 2009). CDFW will implement all traffic-control or traffic-reduction measures described in the TMP. In addition, to the extent feasible, construction-related traffic and any temporary road closures shall be scheduled during non-peak	X						CDFW, DGS, or Contractor	Before and during construction	

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>traffic periods.</p> <p>The measures included in the TMP shall be consistent with any applicable guidelines outlined in the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices, and the Work Area Traffic Control Handbook. The plan will include the following items:</p> <ul style="list-style-type: none"> • Defined location and timing of any temporary lane closures; • Identification and provision for circumstances requiring the use of temporary traffic control measures, flag persons, warning signs, lights, barricades, and cones, etc. to provide safe work areas in the vicinity of the project site or along the haul routes, including for those roadway segments that have 	X								

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	<p>substandard width (less than 18 feet), and to warn, control, protect, and expedite vehicular and pedestrian traffic and access by emergency responders;</p> <ul style="list-style-type: none"> • Implementation of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak-hour traffic, placement of detour signs (if required), lane closure procedures (if required), flaggers (if required), placement of cones for drivers, and designated construction access routes and access points; • Notification to adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur; • Address the potential for construction-related traffic 	X								

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	<p>to impede emergency response vehicles and present a specific training and information program for construction workers to ensure awareness of emergency procedures from project-related accidents;</p> <ul style="list-style-type: none"> • Identification of haul routes for movement of construction vehicles that will minimize impacts on vehicular and pedestrian traffic and circulation and safety, and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by CDFW and/or DGS in coordination with the construction contractor; • Development of a process for responding to and tracking complaints pertaining to construction activity, including identification of an onsite 	X								

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	complaint manager; and <ul style="list-style-type: none">Documentation of road pavement conditions for all routes that would be used by construction vehicles both before and after project construction. Roads damaged by construction vehicles will be repaired to the level at which they existed before project construction.	X								
HAZ-MANAGEMENT-3: Prepare Project-Level Quantitative Analysis of Site-specific Current and Historical Hazardous Materials, Implement Recommendations in the Phase I Environmental Site Assessment, and Comply with all Applicable Regulations	CDFW will implement the following measures to assess and minimize potential hazards on sites selected for the construction or removal of fish segregation weirs. CDFW will have a qualified expert perform a Phase 1 Environmental Site Assessment and hazardous-site records search for the Proposed Project sites. This process will include the identification of potential hazards within the project sites and identification of nearby				X			CDFW, DGS, and/or Contractor	Before construction	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	sensitive receptors. The assessment will determine whether hazards and hazardous materials are present and, if so, their potential impact on workers and nearby sensitive receptors. The analysis will also include recommendations to reduce potential risks from identified hazards and hazardous materials. CDFW will implement recommendations provided in the Phase 1 Environmental Site Assessment and comply with all applicable regulations. Compliance with these regulations will include preparation of a hazardous materials business plan, which would include a training program for employees and an emergency plan (Cal EMA 2012). CDFW will implement applicable provisions of the EPA, OSHA, Cal/OSHA, Cal/EPA, Cal EMA, and CUPA permitting processes, and any applicable county general plan policies. Should the site have unmitigatable hazardous				X					

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	conditions, or mitigation is not feasible, CDFW shall choose an alternate site.				X					

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
HAZ-RECREATION-3: Research and Consult Applicable Comprehensive Airport Land Use Plans before Construction Activities	<p>As stated in the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15154, CDFW shall ensure that the design and construction will comply with all applicable comprehensive airport land use plans within which boundaries the Project falls.</p> <p>If a comprehensive airport land use plan has not been adopted for a project within 2 nautical miles of a public airport or public-use airport, the Airport Land Use Planning Handbook published by the California Department of Transportation's Division of Aeronautics (Caltrans 2011) will serve as the guide for the design and construction of the Proposed Project with regard to potential airport-related safety hazards and noise problems.</p>						X	CDFW	During design	
HYD-CONSTRUCT-6: Perform Flood Analysis and Conform to	Prior to finalizing the SCARF design, CDFW will conduct an analysis of pre- and post-	X						CDFW and DGS	During design	

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Standards in Fresno County Code	project flood conditions in the SCARF area. The analysis will include an assessment of the potential change in velocity, floodplain storage and Base Flood Elevation (BFE) for the pre- and post-project conditions. If the analysis determines that the SCARF would significantly decrease floodplain storage or result in a significant increase in the BFE, velocity, or cause erosion, then measures will be designed and implemented to reduce these potential effects to an acceptable level. This could include bank stabilization measures at erosional locations, development of increased floodplain storage, redesign to avoid increases in the BFE, etc. As a performance standard, the design and construction shall conform to the standards contained in the most current version of Fresno County Code Chapter 15.48; such standards are considered by CDFW to reduce this impact	X								

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	to a less-than-significant level.	X								
LU-MANAGEMENT 1: Ensure Consistency of Land Use	As part of the design for removal or relocation of the two fish weirs, DGS, CDFW or the contractor shall investigate land uses at and adjacent to potential sites, along with relevant plans, policies and regulations. The weirs, fish traps and other equipment shall not be sited in locations that create land use incompatibilities.				X			CDFW and/or Contractor	During design	
LU-RECREATION-2: Avoid Locations with Land Use Conflicts	As part of the selection of recreational enhancement sites, CDFW shall investigate land uses at and adjacent to potential sites, along with relevant plans, policies and regulations. CDFW will choose locations for enhancement of recreational fishing that would not conflict with existing or planned land uses and/or local land use policies.						X	CDFW and/or Contractor	During design	

Mitigation Measure Title	Mitigation Measure Description	Applicable Activity (X = applicable)						Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
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NOISE-OP-1: Implement Noise Control Measures to Reduce Noise Generated by Mechanical Equipment	To reduce potential noise impacts from mechanical equipment, CDFW shall locate mechanical rooftop equipment for HVAC and refrigeration units as far from residential homes as possible. If such functioning rooftop equipment were unavoidably as close as 150 feet to the nearest sensitive receptor, then equipment will be selected that features lower-speed rotating components (e.g., fans, pumps, compressors), factory-approved acoustically-insulated housings or enclosures, and other typical means of noise control or sound abatement so that its resulting sound pressure level at a distance of 150 feet does not exceed the Fresno County threshold of 45 dBA L50 as shown in Table 14-2 in the DEIR.		X					DGS	During design	
NOISE-MANAGEMENT-1: Implement Noise Control Measures for Construction Activities	Before engaging in noise-generating activity associated with the construction of weirs, structural modification of the				X			CDFW and Contractor	Before and during construction	

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	<p>Hill's Ferry Barrier, or other construction activity, CDFW will evaluate how close sensitive receptors are located to the construction site, and whether the construction activity would exceed applicable noise thresholds. This evaluation will utilize the same FTA-based general assessment methodology that was used to predict the noise that would be generated during SCARF construction. Should the noise levels be anticipated to exceed the threshold for any sensitive receptors, CDFW will implement specific noise control measures to mitigate impacts associated with construction. These measures may include but are not limited to the following:</p> <p>a. Best available noise control techniques (including factory-approved mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be</p>				X					

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	<p>used for all equipment and trucks to minimize construction noise impacts.</p> <p>b. If impact equipment (e.g., concrete/rock breaker, rock drill) is used during project construction, hydraulic- or electric-powered equipment will be used to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used (a muffler can lower noise levels from the exhaust by up to 10 dBA). External jackets on the tools themselves will be used, which could achieve a reduction of 5 dBA. Where considered practical, quieter procedure alternatives, such as drilling or vibratory methods, will be used</p>				X					

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		SCARF Construction	SCARF Operations	Fish Reintroduction	Fisheries Management	Fisheries Research and Monitoring	Recreation Management			
	<p>instead of impact equipment.</p> <p>c. Stationary noise sources will be located away from sensitive receptors. If the sources must be located near sensitive receptors, adequate sound abatement (with enclosures and mufflers, where appropriate) will be used to ensure performance standards are met. Enclosure openings or vents will face away from sensitive receptors. If any stationary equipment (e.g., pumps, ventilation fans, generators) is operated beyond the ordinance time limits, this equipment will conform to the affected jurisdiction's noise limits.</p> <p>In addition, CDFW will designate a project liaison to be responsible for responding to noise complaints during construction. The name and phone number of the liaison will be conspicuously posted at</p>				X					

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	construction areas and on all advanced notifications. The liaison will take steps to resolve complaints, including the arrangement of periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generate excessive noise levels.				X					
REC-CONSTRUCT-1a: Reroute the Trail during Construction	CDFW will coordinate construction activities with the San Joaquin River Conservancy to minimize to the extent and duration of rerouting of the newly built San Joaquin Hatchery Public Access and Trail during construction of the SCARF.	X						CDFW	Before and during construction	

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REC-CONSTRUCT-1b: Provide Signage during Construction	CDFW or its contractor shall provide signage during construction of the SCARF to notify those using the San Joaquin Hatchery Public Access and Trail of trail and access disruptions.	X						CDFW	During construction	
REC-CONSTRUCT-1c: Rebuild the Trail if Damaged during Construction	If the San Joaquin Hatchery Public Access and Trail becomes damaged during construction of the SCARF, CDFW or its contractor shall re-construct damaged trail and public access points within 2 years of the damage.	X						CDFW or Contractor	Following construction	

MITIGATION MEASURES, ARRANGED BY ACTIVITY

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SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
AES-CONSTRUCT-3a: Materials and Colors Used in Construction of SCARF Facilities Shall be Compatible with the Surrounding Built and Natural Environments	Department of General Services (DGS), CDFW or the construction contractor shall select materials and colors of the facilities to be compatible with the surrounding developed and natural environments.	DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AES-CONSTRUCT-3b: Landscaping of SCARF Facilities Shall Consist of Native Vegetation	CDFW or the construction contractor shall use native plants for landscaping in a manner consistent with Mitigation Measure BIO-CONSTRUCT-11a (Minimize Area of Disturbance of Riparian Habitat) and with Mitigation Measure BIO-CONSTRUCT-11b (Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction).	DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AES-CONSTRUCT-3c: Pipelines and Utilities Serving SCARF Facilities Shall be Installed Underground	DGS, CDFW or the construction contractor shall install pipelines and utilities underground, to the extent feasible.	DGS	During design	
AES-CONSTRUCT-4: Exterior Construction Security Lighting Shall Be Hooded and Directed Downward	CDFW shall ensure that exterior construction security lighting is hooded and directed downward toward the SCARF, and away from adjacent properties.	DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
FISH-CONSTRUCT-4a: Relocate Special-Status Fish Species Outside of the Work Area	Prior to commencing instream construction, a barrier will be constructed around the affected area and qualified fisheries biologists shall survey the enclosure by making a minimum of three passes by electrofishing, using protocols developed by NMFS (2000). All fish captured, including special-status species, will be placed into a suitable holding container of cool, aerated stream water and then relocated to a suitable location near the construction area. Construction in the side channel will occur when it is dry or has low flow to the extent feasible; water in the work area will be diverted using coffer dams or similar structures.	CDFW and/or Contractor	During construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
FISH-CONSTRUCT-4b: Monitor and Maintain Fish Enclosure	The fish exclusion structure will remain in place during all instream construction activities and will be monitored daily during instream construction to ensure that it is effectively excluding fish. If the fisheries biologist determines that the enclosure has been compromised, instream construction will be stopped until the biologist has repeated Mitigation Measure FISH-CONSTRUCT-4a and the enclosure has been repaired and is deemed effective.	CDFW and/or Contractor	During construction	
BIO-CONSTRUCT-1a: Perform Focused Surveys for Special-Status Plant Species	Within one year prior to commencement of ground disturbing activities, a qualified CDFW botanist will perform surveys for special-status plant species with the potential to occur at the SCARF site. Floristic surveys will be performed according to the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009 or current version). Floristic surveys will include the use of a reference population to increase the likelihood of detection, and will be performed during the appropriate bloom period(s) for each species. If special-status plants are detected within the construction zone or within a 100-foot radius of the construction zone, CDFW will implement Mitigation Measure BIO-CONSTRUCT-1b .	CDFW	Before construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-1b: Avoid or Minimize Impacts to Special-Status Plant Species	<p>If special-status plants are detected within the construction zone or within a 100-foot radius of the construction zone, CDFW will adjust the construction footprint or establish exclusion fencing to avoid impacts to the plants. Locations of special-status plant populations will be clearly identified in the field by staking, flagging, or fencing a minimum 100-foot wide buffer around them prior to the commencement of activities that may cause disturbance. No activity will occur within the buffer area.</p> <p>If avoidance is not feasible, then CDFW will implement measures to minimize the impact to the species. Minimization measures may include transplanting perennial species, seed collection and dispersal for annual species, and other conservation strategies that will protect the viability of the local population. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local population.</p>	CDFW and/or Contractor	During construction	
BIO-CONSTRUCT-2a: Perform 2 Years of Surveys for Special Status Vernal Pool Branchiopods	Prior to implementation of construction activities, CDFW biologists will perform surveys for special-status vernal pool branchiopods species in seasonally ponded depression with the potential to be impacted by construction of the SCARF. Surveys will be performed according to the Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (USFWS 1996 or current version).	CDFW	Before construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-2b: Avoid Impacts to Suitable Vernal Pool Branchiopods Habitat	<p>The Proposed Project will be designed to avoid impacts to suitable vernal pool branchiopods' habitat. Such avoidance measures may include adjusting roadway and pipeline alignments, minimizing the footprint of borrow sites, and locating staging/stockpile areas outside of suitable habitat.</p> <p>If vernal pools are present, a 250-foot no disturbance buffer will be established from the high water mark of the vernal pools and seasonal wetlands that provide suitable habitat for vernal pool crustaceans. Wetland habitat will be delineated by staking, flagging or fencing. This buffer will be established prior to ground-disturbing activities, and it will remain until ground-disturbing activities in that area are completed.</p>	DGS and Contractor	During design and construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-2c: Replace Vernal Pool Branchiopod Habitat	<p>If occupied vernal pool branchiopods habitat cannot be avoided, CDFW will first identify if there are potential wetland mitigation opportunities on-site and will preferentially conserve, restore, or construct new wetland habitat at this location. If habitat cannot be restored on-site or in the immediate vicinity of the disturbance location, replacement at a nearby off-site location will be provided. The replacement of habitat will be equivalent to the nature of the habitat lost, and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use. Mitigation ratios to achieve the "no net loss" standard will be determined in consultation with the USFWS.</p> <p>If off-site compensation includes dedication of conservation easements, purchase of mitigation credits or other off-site conservation measures, the details of these measures will be developed through consultation with USFWS. The plan will include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations. Any impacts that result in a compensation purchase will be required to do so with an endowment for land management in perpetuity prior to any project groundbreaking activities.</p>	CDFW	Prior to any construction with potential to adversely affect vernal pool branchiopod habitat	

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BIO-CONSTRUCT-3a: Conduct Protocol-Level Surveys for California Tiger Salamander	CDFW will conduct a minimum of 2 years of surveys to determine the presence/absence of CTS at the SCARF site. Surveys will be conducted in accordance with the Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (USFWS 2003). In consultation with the USFWS, CDFW may modify survey protocols to reflect site conditions and potential utilization of habitat by CTS. If protocol surveys result in negative findings of CTS for 2 consecutive years, then Mitigation Measure BIO-CONSTRUCT-3c would not be implemented.	CDFW	Before construction	
BIO-CONSTRUCT-3b: Avoid Impacts to Suitable Upland California Tiger Salamander.	To the extent feasible, the Proposed Project will be designed to avoid impacts to suitable upland CTS habitat. Such avoidance measures may include adjusting roadway and pipeline alignments, minimizing the footprint of borrow sites, and locating staging/stockpile areas outside of suitable upland habitat.	DGS	During design	
BIO-CONSTRUCT-3c: Minimize Construction-related Impacts to California Tiger Salamander	<p>If CTS are detected during protocol surveys conducted under Mitigation Measure BIO-CONSTRUCT-3a, or in the absence of conducting 2 years of protocol-level surveys, CDFW will implement the following actions during construction to minimize potential impacts to CTS.</p> <ul style="list-style-type: none"> • Prior to commencing ground disturbing activities, construction workers will be educated regarding CTS and the measures intended to protect this species. • When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for CTS. Burrows considered suitable for CTS will be identified by a 	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>qualified CDFW biologist. The biologist will delineate and mark the no-disturbance buffer.</p> <ul style="list-style-type: none"> • All suitable burrows directly impacted by construction will be hand excavated under the supervision of a qualified wildlife biologist. If CTS are found, the biologist will relocate the organism to the nearest burrow that is outside of the construction impact area. • All ground-disturbing work will occur during daylight hours. In coordination with USFWS, and depending on the level of rainfall and site conditions. CDFW will monitor the National Weather Service 72-hour forecast for the work area. If a 70% or greater chance of rainfall is predicted within 72 hours of project activity, all activities in areas within 1.3 miles of potential or known CTS breeding sites will cease until no further rain is forecast. If work must continue when rain is forecast, a qualified biologist will survey the project site before construction begins each day rain is forecast. If rain exceeds 0.25 inch during a 24 hour period, work will cease until no further rain is forecast. This restriction is not applicable for areas located greater than 1.3 miles from potential or known CTS breeding sites once they have been encircled with CTS exclusion fencing. However, even after exclusion fencing is installed, this condition would still apply to construction related traffic moving through areas within 1.3 miles of potential or known CTS breeding sites but outside of the salamander exclusion fencing (e.g. on roads). • For work conducted during the 			

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	<p>CTS migration season (November 1 to May 31), exclusionary fencing will be erected around the construction site during ground disturbing activities after hand excavation of burrows has been completed. A biological monitor will visit the site weekly to ensure that the fencing is in good working condition. Fencing material and design will be subject to the approval of USFWS. If exclusionary fencing is not used, a qualified biological monitor will be on-site during all ground disturbance activities. Exclusion fencing will also be placed around all spoils and stockpiles.</p> <ul style="list-style-type: none"> • For work conducted during the CTS migration season (November 1 to May 31), a qualified biologist will survey the active work areas (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no CTS are in the work area. • Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches in diameter will be inspected for CTS. If any are found they will be allowed to move out of the construction area under their own accord. • Trenches and holes will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling. • All food and food-related trash 			

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	<p>will be enclosed in sealed trash containers at the end of each workday and removed completely from the construction site once every three days to avoid attracting wildlife.</p> <ul style="list-style-type: none"> • A speed limit of 15 mph will be maintained on dirt roads. • All equipment will be maintained such that there are no leaks of automotive fluids such as fuels, oils, and solvents. Any fuel or oil leaks will be cleaned up immediately and disposed of properly. • Plastic monofilament netting (erosion control matting) or similar material will not be used at the project site because CTS may become entangled or trapped. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds. <p>Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 100 feet from wetlands and the San Joaquin River channel. If it is not feasible to store hazardous materials 100 feet from wetlands and the river channel, then spill containment measures will be implemented to prevent the possibility of accidental discharges to wetlands and waters.</p>			
BIO-CONSTRUCT-3d: Minimize Construction-related Impacts to Western Spadefoot	<ul style="list-style-type: none"> • Prior to commencing ground disturbing activities, construction workers will be educated regarding western spadefoot, and the measures intended to protect these species. • For work conducted during the western spadefoot toad migration and breeding season 	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>(November 1 to May 31), a qualified biologist will survey the active work areas (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no spadefoot toads are in the work area.</p> <ul style="list-style-type: none"> • When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for western spadefoot toad. Burrows considered suitable for spadefoot will be identified by a qualified CDFW biologist. The biologist will delineate and mark the no-disturbance buffer. • If western spadefoot is toad is found within the construction footprint, it will be allowed to move out of harm's way of its own volition or a qualified biologist will relocate the organism to the nearest burrow that is outside of the construction impact area. • Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches (3 cm) in diameter will be inspected for western spadefoot toad. If any are found, they will be allowed to move out of the construction area under their own accord. <p>Trenches and holes will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling.</p>			

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BIO-CONSTRUCT-4: Implement Pre-construction Surveys and Minimization Measures for Western Pond Turtle	<p>Pre-construction surveys for WPT will be conducted by a qualified biologist 14 days before and 24 hours before the start of construction activities where suitable habitat exists (i.e., along riparian areas, ponds and freshwater emergent wetlands). If WPT or their nests are observed during pre-construction surveys, the following measures will be implemented:</p> <ul style="list-style-type: none"> • A qualified biologist will be on site to monitor construction in suitable WPT habitat. WPT found within the construction area will be allowed to leave on its own volition or it will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat immediately upstream or downstream from the project site. <p>If WPT nests are identified in the work area during pre-construction surveys, a 300-foot no-disturbance buffer will be established between the nest and any areas of potential disturbance. Buffers will be clearly marked with temporary fencing. Construction will not be allowed to commence in the exclusion area until hatchlings have emerged from the nest, or the nest is deemed inactive by a qualified biologist.</p>	CDFW and/or Contractor	Before and during construction	
BIO-CONSTRUCT-5: Implement Pre-construction Surveys and Minimization Measures for Burrowing Owls	<p>Prior to initiating ground-disturbing activities, CDFW will conduct surveys for burrowing owls in accordance with protocols established in the Staff Report on Burrowing Owl Mitigation (CDFG 2012 or current version). If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site will be resurveyed. If burrowing owls are detected, disturbance to burrows will be avoided during the nesting</p>	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>season (February 1 through August 31). CDFW will establish buffers around occupied burrows in accordance with guidance provided in the Staff Report on Burrowing Owl Mitigation, and at the discretion of the qualified CDFW wildlife biologist. Buffers around occupied burrows will be a minimum of 656 feet during the breeding season, and 160 feet during the non-breeding season.</p> <p>Outside of the nesting season (February 1 through August 31), passive owl relocation techniques will be implemented. Owls would be excluded from burrows within 160 feet of construction by installing one-way doors in burrow entrances. The work area will be monitored daily for 1 week to confirm owl departure from burrows prior to any ground-disturbing activities. Where possible burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.</p> <p>If occupied burrows cannot be avoided during the non-breeding season, CDFW will enhance or create burrows in adjacent habitat at a 1:1 ratio (burrows destroyed to burrows enhanced or created) one week prior to implementation of passive relocation techniques. If burrowing owl habitat enhancement or creation takes place, CDFW will develop and implement a monitoring and management plan to assess the effectiveness of the mitigation.</p>			
BIO-CONSTRUCT-6a: Implement Pre-construction Surveys and Minimization Measures for Bald Eagle	Surveys for bald and golden eagle nests will be conducted within 2 miles of any construction area supporting suitable nesting habitat and important eagle roost sites and	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
and Golden Eagle	<p>foraging areas. Surveys will be conducted in accordance with the USFWS Interim Golden Eagle Inventory and Monitoring Protocols (USFWS 2010), and CDFW's Bald Eagle Breeding Survey Instructions (CDFG 2010), or current guidance.</p> <p>If an active eagle's nest is found, project disturbance will not occur within 0.5 mile of the active nest site during the breeding season (December 30 through July 1), or in any area that may disturb the nesting birds. The 0.5 mile no-disturbance buffer will be maintained throughout the breeding season or until the young have fledged and are no longer dependent upon the nest or parental care for survival.</p>			

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-6b: Implement Pre-construction Surveys and Minimization Measures for Swainson's Hawk and White-tailed Kite	<p>If construction occurs between February 1 and August 31, CDFW will conduct surveys for nesting raptors, with a focus on Swainson's hawk and white-tailed kite, in accordance with established CDFW raptor survey protocols (e.g., CDFG 2000, or current guidance). Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting raptors are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.</p> <p>If potential nesting trees are to be removed during construction activities, removal will take place outside of Swainson's hawk nesting season and CDFW will develop a plan to replace known Swainson's hawk nest trees at a ratio of 3:1. If replacement planting is implemented, monitoring will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65% survival of all replacement plantings.</p>	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-6c: Implement Pre-construction Surveys and Minimization Measures for Non-listed Raptors	<p>If construction occurs between February 1 and August 31, CDFW will conduct surveys for nesting raptors in accordance with established CDFW raptor survey protocols. Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting raptors are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers around active raptor nests will be 500 feet for non-listed raptors, unless a qualified biologist determines that smaller buffers would be sufficient to avoid impacts to nesting raptors. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival. If potential nesting trees are to be removed during construction activities, removal will take place outside of the raptor nesting season and CDFW will develop a plan to replace known nest trees at a ratio of 3:1. If replacement planting is implemented, monitoring will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65% survival of all replacement plantings.</p>	CDFW and/or Contractor)	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-7a: Implement Pre-construction Surveys and Minimization Measures for Special-Status Passerine Species	If construction begins between February 1 and August 31, CDFW will conduct surveys for special-status birds within a 1,000-ft radius of the construction area. Surveys will be conducted by biologists adhering to guidance offered in Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology (Halterman et al. 2009); Least Bell's Vireo Survey Guidelines (USFWS 2001); and/or A Survey Protocol for Willow Flycatcher in California (Bombay et al. 2003). If nests are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. No-disturbance buffers around active nests will be a minimum of 500 feet, unless a qualified CDFW biologist determines that smaller buffers would be sufficient to avoid impacts to nesting birds. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-7b: Implement Pre-construction Surveys for Birds Protected under the MBTA	<p>Whenever possible, impacts to native nesting birds will be avoided by not conducting project activities that involve clearing of vegetation, generation of mechanical noise, or ground disturbance during the typical breeding season (February 1 to September 1), if species covered under the Migratory Bird Treaty Act and Fish and Game Code sections 3503, 3503.5, and/or 3513 are determined to be present.</p> <p>If construction begins between February 1 and August 31, CDFW will conduct surveys for nesting birds within a 1,000-ft radius of the construction area. If nests are detected, CDFW will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers around active nests will be a minimum of 250 feet, unless a qualified CDFW biologist determines that smaller buffers would be sufficient to avoid impacts to nesting birds. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until young have fledged or the nests become inactive.</p>	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-8a: Conduct Pre-construction Surveys for Bat Species	No less than 7 days and no more than 14 days prior to the beginning of ground disturbance and/or construction activities, a qualified CDFW wildlife biologist, or wildlife biologist approved by CDFW, will conduct surveys for special-status bats during the appropriate time of day to maximize detectability to determine if bat species are roosting near the work area. Survey methodology may include visual surveys of bats (observation of presence of bats during foraging period), inspection for suitable habitat or bat sign (guano), or use of ultrasonic detectors (Anabat, etc.). Visual surveys may consist of a daytime pedestrian survey looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats and will include trees within 0.25 mile of project construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required. If evidence of bat use is observed, the number and species of bats using the roost will be determined.	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-8b: Avoid and Minimize Impacts to Roosting/Breeding Sites	CDFW will avoid disturbance to roosts to the greatest extent feasible. If roosts must be removed, the bats will be excluded from the roosting site before it is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures will be developed prior to implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when a site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young).	CDFW and/or Contractor	Before and during construction	
BIO-CONSTRUCT-8c: Replace Bat Roosting/Breeding Sites	If roosts cannot be avoided or it is determined that construction activities may cause roost abandonment, such activities may not commence until permanent, elevated bat houses have been installed outside of, but near the construction area. Placement and height will be determined by a qualified CDFW wildlife biologist, but the height of bat house will be at least 15 feet. Bat houses will be multi-chambered and be purchased or constructed in accordance with CDFW standards. The number of bat houses required will be dependent upon the size and number of colonies found, but at least one bat house will be installed for each pair of bats (if occurring individually), or of sufficient number to accommodate each colony of bats to be relocated.	CDFW and/or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-9: Conduct Pre-construction Surveys and Minimization Measures for American Badger	No less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, CDFW will conduct a survey to determine if American badger den sites are present at the SCARF site. If dens are found, they will be monitored for badger activity. If CDFW determines that dens may be active, the entrances of the dens will be blocked with soil, sticks, and debris for three to five days to discourage the use of these dens prior to project disturbance activities. The den entrances will be blocked to an incrementally greater degree over the three to five-day period. After the qualified CDFW biologist determines that badgers have stopped using active dens, the dens will be hand-excavated with a shovel to prevent re-use during construction. No disturbance of active dens will take place when cubs may be present and dependent on parental care, as determined by a qualified CDFW biologist.	CDFW and/or Contractor	Before construction in locations with potential to affect badgers	
BIO-CONSTRUCT-10: Conduct Pre-construction Surveys and Minimization Measures for San Joaquin Kit Fox	<p>A qualified biologist will conduct pre-construction surveys no less than 14 days and no more than 30 days before the commencement of construction activities to identify potential dens more than 5 inches in diameter. CDFW will implement USFWS Standardized Recommendations for Protection of San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 1999, 2011). CDFW will notify USFWS in writing of the results of the pre-construction survey within 30 days after these activities are completed.</p> <p>If potential dens are located within the proposed work area and cannot be avoided during construction activities, a USFWS-approved biologist will determine if the dens are occupied. If occupied dens are</p>	CDFW and/or Contractor	Before construction in locations with potential to affect San Joaquin Kit Fox	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>present within the proposed work area, they will be avoided through the use of exclusion zones following the most current USFWS procedures (currently USFWS 1999, 2011). Furthermore, CDFW will notify USFWS immediately if a natal or pupping den is found in the survey area, and will present the results of pre-activity den searches within 5 days after these activities are completed and before the start of construction activities in the area. CDFW, in coordination with USFWS, will determine if SJKF den removal is appropriate. If unoccupied dens need to be removed, the USFWS-approved biologist will remove these dens by hand-excavating them in accordance with USFWS procedures (USFWS 1999, 2011).</p> <p>Additional conservation measures will be coordinated between USFWS and CDFW, and may include replacing dens, installing off-site artificial dens, acquiring compensatory habitat, or other conservation options. Compensation may include dedicating conservation easements, purchasing mitigation credits, or other off-site conservation measures, and the details of these measures will be included in the mitigation plan and must occur with full endowments for management in perpetuity. The plan will include information on responsible parties for long-term management, holders of conservations easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable SJKF populations. If conservation measures are implemented, CDFW will monitor their performance annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be</p>			

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	no net reduction in the size or viability of the local SJKF population.			
BIO-CONSTRUCT-11a: Minimize Area of Disturbance of Riparian Habitat	The disturbance or removal of vegetation will not exceed the minimum necessary to complete construction and will only occur within the defined work area.	DGS and contractor	During design and construction	
BIO-CONSTRUCT-11b: Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction	CDFW will develop a revegetation plan for riparian habitat and sensitive natural communities disturbed by construction. All disturbed soils and new fill in riparian habitat or sensitive natural communities will be revegetated with site-appropriate native species. Any native vegetation 4 inches or greater DBH damaged or removed as result of construction activity will be replaced at a 3:1 ratio; this ratio will increase to 10:1 for native trees of 24 inches DBH and greater. Revegetation areas will be maintained and monitored to ensure a minimum of 65% survival of the plantings after 5 years.	CDFW, DGS and/or Contractor	During design and construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
BIO-CONSTRUCT-12a: Obtain Regulatory Permits for Work Activities Taking Place in Wetlands and Waters of the United States and the State	<p>Work within areas defined as waters of the U.S. that includes placement of fill will require a CWA Section 404 permit from the USACE and Section 401 Water Quality Certification from the RWQCB. All work proposed in jurisdictional waters of the U.S. will be authorized by permits from the USACE and RWQCB.</p> <p>In areas where project activities are temporary in nature, jurisdictional wetland and other waters of the U.S. will be restored to their condition prior to disturbance. In areas where permanent disturbance to jurisdictional waters or wetlands will occur, CDFW will first identify if potential mitigation sites are present within close proximity to the area of disturbance, and will construct new or restore degraded wetlands. If waters or wetlands cannot be restored on-site or in the immediate vicinity of the disturbance location, replacement at a nearby off-site location will be provided. The replacement of waters or wetlands will be equivalent to the nature of the habitat lost, and will be provided at a suitable ratio to ensure that, at a minimum, there is no net loss of habitat acreage or value. The replacement habitat will be set aside in perpetuity for habitat use. Mitigation ratios to achieve the "no net loss" standard will be determined in consultation with the USACE and RWQCB.</p>	CDFW and/or Contractor	Before construction	

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BIO-CONSTRUCT-12b: Avoidance of and Mitigation for Incidental Fill	Incidental fill of wetland areas will be minimized wherever possible. Temporary construction fencing will be erected around wetlands areas to reduce the potential of incidental fill. Areas affected by construction will be restored to pre-construction contours and revegetated using a mix of native vegetation in accordance with Mitigation Measure BIO-CONSTRUCT-11b.	CDFW, DGS, and/or Contractor	During design and construction	
CR-CONSTRUCT-1a: Evaluate Cultural Resources for Eligibility for Inclusion in the CRHR, and Implement Appropriate Mitigation Measures for Eligible Resources	CDFW shall ensure that all cultural resources identified prior to or during construction of the various Proposed Project components will be evaluated for eligibility for inclusion in the CRHR. Where implementation of the Proposed Project necessitates ground disturbance at sites besides the SCARF (e.g., sites for recreational enhancements), a records search and pedestrian survey shall be conducted prior to construction. Resource evaluations will be conducted by individuals who meet the U.S. Secretary of Interior's professional standards in archaeology and architectural history. If any of the resources that are identified during this evaluation meet the eligibility criteria identified in PRC section 5024.1, or PRC section 21083.2(g), CDFW will develop and implement mitigation measures according to CEQA Guidelines section 15126.4(b) before construction begins or resumes. For resources eligible for listing in the CRHR that would be rendered ineligible by the effects of project construction, CDFW shall implement mitigation measures. Mitigation measures for archaeological resources shall be selected from the following: avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data	CDFW and/or Contractor	During design and construction	

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	recovery excavation. Mitigation measures for archaeological resources shall be developed in consultation with responsible agencies, including but not limited to the State Office of Historic Preservation and, as appropriate, interested parties such as Native American tribes. Mitigation measures for historic architectural resources shall be consistent with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Implementation of the approved mitigation would be required before beginning/resuming any construction activities with potential to affect identified eligible resources at the site.			
CR-CONSTRUCT-1b: Immediately Halt Construction if Cultural Resources are Discovered	Not all cultural resources are visible on the ground surface. If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within an appropriate radius of at least 50 feet. A qualified archaeologist shall conduct a field investigation of the specific site and recommend mitigation necessary for the protection or recovery of any cultural resource concluded by the archaeologist to represent a historical resource or unique archaeological resource. Mitigation Measure CR-CONSTRUCT-1a would then be implemented.	CDFW and/or Contractor	During construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
CR-CONSTRUCT-3: Immediately Halt Construction if Human Remains are Discovered and Implement California Health and Safety Code	If human remains are accidentally discovered during the Proposed Project's construction activities, the requirements of California Health and Human Safety Code section 7050.5 must be followed. Potentially damaging excavation must halt in the area of the remains, with a minimum radius of 50 feet, and the local County Coroner must be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact NAHC by phone within 24 hours of making that determination (Health and Safety Code section 7050[c]). Pursuant to the provisions of PRC section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods.	CDFW and/or Contractor	During construction	
GEO-CONSTRUCT-1a: Implement Construction Best Management Practices to Minimize Erosion and the Loss of Topsoil	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> • Implement practices to minimize the contact of construction materials, equipment, and maintenance supplies with storm water. • Limit fueling and other activities involving hazardous materials to use in designated areas only; provide drip pans under equipment and conduct daily checks of vehicle condition. • Implement wildlife-friendly practices to reduce erosion of 	Contractor	During construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>exposed soil, including stabilization for soil stockpiles, watering for dust control, establishment of perimeter silt fences, and/or placement of fiber rolls.</p> <ul style="list-style-type: none"> • Implement practices to maintain water quality, including silt fences, stabilized construction entrances, and storm-drain inlet protection. • Develop spill prevention and emergency response plans to handle potential fuel or other spills. • Where feasible, limit construction to dry periods. <p>The performance standard for this mitigation measures is use of the best available technology that is economically achievable.</p>			
GEO-CONSTRUCT-1b: Comply with Cal/OSHA Requirements for Excavation Slopes	<p>CDFW, DGS, or their contractor(s) shall ensure that temporary excavation slopes meet Cal/OSHA requirements, as appropriate. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the last applicable Cal/OSHA standards. Nearby utilities, structures, and other improvements shall be protected from potential damage by earth movements.</p>	DGS and/or Contractor	During design and/or construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
GEO-CONSTRUCT-1c: Design Cut-and-Fill Slopes to Minimize Erosion	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> Construction methods will incorporate appropriate erosion-prevention actions. This may include, but will not be limited to, reducing slope steepness as much as possible, re-vegetating slopes as appropriate, and directing surface drainage away from the tops of slopes. Actions shall be taken to compact fill soils uniformly. <p>The guidance from the Geocon 2012 Geotechnical Investigation Report (Geocon 2012) shall be used for erosion-prevention techniques, modified if necessary depending on actual field conditions.</p>	DGS and/or Contractor	During design and/or construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
GEO-CONSTRUCT-2a: Test Fill for Recommended Compaction and Moisture Content, and Apply Appropriate Measures to Reach Desired Content When Necessary	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> All earthwork operations should be observed by a qualified inspector who is a California licensed Professional Geologist and is also a California Certified Engineering Geologist. A test fill will be constructed to determine the suitability of fill material for use at the site. The results of the test fill will be used to determine the appropriate method for conditioning, placement and compaction of fill material necessary at the site to ensure stable foundation conditions are achieved. Within the existing effluent detention pond area, existing fill and loose alluvium should be removed down to competent granite bedrock. The removal should extend at least 5 feet laterally beyond the footprint of the proposed hatchery compound, including the parking area. <p>Over-excavation bottoms, areas to receive fill or areas left at-grade should be thoroughly scarified to a minimum depth of 8 inches, uniformly moisture-conditioned at or near optimum moisture content, and compacted to at least 90% relative compaction. Scarification in exposed, hard bedrock areas is not required.</p>	CDFW and/or Contractor	During construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
GEO-CONSTRUCT-2b: Ensure Fill Soils Contain Adequate Binder	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> • If fill soils consist of sand and gravel mixtures with silt or clay binder, these soils should be blended with other soils containing sufficient fines to provide adequate binder (usually 10–15% fines by dry weight). • If pond-bottom sediment is used, it should be dried and sufficiently blended with other soils such that the resulting fill does not contain organics in excess of 3% by dry weight. <p>Imported fill material should be primarily granular with a “very low” expansion potential (Expansion Index less than 20) and a Plasticity Index less than 15. Imported fill material should also contain sufficient binder and be free of organic material and construction debris; it should not contain rocks/cementations larger than 6 inches in their greatest dimension.</p>	CDFW and/or Contractor	During construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
GEO-CONSTRUCT-3: Accommodate Shallow Groundwater and Potential Perched Groundwater and Seepage throughout the Project Excavation Sites	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> • Drain the settling ponds several weeks prior to grading, and perform earthwork and grading operations during the summer, if possible. • Be prepared to accommodate potential perched groundwater and seepage in deeper project excavations, such as the pond removal excavations. Depending on the extent of perched groundwater at the time of grading, temporary dewatering measures, such as wellpoints or trench drains, may be required. Some form of subgrade stabilization may be necessary where wet, unstable soils are exposed. <p>Depending on conditions found at the time of construction, mitigation alternatives, such as over-excavation and replacement with gravel wrapped in geosynthetic fabric, may be necessary to provide a stable bottom.</p>	CDFW and/or Contractor	During construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
GEO-CONSTRUCT-4: Take Recommended Grading and Fill Actions to Maximize Foundation Stability	<p>CDFW, DGS, or their contractor(s) shall implement the following measures:</p> <ul style="list-style-type: none"> Foundation design will incorporate appropriate measures to maximize long-term stability. This may address, but will not be limited to, footings and reinforcement specifications, the use of aggregate base and compacted fill or native soils, and methods to permit drainage for areas below the design flood elevation. The Geocon 2012 Geotechnical Investigation Report (Geocon 2012) may be used as guidance, but final design and implementation will depend on actual field conditions, and modifications will be made as necessary. <p>A qualified geotechnical engineer will oversee onsite field investigations and approved final design.</p>	DGS, CDFW and/or Contractor	During design and construction	
HAZ-CONSTRUCT-3: Implement a Construction Management Plan to Minimize Interference with Emergency Response	<p>CDFW, DGS, or the construction contractor, in consultation with the County, will prepare and implement a Traffic Management Plan (TMP). CDFW will be responsible for ensuring that the plan is adequately developed and implemented. CDFW will provide the TMP to the Fresno County Public Works and Planning Department and Caltrans. The TMP will include recommended traffic-control and traffic-reduction measures as identified in the Transportation Management Plan Guidelines issued by the Division of Traffic Operations Office of System Management Operations (Caltrans 2009). CDFW will implement all traffic-control or traffic-reduction measures described in the TMP. In addition, to the extent feasible,</p>	CDFW, DGS, or Contractor	Before and during construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>construction-related traffic and any temporary road closures shall be scheduled during non-peak traffic periods.</p> <p>The measures included in the TMP shall be consistent with any applicable guidelines outlined in the Standard Specifications for Public Works Construction, the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices, and the Work Area Traffic Control Handbook. The plan will include the following items:</p> <ul style="list-style-type: none"> • Defined location and timing of any temporary lane closures; • Identification and provision for circumstances requiring the use of temporary traffic control measures, flag persons, warning signs, lights, barricades, and cones, etc. to provide safe work areas in the vicinity of the project site or along the haul routes, including for those roadway segments that have substandard width (less than 18 feet), and to warn, control, protect, and expedite vehicular and pedestrian traffic and access by emergency responders; • Implementation of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak-hour traffic, placement of detour signs (if required), lane closure procedures (if required), flaggers (if required), placement of cones for drivers, and designated construction access routes and access points; • Notification to adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane 			

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>closures will occur;</p> <ul style="list-style-type: none"> • Address the potential for construction-related traffic to impede emergency response vehicles and present a specific training and information program for construction workers to ensure awareness of emergency procedures from project-related accidents; • Identification of haul routes for movement of construction vehicles that will minimize impacts on vehicular and pedestrian traffic and circulation and safety, and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by CDFW and/or DGS in coordination with the construction contractor; • Development of a process for responding to and tracking complaints pertaining to construction activity, including identification of an onsite complaint manager; and <p>Documentation of road pavement conditions for all routes that would be used by construction vehicles both before and after project construction. Roads damaged by construction vehicles will be repaired to the level at which they existed before project construction.</p>			

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
HYD-CONSTRUCT-6: Perform Flood Analysis and Conform to Standards in Fresno County Code	Prior to finalizing the SCARF design, CDFW will conduct an analysis of pre- and post-project flood conditions in the SCARF area. The analysis will include an assessment of the potential change in velocity, floodplain storage and Base Flood Elevation (BFE) for the pre- and post-project conditions. If the analysis determines that the SCARF would significantly decrease floodplain storage or result in a significant increase in the BFE, velocity, or cause erosion, then measures will be designed and implemented to reduce these potential effects to an acceptable level. This could include bank stabilization measures at erosional locations, development of increased floodplain storage, redesign to avoid increases in the BFE, etc. As a performance standard, the design and construction shall conform to the standards contained in the most current version of Fresno County Code Chapter 15.48; such standards are considered by CDFW to reduce this impact to a less-than-significant level.	CDFW and DGS	During design	
REC-CONSTRUCT-1a: Reroute the Trail during Construction	CDFW will coordinate construction activities with the San Joaquin River Conservancy to minimize to the extent and duration of rerouting of the newly built San Joaquin Hatchery Public Access and Trail during construction of the SCARF.	CDFW	Before and during construction	
REC-CONSTRUCT-1b: Provide Signage during Construction	CDFW or its contractor shall provide signage during construction of the SCARF to notify those using the San Joaquin Hatchery Public Access and Trail of trail and access disruptions.	CDFW	During construction	

SCARF Construction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
REC-CONSTRUCT-1c: Rebuild the Trail if Damaged during Construction	If the San Joaquin Hatchery Public Access and Trail becomes damaged during construction of the SCARF, CDFW or its contractor shall re-construct damaged trail and public access points within 2 years of the damage.	CDFW or Contractor	Following construction	

SCARF Operations Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
AES-OP-2a: Permanent Exterior Lighting Shall Be Designed to Protect the Darkness of Nighttime Skies	CDFW shall ensure that permanent lighting utilizes lights that are low wattage, or incorporates appropriate shielding, and that lighting is directed away from sensitive uses and adjacent properties.	DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AES-OP-2b: SCARF Structures Shall Be Constructed to Avoid Surface Glare	To reduce glare, CDFW shall ensure that all structures are painted with non-glare surfacing or constructed of materials that do not produce glare.	DGS (if during design); DGS, CDFW and/or Contractor (if during construction)	During design or construction	
AQ-OP-3: Fish Disposal Limitations	<p>CDFW will implement at least one of the following measures to minimize the likelihood of potential odors from fish disposal activities affecting a substantial number of sensitive receptors:</p> <ul style="list-style-type: none"> Limit fish disposal locations to areas that are at least 1,000 feet from any potential sensitive receptors, including terrestrial recreationists such as hikers. <p>Implement disposal methods that ensure that fish carcasses are weighed down and disposed of within a stream channel instead of on a stream bank.</p>	CDFW	During operation	

SCARF Operations Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
GEO-OP-1: Conduct and Additional Investigation into the Flow Capacity of Impacted Channels and Implement the Investigation's Recommendations	<p>Due to the increased flow through the return flow outfall channel, CDFW, DGS, or their contractor(s) shall conduct an investigation into the capacity of the channel and its connection to the San Joaquin River to verify that the channel and connection point have the capacity to support potential increased flows. Similarly, the volitional release channel would require the same investigation. The geotechnical investigation would be conducted by a qualified hydrologist(s) or hydraulic engineer(s) (or team of such experts) and detailed in a technical report.</p> <p>If the geotechnical investigation results indicate that the flow capacities of the affected channels would not be sufficient to accommodate the Proposed Project's flows, recommended actions will be included in the report. CDFW will implement the report's recommended actions. Potential recommendations may include but not be limited to: expansion and/or reinforcement of the existing outfall and volitional release channels, a reduction of flow rates to a level that can be supported by the existing channels, and/or an investigation into and development of alternative channels to support peak flows. As a performance standard, in no case shall the return flows from the outfall or the volitional release channel cause channel instability or erosion and sedimentation downstream.</p>	CDFW, DGS and/or Contractor	During design and construction	

SCARF Operations Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
NOISE-OP-1: Implement Noise Control Measures to Reduce Noise Generated by Mechanical Equipment	To reduce potential noise impacts from mechanical equipment, CDFW shall locate mechanical rooftop equipment for HVAC and refrigeration units as far from residential homes as possible. If such functioning rooftop equipment were unavoidably as close as 150 feet to the nearest sensitive receptor, then equipment will be selected that features lower-speed rotating components (e.g., fans, pumps, compressors), factory-approved acoustically-insulated housings or enclosures, and other typical means of noise control or sound abatement so that its resulting sound pressure level at a distance of 150 feet does not exceed the Fresno County threshold of 45 dBA L50 as shown in Table 14-2 in the DEIR.	DGS	During design	

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SCARF Fish Reintroduction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
FISH-REINTRO-1: Determine Stream-specific Take Totals	CDFW will confer with USFWS and NMFS to determine stream-specific take totals that incorporate estimates of viable population size, life stage-specific survival, and the maintenance of genetic diversity of the donor stock populations. These take totals will be incorporated as specific permit conditions in a ESA section 10(a)(1)(A) permit, which must be issued prior to broodstock collection. At a minimum, the selected threshold(s) shall ensure that the adverse effects of broodstock collection will not be substantial in the context of the overall population of each spring-run donor stock.	CDFW	Prior to conducting wild spring-run broodstock collection	
BIO-REINTRO-3: Conduct Project-Level Assessment of Activity, and Implement Conservation Measures to Avoid, Minimize, or Mitigate Impacts	When project activities are defined to a level that impacts to biological resources can be evaluated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will assess the site to determine the potential for impacts to biological resources. At minimum, the assessment will include a CNDDDB search of the site vicinity (minimum 5-mile radius), and a site visit by a qualified botanist and wildlife biologist to evaluate the potential for special-status species and sensitive habitats to be impacted by the activity. If the biologists determine that special-status species or sensitive habitats may be affected by the activity, CDFW will implement the conservation measures listed in Appendix I, CDFW's Conservation Measures for Biological Resources that May Be Affected by Program-level Actions, for each species and habitat type that may be affected.	CDFW and/or Contractor	Before and during construction	
BIO-RECREATION-2: Preserve and Protect Special-Status Plant Populations in the Vicinity of Recreational	Prior to developing recreational enhancements, CDFW will implement the Mitigation Measure BIO-REINTRO-3 . If the qualified botanist identifies	CDFW and/or Contractor (and DGS, depending on the selected measures)	During design, construction, and operation	

SCARF Fish Reintroduction Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
Enhancement Areas	special-status plants species in the vicinity of the recreational enhancements, CDFW will implement measures to minimize potential impacts. Minimization measures may include constructing pathways, fencing, signage, and other strategies to reduce the potential for trampling or matting that will protect the viability of the local plant population and suitable habitat. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local population.			

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
AQ-MANAGEMENT-1: Prepare Project-Level Quantitative Analysis of Construction Related Air Quality Emissions, and Implement Measures to Cap Emissions	<p>As future individual project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will prepare a complete, quantitative project-level air quality analysis for that component.</p> <p>The quantitative construction air quality analyses will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. In addition, the analysis will be based on the projected quantity and frequency of vehicle and/or truck trips, and other activities that generate emissions. The analysis will determine whether the combined emissions of the quantified components' construction activities exceed the SJVAPCD's construction air quality thresholds (see the SJVAPCD thresholds presented in Table 5-5 of the DEIR). In addition, the analysis will evaluate whether the combined emissions from all project components constitute a significant health risk from diesel fueled equipment.</p> <p>If the analysis determines that construction emissions exceed the air quality significance thresholds, then CDFW will identify and implement appropriate mitigation. As a performance standard, the mitigation shall be sufficient to reduce construction emissions so that the Proposed Project's emissions are below the applicable significance</p>	CDFW	Prior to implementing a project component or taking actions that commit CDFW to implementing that component	

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>thresholds. Examples of appropriate mitigation may include, but not be limited to, SJVAPCD Regulation VIII, alternative fueled equipment, phasing of material hauling trips, use of chemical additives or after-market devices to reduce emissions on existing equipment, use of electrically powered equipment, reduction in total equipment hours, use of newer equipment models, adopting a vehicle idling policy requiring all vehicles to adhere to a 5 minute idling policy, and sourcing of material from local sources. Actual emissions efficiency for off-road equipment and motor vehicles will be at least as efficient as the most recent CARB fleet average for off-road equipment and motor vehicles for the current calendar year.</p> <p>In the event that the mitigation strategies (either those listed above or others developed to achieve the performance standard) are calculated to be insufficient to reduce construction emissions levels below significance thresholds, then CDFW will enter into a Voluntary Emission Reduction Agreement (VERA) with SJVAPCD. A VERA is a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds for the SJVAPCD's Emission Reduction Incentive Program (ERIP). The funds are disbursed by ERIP in the form of grants for projects that achieve emission reductions. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (e.g., agricultural irrigation pumps), replacing old heavy-duty trucks</p>			

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. The VERA will be used to offset the project's increase in emissions so that the Proposed Project would have no increase in construction emissions above the significance threshold.</p> <p>Similarly, if the air quality analysis indicates that the activities pose a significant health risk, then CDFW will identify mitigation measures, which, as a performance standard, will ensure health risks are at a less-than-significant level. Examples of appropriate mitigation may include, but not be limited to, use of alternative fueled equipment, use of aftermarket control devices such as diesel particulate filters, use of electrical equipment where possible, or reduction in number of hours of equipment use with a minimum reduction in diesel particulate matter of 85% compared to a Tier 2 engine or equivalent to 100 trucks per day based on CARB's Air Quality and Land Use Handbook.</p>			

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
FISH-MANAGEMENT-1: Implement Conservation Measures prior to and during Construction Activities	CDFW shall implement appropriate Conservation Measures from Appendix I, CDFW's Conservation Measures for Biological Resources that May Be Affected by Program-level Actions, prior to and during the construction of fish segregation weirs and barriers. Pre-construction planning shall include a site assessment by a qualified fisheries biologist to determine the potential for special-status species to occur in the vicinity. If the biologist determines that special-status aquatic species may be present, CDFW shall implement the applicable Appendix I avoidance and minimization measures for each species that may be present.	CDFW and/or Contractor	Before and during construction	
FISH-MANAGEMENT-5a: Monitor Fish Communities in the Vicinity of Segregation Weirs and Traps	If actions described in Impact FISH-MANAGEMENT-5 are used in the Restoration Area, CDFW shall assess the species composition of fish communities within the 500-foot reach both upstream and downstream of each segregation weir or trap, during the time of year that the weir(s) or trap is in place. The monitoring activities shall focus on large bodied special-status fish species such as green sturgeon and steelhead. Monitoring techniques may include the use of visual surveys, rod and reel angling, set lines, fyke nets, DIDSON™, or seines.	CDFW	During operation	

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
FISH-MANAGEMENT-5b: Develop and Implement Measures that Allow Special-Status Large Bodied Fishes to Bypass Weirs and Traps	If as a result of Mitigation Measure FISH-MANAGEMENT-5a or through other means, CDFW identifies that, outside of the current seasonal operation of the HFB (September to mid-December), the migration of special-status large bodied fishes could be impeded by the operation of the weir(s) or trap and haul activities, then CDFW shall modify the operation of the weir or implement measures that allow fish to bypass the weir so that movement of large bodied special-status fish species such as green sturgeon and steelhead is not impeded. Such measures may include removal or relocation of the weir(s), or operating a trap(s) to allow for manual selection of fish passing across the barrier.	CDFW and/or Contractor	During operation	

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
FISH-MANAGEMENT-8a: Check Traps Daily and Minimize Handling of Fish	To reduce stress on captured fish, all trapping devices will be checked at least once per day. Untargeted wildlife (e.g., snakes, turtles) caught in traps will be released into suitable habitat for the species. Traps will be checked more frequently during times when conditions are stressful (e.g., high temperatures, large amounts of debris during high flow events) to reduce the time that fish are subject to trap-related stress. Fish will be carefully handled and given sufficient time to recover (at least 30 minutes) prior to being released back into the river. If rotary screw traps are used, they will be operated in accordance with the USFWS "Draft Rotary Screw Trap Protocol for Estimating Production of Juvenile Chinook Salmon" (USFWS 2008) and/or similar protocols which are at least as protective and developed after conferring with USFWS and, if required, NMFS.	CDFW	During operation	
FISH-MANAGEMENT-8b: Adaptively Manage Trap Operations	If mortalities greater than 2 fish or 2% of total catch are observed in a given day due to high debris loads, traps will be removed or raised out of the water until conditions are suitable for survival of fish (i.e., reduced winds or streamflow, improved water conditions). For rotary screw traps, if predation causes such mortality, a structural refuge will be installed inside the trap to reduce predation. This will consist of a perforated plastic box or similar refuge for small fish within the rotary screw trap to prevent predation by larger fish captured in the trap.	CDFW	During operation	
GEO-MANAGEMENT-1a:	Project activities will be done in	Contractor	During construction	

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
Stabilize Soils to Avoid Increasing Erosion on Streambanks	such a manner as to not increase erosion within the banks of the river during or immediately following rainfall events. All disturbed soils at project activity sites will be stabilized to reduce erosion potential, both during and following installation of equipment (e.g., weirs, fyke nets, traps, etc.). After removal of such equipment, soils shall be stabilized and recontoured, as necessary.			
GEO-MANAGEMENT-1b: Use Energy Dissipaters to Minimize Turbidity at the Point of Discharge	Water deposited back into the river following Chinook salmon transport shall be done at a rate to minimize water turbidity and erosion. As necessary at each site, temporary energy dissipaters such as rip rap shall be placed at the point of discharge to moderate the return of water to the channel.	CDFW	During operation	
GHG-MANAGEMENT-1: Prepare Project-Level Quantitative Analysis of Construction-Related GHG Emissions, and Implement Measures to Reduce and/or Offset Emissions	<p>As future individual Proposed Project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will prepare a complete, quantitative project-level GHG emissions analysis for that component.</p> <p>The GHG emissions analysis will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. The analysis will determine whether the combined emissions of the various quantified components' construction activities exceed the construction thresholds (230 metric tons CO₂e/year</p>	CDFW and/or Contractor	Prior to implementing a project component or taking actions that commit CDFW to implementing that component	

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>amortized or district approved BPS).</p> <p>If the analysis determines that construction emissions will exceed the construction thresholds, CDFW will first implement all feasible, applicable GHG emission reduction measures and propose these as BPS for the project, up to a 29% reduction from a defined business-as-usual baseline or 1,100 metric tons CO₂e per year. Potential GHG emission reduction measures to be considered include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Utilize alternative fueled vehicles such as electric or biodiesel for equipment and vehicles. • Utilize newer, more fuel efficient equipment and vehicles for construction. • Increase employee vanpool share (2% of vanpool mode share). • Utilize locally sourced material. <p>In the event that the mitigation measures are insufficient to reduce construction emissions to be equal to or less than the significance thresholds, then CDFW shall purchase sufficient GHG emission credits to offset the Proposed Project's construction net increase in emissions above the thresholds. These may include GHG credits that have been banked under SJVAPCD Rule 2301 or other GHG credits that are considered acceptable by SJVAPCD.</p>			

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
HAZ-MANAGEMENT-3: Prepare Project-Level Quantitative Analysis of Site-specific Current and Historical Hazardous Materials, Implement Recommendations in the Phase I Environmental Site Assessment, and Comply with all Applicable Regulations	CDFW will implement the following measures to assess and minimize potential hazards on sites selected for the construction or removal of fish segregation weirs. CDFW will have a qualified expert perform a Phase 1 Environmental Site Assessment and hazardous-site records search for the Proposed Project sites. This process will include the identification of potential hazards within the project sites and identification of nearby sensitive receptors. The assessment will determine whether hazards and hazardous materials are present and, if so, their potential impact on workers and nearby sensitive receptors. The analysis will also include recommendations to reduce potential risks from identified hazards and hazardous materials. CDFW will implement recommendations provided in the Phase 1 Environmental Site Assessment and comply with all applicable regulations. Compliance with these regulations will include preparation of a hazardous materials business plan, which would include a training program for employees and an emergency plan (Cal EMA 2012). CDFW will implement applicable provisions of the EPA, OSHA, Cal/OSHA, Cal/EPA, Cal EMA, and CUPA permitting processes, and any applicable county general plan policies. Should the site have unmitigatable hazardous conditions, or mitigation is not feasible, CDFW shall choose an alternate site.	CDFW, DGS, and/or Contractor	Before construction	

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
LU-MANAGEMENT 1: Ensure Consistency of Land Use	As part of the design for removal or relocation of the two fish weirs, DGS, CDFW or the contractor shall investigate land uses at and adjacent to potential sites, along with relevant plans, policies and regulations. The weirs, fish traps and other equipment shall not be sited in locations that create land use incompatibilities.	CDFW and/or Contractor	During design	
NOISE-MANAGEMENT-1: Implement Noise Control Measures for Construction Activities	<p>Before engaging in noise-generating activity associated with the construction of weirs, structural modification of the Hill's Ferry Barrier, or other construction activity, CDFW will evaluate how close sensitive receptors are located to the construction site, and whether the construction activity would exceed applicable noise thresholds. This evaluation will utilize the same FTA-based general assessment methodology that was used to predict the noise that would be generated during SCARF construction. Should the noise levels be anticipated to exceed the threshold for any sensitive receptors, CDFW will implement specific noise control measures to mitigate impacts associated with construction. These measures may include but are not limited to the following:</p> <ul style="list-style-type: none"> a. Best available noise control techniques (including factory-approved mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks to minimize construction noise impacts. b. If impact equipment (e.g., concrete/rock breaker, rock drill) is used during project 	CDFW and Contractor	Before and during construction	

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>construction, hydraulic- or electric-powered equipment will be used to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used (a muffler can lower noise levels from the exhaust by up to 10 dBA). External jackets on the tools themselves will be used, which could achieve a reduction of 5 dBA. Where considered practical, quieter procedure alternatives, such as drilling or vibratory methods, will be used instead of impact equipment.</p> <p>c. Stationary noise sources will be located away from sensitive receptors. If the sources must be located near sensitive receptors, adequate sound abatement (with enclosures and mufflers, where appropriate) will be used to ensure performance standards are met. Enclosure openings or vents will face away from sensitive receptors. If any stationary equipment (e.g., pumps, ventilation fans, generators) is operated beyond the ordinance time limits, this equipment will conform to the affected jurisdiction's noise limits.</p> <p>In addition, CDFW will designate a project liaison to be responsible for responding to noise complaints during construction. The name and phone number of the liaison will be conspicuously posted at construction areas and on all advanced notifications. The</p>			

SCARF Fisheries Management Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	liaison will take steps to resolve complaints, including the arrangement of periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generate excessive noise levels.			

SCARF Fisheries Research and Monitoring Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
FISH-MONITORING-2a: Implement Standard Protocols for Active Sampling of Aquatic Species	When conducting active sampling, CDFW shall adhere to fish handling procedures prescribed in Guidelines for the Use of Fishes in Research (Nickum <i>et al.</i> 2004), or any more current protocols which are considered at least as protective.	CDFW	During operation	
FISH-MONITORING-2b: Use Passive Sampling Techniques in place of Active Sampling Techniques, When Appropriate	To reduce impacts associated with active instream monitoring activity such as electrofishing, seining, and use of jet or propeller motor boats by investigators, the use of passive capture equipment will be used in place of active sampling whenever appropriate and feasible. Passive sampling equipment includes entanglement gear such as gill nets and trammel nets, and entrapment gear such as fyke nets and rotary screw traps.	CDFW	During operation	
FISH-MONITORING-2c: Use Observational Techniques in place of Traditional Capture Techniques, When Appropriate	Wherever possible and appropriate, observational techniques will be used in place of capture techniques to reduce the need to handle organisms.	CDFW	During operation	

SCARF Fisheries Research and Monitoring Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
FISH-MONITORING-2d: Check Rotary Screw Traps Daily	Rotary screw traps will be operated in accordance with the USFWS "Draft Rotary Screw Trap Protocol for Estimating Production of Juvenile Chinook Salmon" (USFWS 2008) and/or similar protocols which are at least as protective and developed after conferring with USFWS and, if required, NMFS. USFWS (2008) includes several measures, as follows. To reduce stress on captured fish, all trapping devices will be checked at least once per day when in the fishing position. Untargeted wildlife (e.g., snakes, turtles) caught in traps will be released into suitable habitat for the species. Traps will be checked more frequently during times when conditions are stressful (e.g., high temperatures, large amounts of debris during high flow events) to reduce the time that fish are subject to trap-related stress. Fish may need to be anesthetized, which would be done using methods acceptable to USFWS and NMFS before they are handled and given sufficient time to recover (at least 30 minutes) prior to being released back into the river.	CDFW	During operation	
FISH-MONITORING-2e: Adaptively Manage Trap Operations	If mortalities greater than two fish or 2% of total catch are observed in a given day due to high debris loads, traps will be raised out of the water until conditions are suitable for survival of fish (i.e., reduced winds or streamflow, improved weather conditions). If predation causes such mortality, a structural refuge will be installed inside the trap to reduce predation. This will consist of a perforated plastic box or similar refuge for small fish within the rotary screw trap to prevent predation by larger fish captured in the trap.	CDFW	During operation	

SCARF Recreation Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
AQ-MANAGEMENT-1: Prepare Project-Level Quantitative Analysis of Construction Related Air Quality Emissions, and Implement Measures to Cap Emissions	<p>As future individual project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will prepare a complete, quantitative project-level air quality analysis for that component.</p> <p>The quantitative construction air quality analyses will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. In addition, the analysis will be based on the projected quantity and frequency of vehicle and/or truck trips, and other activities that generate emissions. The analysis will determine whether the combined emissions of the quantified components' construction activities exceed the SJVAPCD's construction air quality thresholds (see the SJVAPCD thresholds presented in Table 5-5 of the DEIR). In addition, the analysis will evaluate whether the combined emissions from all project components constitute a significant health risk from diesel fueled equipment.</p> <p>If the analysis determines that construction emissions exceed the air quality significance thresholds, then CDFW will identify and implement appropriate mitigation. As a performance standard, the mitigation shall be sufficient to reduce construction emissions so that the Proposed Project's emissions are below the applicable significance thresholds. Examples of appropriate mitigation may include, but not be limited to, SJVAPCD Regulation</p>	CDFW	Prior to implementing a project component or taking actions that commit CDFW to implementing that component	

SCARF Recreation Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>VIII, alternative fueled equipment, phasing of material hauling trips, use of chemical additives or after-market devices to reduce emissions on existing equipment, use of electrically powered equipment, reduction in total equipment hours, use of newer equipment models, adopting a vehicle idling policy requiring all vehicles to adhere to a 5 minute idling policy, and sourcing of material from local sources. Actual emissions efficiency for off-road equipment and motor vehicles will be at least as efficient as the most recent CARB fleet average for off-road equipment and motor vehicles for the current calendar year.</p> <p>In the event that the mitigation strategies (either those listed above or others developed to achieve the performance standard) are calculated to be insufficient to reduce construction emissions levels below significance thresholds, then CDFW will enter into a Voluntary Emission Reduction Agreement (VERA) with SJVAPCD. A VERA is a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds for the SJVAPCD's Emission Reduction Incentive Program (ERIP). The funds are disbursed by ERIP in the form of grants for projects that achieve emission reductions. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (e.g., agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. The VERA will be used to offset the project's increase in emissions so that the</p>			

SCARF Recreation Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>Proposed Project would have no increase in construction emissions above the significance threshold.</p> <p>Similarly, if the air quality analysis indicates that the activities pose a significant health risk, then CDFW will identify mitigation measures, which, as a performance standard, will ensure health risks are at a less-than-significant level. Examples of appropriate mitigation may include, but not be limited to, use of alternative fueled equipment, use of aftermarket control devices such as diesel particulate filters, use of electrical equipment where possible, or reduction in number of hours of equipment use with a minimum reduction in diesel particulate matter of 85% compared to a Tier 2 engine or equivalent to 100 trucks per day based on CARB's Air Quality and Land Use Handbook.</p>			
FISH-RECREATION-1: Implement Conservation Measures prior to and during Construction of Recreational Enhancements	CDFW shall implement appropriate conservation measures from Appendix I, CDFW's Conservation Measures for Biological Resources that May Be Affected by Program-level Actions, prior to and during the construction of recreational fishing enhancements. Pre-construction planning shall include a site assessment by a qualified fisheries wildlife biologist to determine the potential for special-status species to occur in the vicinity. If the biologists determine that special-status species may be present, CDFW shall implement the applicable Appendix I avoidance and minimization measures for each species that may be present.	CDFW and/or Contractor	Before and during construction	
BIO-RECREATION-2:	Prior to developing recreational	CDFW and/or	During design,	

SCARF Recreation Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
Preserve and Protect Special-Status Plant Populations in the Vicinity of Recreational Enhancement Areas	enhancements, CDFW will implement the Mitigation Measure BIO-REINTRO-3 . If the qualified botanist identifies special-status plants species in the vicinity of the recreational enhancements, CDFW will implement measures to minimize potential impacts. Minimization measures may include constructing pathways, fencing, signage, and other strategies to reduce the potential for trampling or matting that will protect the viability of the local plant population and suitable habitat. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be no net reduction in the size or viability of the local population.	Contractor (and DGS, depending on the selected measures)	construction, and operation	

SCARF Recreation Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
GEO-RECREATION-1: Conduct a Geotechnical Investigation and Incorporate Report Recommendations into the Design and Construction of any Future Recreation Management Roads or Facilities	<p>A geotechnical investigation must be conducted by a qualified geotechnical engineer (or team of geotechnical engineers) to evaluate subsurface soil and geologic conditions at future sites of recreation management roads and facilities. The investigation report should provide conclusions and recommendations relative to the geotechnical aspects of designing and constructing the recreation management roads and facilities, which are yet to be determined. Recommendations should address site and geologic conditions, including soil, groundwater, and corrosion. They should also address geologic hazards, such as regional active faults, ground shaking, liquefaction, and flooding. The report should provide seismic design criteria; excavation and cut-and-fill characteristics; criteria for foundations, retaining walls, and pavement; and any other design criteria appropriate for the Proposed Project such that the facilities remain stable.</p> <p>The proposed recreation management activities will incorporate all recommendations put forth by the Geotechnical Investigation Report into the design and construction of the Proposed Project.</p>	CDFW and/or Contractor	During design, before construction	
GHG-MANAGEMENT-1: Prepare Project-Level Quantitative Analysis of Construction-Related GHG Emissions, and Implement Measures to Reduce and/or Offset Emissions	As future individual Proposed Project components are further defined to a level that construction emissions can be estimated, and prior to implementing that component or taking actions that commit CDFW to implementing that component, CDFW will prepare a complete, quantitative project-level GHG emissions analysis for that	CDFW and/or Contractor	Prior to implementing a project component or taking actions that commit CDFW to implementing that component	

SCARF Recreation Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	<p>component.</p> <p>The GHG emissions analysis will be based on the types, locations, numbers, and operations of equipment to be used; the amount and distance of material to be transported; and worker trips required. The analysis will determine whether the combined emissions of the various quantified components' construction activities exceed the construction thresholds (230 metric tons CO₂e/year amortized or district approved BPS).</p> <p>If the analysis determines that construction emissions will exceed the construction thresholds, CDFW will first implement all feasible, applicable GHG emission reduction measures and propose these as BPS for the project, up to a 29% reduction from a defined business-as-usual baseline or 1,100 metric tons CO₂e per year. Potential GHG emission reduction measures to be considered include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Utilize alternative fueled vehicles such as electric or biodiesel for equipment and vehicles. • Utilize newer, more fuel efficient equipment and vehicles for construction. • Increase employee vanpool share (2% of vanpool mode share). • Utilize locally sourced material. <p>In the event that the mitigation measures are insufficient to reduce construction emissions to be equal to or less than the</p>			

SCARF Recreation Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	significance thresholds, then CDFW shall purchase sufficient GHG emission credits to offset the Proposed Project's construction net increase in emissions above the thresholds. These may include GHG credits that have been banked under SJVAPCD Rule 2301 or other GHG credits that are considered acceptable by SJVAPCD.			
HAZ-RECREATION-3: Research and Consult Applicable Comprehensive Airport Land Use Plans before Construction Activities	<p>As stated in the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15154, CDFW shall ensure that the design and construction will comply with all applicable comprehensive airport land use plans within which boundaries the Project falls.</p> <p>If a comprehensive airport land use plan has not been adopted for a project within 2 nautical miles of a public airport or public-use airport, the Airport Land Use Planning Handbook published by the California Department of Transportation's Division of Aeronautics (Caltrans 2011) will serve as the guide for the design and construction of the Proposed Project with regard to potential airport-related safety hazards and noise problems.</p>	CDFW	During design	
LU-RECREATION-2: Avoid Locations with Land Use Conflicts	As part of the selection of recreational enhancement sites, CDFW shall investigate land uses at and adjacent to potential sites, along with relevant plans, policies and regulations. CDFW will choose locations for enhancement of recreational fishing that would not conflict with existing or planned land uses and/or local land use policies.	CDFW and/or Contractor	During design	

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EXHIBIT D – SAN JOAQUIN RIVER RESTORATION PROGRAM

CALIFORNIA STATE LANDS COMMISSION STATEMENT OF FINDINGS

1.0 INTRODUCTION

The California State Lands Commission (CSLC), acting as a responsible agency under the California Environmental Quality Act (CEQA), makes these findings to comply with CEQA as part of its discretionary approval to authorize issuance of a General Lease – Public Agency Use, to the California Department of Fish and Wildlife (CDFW), for use of sovereign lands associated with the proposed construction of the Salmon Conservation and Research Facility's (SCARF) volitional release pipeline and the use and maintenance of an existing 42-inch storm drain outfall as part of the San Joaquin River Restoration Program (Project). (See generally Pub. Resources Code, § 21069; State CEQA Guidelines, § 15381.)¹ The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions. (Pub. Resources Code, §§ 6301, 6306.) All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

The CSLC is a responsible agency under CEQA for the Project because the CSLC must approve a lease for the Project to go forward and because the CDFW, as the CEQA lead agency, has the principal responsibility for approving the Project and has completed its environmental review under CEQA. The CDFW analyzed the environmental impacts associated with the Project in a Final Environmental Impact Report (EIR) (State Clearinghouse [SCH] No. 2012111083) and, in June 2014, certified the EIR and adopted a Mitigation Monitoring and Reporting Program (MMRP), Findings, and a Statement of Overriding Considerations and approved the Project.

Although the San Joaquin River Restoration Program includes a number of projects that may occur within the CSLC's jurisdiction, the only aspects of the San Joaquin River Restoration Program under consideration by the CSLC at this time are the use and maintenance of an existing 42-inch storm drain outfall and the construction, use and maintenance of a volitional release pipeline as part of construction of the SCARF. The volitional release pipeline is a pipeline which allows juvenile salmon to leave the SCARF aquaculture tanks and enter the San Joaquin River at their own will. Construction of the SCARF, and volitional release pipeline, and use of the existing storm drain outfall were analyzed at a Project level in the CDFW's EIR for the San Joaquin River Restoration Program. In the EIR, CDFW considered constructing a volitional release channel, rather than a volitional release pipeline. CDFW decided to change the volitional release

¹ CEQA is codified in Public Resources Code section 21000 et seq. The State CEQA Guidelines are found in California Code of Regulations, Title 14, section 15000 et seq.

channel to a buried pipeline in the same location. Since the buried pipeline is in the same location on the same alignment as the originally-proposed channel, constructing and using a pipeline, rather than a channel would create the same impacts on the environment.

The CDFW determined that the Project could have significant environmental effects on the following environmental resources:

- Aesthetics;
- Air Quality;
- Biological Resources – Fisheries;
- Biological Resources – Vegetation and Wildlife;
- Cultural Resources;
- Geology, Soils, and Seismicity;
- Greenhouse Gas Emissions;
- Hazards and Hazardous Materials;
- Hydrology, Geomorphology, and Water Quality;
- Land Use and Planning;
- Noise;
- Recreation; and
- Traffic and Transportation.

Of the 13 resources areas noted above, Project components within the CSLC's jurisdiction (i.e., construction, operation, and maintenance of a volitional release pipeline, and operation of an existing stormwater outfall) could have significant environmental effects on five of the resource areas, as follows:

- Biological Resources – Fisheries;
- Biological Resources – Vegetation and Wildlife;
- Cultural Resources;
- Geology, Soils, and Seismicity; and
- Hydrology, Geomorphology, and Water Quality.

In certifying the Final EIR and approving the Project, the CDFW imposed various mitigation measures for Project-related significant effects on the environment as conditions of Project approval and concluded that Project-related impacts would be substantially lessened with implementation of these mitigation measures such that the impacts would be less than significant for most resource areas.

However, even with the integration of all feasible mitigation, the CDFW concluded in the EIR that some of the identified impacts would remain significant. As a result, the CDFW adopted a Statement of Overriding Considerations to support its approval of the Project despite the significant and unavoidable impacts (Attachment D-1). The CDFW determined that, after mitigation, the Project may still have significant impacts on Biological Resources – Fisheries and Greenhouse Gas Emissions, because of impact of wild broodstock collection of Chinook salmon, the spread an aquatic invasive species through recreational fishing enhancements, and greenhouse gas emissions from

construction of fish segregation weirs. These significant impacts, however, are not caused by Project components under consideration by the CSLC, and a Statement of Overriding Considerations is not required by the CSLC for this approval.

As a responsible agency, the CSLC complies with CEQA by considering the EIR and reaching its own conclusions on whether, how, and with what conditions to approve a project. In doing so, the CSLC may require changes in a project to lessen or avoid the effects, either direct or indirect, of that part of the project which the CSLC will be called on to carry out or approve. In order to ensure the identified mitigation measures and/or Project revisions are implemented, the CSLC adopts the Mitigation Monitoring Program (MMP) as set forth in Exhibit C as part of its Project approval.

2.0 FINDINGS

The CSLC's role as a responsible agency affects the scope of, but not the obligation to adopt, findings required by CEQA. Findings are required under CEQA by each "public agency" that approves a project for which an EIR has been certified that identifies one or more significant impacts on the environment (Pub. Resources Code, § 21081, subd. (a); State CEQA Guidelines, § 15091, subd. (a).) Because the EIR certified by the CDFW for the Project identifies potentially significant impacts that fall within the scope of the CSLC's approval, the CSLC makes the Findings set forth below as a responsible agency under CEQA. (State CEQA Guidelines, § 15096, subd. (h); *Resource Defense Fund v. Local Agency Formation Comm. of Santa Cruz County* (1987) 191 Cal.App.3d 886, 896-898.)

While the CSLC must consider the environmental impacts of the Project as set forth in the EIR, the CSLC's obligation to mitigate or avoid the direct or indirect environmental impacts of the Project is limited to those parts which it decides to carry out, finance, or approve (Pub. Resources Code, § 21002.1, subd. (d); State CEQA Guidelines, §§ 15041, subd. (b), 15096, subds. (f)-(g).) Accordingly, because the CSLC's exercise of discretion involves only issuing a General Lease – Public Agency Use for this Project, the CSLC is responsible for considering only the environmental impacts related to lands or resources subject to the CSLC's jurisdiction. With respect to all other impacts associated with implementation of the Project, the CSLC is bound by the legal presumption that the EIR fully complies with CEQA.

The CSLC has reviewed and considered the information contained in the Project EIR and information provided on the Project changes. All significant adverse impacts of the Project identified in the EIR relating to the CSLC's approval of a General Lease – Public Agency Use, which would allow the operation of an existing stormwater outfall and the construction and operation of a volitional release pipeline are included herein and organized according to the resource affected.

These Findings, which reflect the independent judgment of the CSLC, are intended to comply with CEQA's mandate that no public agency shall approve or carry out a project for which an EIR has been certified that identifies one or more significant environmental

effects unless the agency makes written findings for each of those significant effects. Possible findings on each significant effect are:

- (1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
- (2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the CSLC. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
- (3) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Final EIR.²

A discussion of supporting facts follows each Finding.

- Whenever Finding (1) occurs, the mitigation measures that lessen the significant environmental impact are identified in the facts supporting the Finding.
- Whenever Finding (2) occurs, the agencies with jurisdiction are specified. These agencies, within their respective spheres of influence, have the responsibility to adopt, implement, and enforce the mitigation discussed.

These Findings are based on the information contained in the EIR and information submitted by the Applicant, all of which is contained in the administrative record. The mitigation measures are briefly described in these Findings; more detail on the mitigation measures is included in the Final EIR.

The CSLC is the custodian of the record of proceedings upon which its decision is based. The location of the CSLC's record of proceedings is in the Sacramento office of the CSLC, 100 Howe Avenue, Suite 100-South, Sacramento, CA 95825.

A. SUMMARY OF FINDINGS

Based on public scoping, the proposed Project will have No Impact on the following environmental issue areas:

- Agricultural Resources
- Mineral Resources
- Population and Housing
- Public Services

The EIR subsequently identified the following impact as Less Than Significant:

- Utilities and Service Systems

² See Public Resources Code section 21081, subdivision (a) and State CEQA Guidelines section 15091, subdivision (a).

For the remaining potentially significant effects, the Findings are organized by significant impacts within the EIR issue areas as presented below.

B. IMPACTS REDUCED TO LESS THAN SIGNIFICANT LEVELS WITH MITIGATION

The impacts identified below were determined in the Final EIR to be potentially significant absent mitigation; after application of mitigation, however, the impacts were determined to be less than significant. For the full text of each mitigation measure (MM), please refer to Exhibit C, Attachment C-1.

1. Biological Resources – Fisheries	FISH-CONSTRUCT-1, FISH-CONSTRUCT-2, FISH-CONSTRUCT-3, FISH-CONSTRUCT-4
2. Biological Resources – Vegetation and Wildlife	BIO-CONSTRUCT-11
3. Cultural Resources	CR-CONSTRUCT-1, CR-CONSTRUCT-3
4. Geology, Soils and Seismicity	GEO-OP-1
5. Hydrology, Geomorphology, and Water Quality	HYD-CONSTRUCT-3

1. BIOLOGICAL RESOURCES – FISHERIES

CEQA FINDING NO. FISH-CONSTRUCT-1

Impact: **Impact FISH-CONSTRUCT-1.** Sedimentation and Turbidity in the San Joaquin River from Construction-Related Erosion, Which Could Adversely Impact Fish and Their Habitat.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project have the potential to result in sedimentation and turbidity from construction-related erosion, which could adversely impact fish and their habitat. Ground-disturbing activities, such as excavation and vegetation removal, can result in exposed soils susceptible to erosion. Construction of the volitional release pipeline has the potential to erode soil and increase sedimentation and turbidity in the San Joaquin River adjacent to and downstream of the site. Temporary spikes in suspended sediment may result in behavioral avoidance of the site by fish.

Implementation of MM GEO-CONSTRUCT-1a has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM GEO-CONSTRUCT-1a: Implement Construction Best Management

Practices to Minimize Erosion and the Loss of Topsoil. The CDFW, DGS, or their contractor(s) shall implement measures to reduce stormwater contamination including:

- Implement practices to minimize the contact of construction materials, equipment, and maintenance supplies with storm water.
- Limit fueling and other activities involving hazardous materials to use in designated areas only; provide drip pans under equipment and conduct daily checks of vehicle condition.
- Implement wildlife-friendly practices to reduce erosion of exposed soil, including stabilization for soil stockpiles, watering for dust control, establishment of perimeter silt fences, and/or placement of fiber rolls.
- Implement practices to maintain water quality, including silt fences, stabilized construction entrances, and storm-drain inlet protection.
- Develop spill prevention and emergency response plans to handle potential fuel or other spills.
- Where feasible, limit construction to dry periods.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

CEQA FINDING NO. FISH-CONSTRUCT-2

Impact: **Impact FISH-CONSTRUCT-2.** Release of construction-related hazardous materials, chemicals, and waste into the San Joaquin River.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project have the potential to result in hazardous materials entering the San Joaquin River during construction of the volitional release pipeline. Construction equipment may be sources of hazardous materials, such as fuels, lubricating oil, grease, and/or hydraulic fluid. These hazardous materials could enter the San Joaquin River and harm aquatic organisms and habitats either through a direct spill into the river or due to spills occurring on land being washed into the river by storm runoff.

Implementation of MM GEO-CONSTRUCT-1a has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM GEO-CONSTRUCT-1a: Implement Construction Best Management Practices to Minimize Erosion and the Loss of Topsoil. (see CEQA Finding number FISH-CONSTRUCT-1 above).

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

CEQA FINDING NO. FISH-CONSTRUCT-3

Impact: **Impact FISH-CONSTRUCT-3.** Implementation of the Proposed Project could result in potentially significant alterations of riparian or instream fish habitat from volitional release pipeline construction.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project have the potential to result in loss of riparian and aquatic vegetation due to construction of the volitional release pipeline in or near the secondary channel of the San Joaquin River. Loss of riparian vegetation may result in increased water temperatures, reduced instream habitat availability, increased predation, and reduced prey availability. Construction activities related to the SCARF, including the volitional release pipeline would temporarily disturb approximately 11,000 square feet of riparian habitat and would result in a permanent loss of approximately 5,000 square feet of riparian habitat.

Implementation of MMs BIO-CONSTRUCT-11a and BIO-CONSTRUCT-11b has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM BIO-CONSTRUCT-11a: Minimize Area of Disturbance of Riparian Habitat.

The disturbance or removal of vegetation will not exceed the minimum necessary to complete construction and will only occur within the defined work area.

MM BIO-CONSTRUCT-11b: Develop and Implement Revegetation Plan for

Riparian Habitat Disturbed by Construction. The CDFW will develop a revegetation plan for riparian habitat and sensitive natural communities disturbed by construction. All disturbed soils and new fill in riparian habitat or sensitive natural communities will be revegetated with site-appropriate native species.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

CEQA FINDING NO. FISH-CONSTRUCT-4

Impact: **Impact FISH-CONSTRUCT-4.** Implementation of the Project could alter the behavior or cause physical harm to special-status fish species during construction.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project, including instream and streambank construction of the volitional release pipeline, have the potential to result in altered behavior or physical harm to special-status fish species. Instream and streambank construction could impact special-status fish such as Kern brook lamprey ammoeetes (juveniles) and juvenile salmonids, if they are present in the secondary channel during construction. Construction effects include noise and hydrostatic pressure waves associated with equipment during instream construction. These pressure waves may have adverse physiological effects on fish, including damage to internal organs, over relatively long distances (Washington et al. 1992).

Implementation of MMs FISH-CONSTRUCT-4a and FISH-CONSTRUCT-4b has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM FISH-CONSTRUCT-4a: Relocate Special-Status Fish Species Outside of the Work Area. Prior to commencing instream construction, a barrier will be constructed around the affected area and qualified fisheries biologists shall survey the enclosure by making a minimum of three passes by electrofishing, using protocols developed by NMFS (2000). All fish captured, including special-status species, will be relocated to a suitable location near the construction area.

MM FISH-CONSTRUCT-4b: Monitor and Maintain Fish Enclosure. The fish exclusion structure will remain in place during all instream construction activities and will be monitored daily during instream construction to ensure that it is effectively excluding fish.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

2. BIOLOGICAL RESOURCES – VEGETATION AND WILDLIFE

CEQA FINDING NO. BIO-CONSTRUCT-11

Impact: **Impact BIO-CONSTRUCT-11.** Implementation of the Project could significantly impact riparian habitat.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project have the potential to result in impacts to riparian habitat. The majority of SCARF construction would occur on disturbed and previously developed land. However, portions of the SCARF would be constructed in riparian habitat, which the CDFW has identified as a sensitive natural community. Riparian habitat that would be impacted by construction is classified as black willow thickets. Impacts to riparian habitat would occur during construction of the volitional release pipeline. Construction activities would temporarily disturb approximately 11,000 square feet of riparian habitat during clearing and grubbing for access and would result in a permanent loss of approximately 5,000 square feet of riparian habitat for construction of the SCARF, including the volitional release pipeline.

Implementation of MMs BIO-CONSTRUCT-11a and BIO-CONSTRUCT-11b has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM BIO-CONSTRUCT-11a: Minimize Area of Disturbance of Riparian Habitat.

The disturbance or removal of vegetation will not exceed the minimum necessary to complete construction and will only occur within the defined work area.

MM BIO-CONSTRUCT-11b: Develop and Implement Revegetation Plan for Riparian Habitat Disturbed by Construction. The CDFW will develop a revegetation plan for riparian habitat and sensitive natural communities disturbed by construction. All disturbed soils and new fill in riparian habitat or sensitive natural communities will be revegetated with site-appropriate native species.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

3. CULTURAL RESOURCES

CEQA FINDING NO. CR-CONSTRUCT-1

Impact: **Impact CR-CONSTRUCT-1.** A substantial adverse impact on archaeological resources from Project construction

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project have the potential to result in accidental excavation of archeological resources or historical resources. Trenching for the volitional release pipeline could potentially uncover buried archaeological deposits. Prehistoric materials most likely would include obsidian and chert flaked-stone tools, tool making debris, or milling equipment such as mortars and pestles. Historic-era materials may include structural remains associated with the Grant Rock and Gravel Company, agricultural implements, stone or concrete footings and walls, deposits of metal, glass and/or ceramic refuse.

Implementation of MM CR-CONSTRUCT-1b has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM CR-CONSTRUCT-1b: Immediately Halt Construction if Cultural Resources are Discovered. Not all cultural resources are visible on the ground surface. If any cultural resources, are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within an appropriate radius of at least 50 feet. A qualified archaeologist shall conduct a field investigation of the specific site and recommend mitigation necessary for the protection or recovery of any cultural resource.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

CEQA FINDING NO. CR-CONSTRUCT-3

Impact: **Impact CR-CONSTRUCT-3.** Disturb Human Remains, Including Those Interred Outside of Formal Cemeteries within the SCARF Construction Area.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project have the potential to result in accidental discovery of human remains. Human remains are not known to exist within the SCARF site, and soils consist of alluvial terrace deposits of loose sand and gravel that have been subject to inundation and scouring during flood events; however buried human remains may be present. Trenching for the volitional release pipeline would have a risk of exposing human remains, if they are present.

Implementation of MMs CR-CONSTRUCT-1b and CR-CONSTRUCT-3 has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM CR-CONSTRUCT-1b: Immediately Halt Construction if Cultural Resources are Discovered. See CEQA Finding CR-CONSTRUCT-1 above.

MM CR-CONSTRUCT-3: Immediately Halt Construction if Human Remains are Discovered and Implement California Health and Safety Code. If human remains are accidentally discovered during the Proposed Project's construction activities, the requirements of California Health and Human Safety Code section 7050.5 must be followed. Potentially damaging excavation must halt in the area of the remains, with a minimum radius of 50 feet, and the local County Coroner must be notified.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

4. GEOLOGY, SOILS AND SEISMICITY

CEQA FINDING NO. GEO-OP-1

Impact: **Impact GEO-OP-1.** Significant Increase in Discharge Flow as a Consequence of SCARF Operations, Resulting in Soil Erosion.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of the Project have the potential to result in soil erosion in the San Joaquin River, due to a significant increase in discharge flow traveling from the SCARF. Although the expected range of flow would be between 2 and 15 cubic feet per second (cfs), peak flow may be as high as 20 cfs. The volitional release pipeline would need to be able to accommodate the increased discharge, otherwise, such discharges could lead to erosion.

Implementation of MM GO-OP-1 has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM GEO-OP-1: Conduct Monitoring and an Additional Investigation of Impacted Channels and Implement Recommendations. Due to the increased flow through the volitional release pipeline, the CDFW, DGS, or their contractor(s) shall conduct an investigation into the capacity of the pipeline and its connection to the San Joaquin River to monitor and verify that the pipeline and connection point have the capacity to support maximum potential increased flows. The investigation shall identify the maximum capacity of potential increased flows. If at any time the investigation results indicate that the flow capacities of the affected channels would not be sufficient to avoid substantial soil erosion, recommended actions shall be included in the report and implemented by CDFW. The CDFW shall make all reasonable and necessary modifications to the pipeline in order to implement the report's recommended actions and address any impacts to the increased flow capacity.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

5. HYDROLOGY, GEOMORPHOLOGY AND WATER QUALITY

CEQA FINDING NO. HYD-CONSTRUCT-3

Impact: **Impact HYD-CONSTRUCT-3.** Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, Resulting in Substantial Erosion or Siltation On-Site or Off-Site from SCARF Construction.

Finding(s): (1) Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant environmental effect as identified in the EIR.

FACTS SUPPORTING THE FINDING(S)

Activities proposed as part of SCARF construction have the potential to result in disturbance of approximately 17 acres and create approximately 11 acres of impermeable surfaces. Construction activities relating to the construction of the volitional release pipeline will disturb a small percentage of the total acreages listed above. Runoff from the main building pad would enter the San Joaquin River via an existing 42-inch reinforced concrete outfall that serves the San Joaquin Fish Hatchery. During periods of high runoff, this outfall discharges stormwater into the secondary channel of the San Joaquin River.

Implementation of MMs GEO-CONSTRUCT-1a and GEO-CONSTRUCT-1c has been incorporated into the Project to reduce this impact to a less-than-significant level.

MM GEO-CONSTRUCT-1a: Implement Construction Best Management Practices to Minimize Erosion and the Loss of Topsoil. See CEQA Finding FISH-CONSTRUCT-1 above.

LEVEL OF SIGNIFICANCE AFTER MITIGATION. With the mitigation described above, this impact is reduced to a less than significant level.

References

National Marine Fisheries Service (NMFS). 2000. Guidelines for electrofishing waters containing salmonids listed under the Endangered Species Act. NMFS Northwest Region, June.

Washington, P. M., G. L. Thomas, and D. A. Marino. 1992. Success and Failures of Acoustic Measurement of Environmental Impacts. *Fisheries Research* 14:239-250.

ATTACHMENT D-1

California Department of Fish and Wildlife Findings Regarding Alternatives and Statement of Overriding Considerations

Explanation:

Impacts at alternative SCARF sites would likely be similar in kind and scope to those of the planned SCARF site. Additionally, this alternative could result in additional impacts associated with development and extensions of infrastructure that go beyond what would be required for the Proposed Project by not being located adjacent to the existing hatchery and infrastructure, in particular water supply infrastructure. Such impacts may include impacts air quality and greenhouse gas emissions from the use of construction vehicles and equipment; biological impacts to wetland, riparian, and upland habitats and the special-status plant and wildlife species that may use the habitats; geology and soils impacts from soil erosion; and water quality impacts from construction. One of these impacts (greenhouse gas emissions) was found as cumulatively significant and unavoidable for the Proposed Project, and so avoiding additional contributions to this impact is considered desirable.

Additionally, at least one possible alternative location (the River Vista parcel) would result in land use inconsistencies. Specifically, the River Vista parcel is included in the San Joaquin River Parkway Master Plan, and has been identified to be set aside as a natural conservation area. Since alternative locations (specifically, the site of the Proposed Project) would not create such a conflict, the River Vista side is considered less desirable.

Finally, this alternative would not avoid or substantially lessen any of the Proposed Project's significant and unavoidable impacts – none of which are expected to result from Proposed Project activities at the SCARF site, itself. Therefore the SCARF Siting Alternative is not considered to be environmentally superior to the Proposed Project.

STATEMENT OF OVERRIDING CONSIDERATIONS

This section addresses CDFW's obligations under Public Resources Code section 21081, subdivisions (a)(3) and (b). (See also CEQA Guidelines, §§ 15091, subd. (a)(3), 15093.) Under these provisions, CEQA requires CDFW to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of the revised regulations against the backdrop of unavoidable significant environmental impacts. For purposes of CEQA, if the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable significant environmental effects, those effects may be considered acceptable and the decision making agency may still approve the underlying project.

The EIR analyzes and discusses the significant and unavoidable environmental effects CDFW expects to occur. (See, e.g., DEIR, § 6.5.3, pp. 6-51 to 6-54 and 6-74 to 6-75; § 10.4.3, pp. 10-9 to 10-11 and 10-12; and § 18.5.3, pp. 18-29 and 18-32.) As the sections previously mentioned discuss in detail, implementation of the Proposed Project may result in significant and unavoidable effects to spawning and rearing habitat (including riparian or instream habitat) from wild broodstock collection due to the lack of details available with which to develop adequate CEQA mitigation at this time. Also, as the sections previously mentioned discuss in detail, implementation of the recreational enhancement components of the Proposed Project may result in significant and unavoidable effects related to introduction of invasive species, due to the lack of feasible mitigation that can ensure that impacts would be less than significant. Finally, as the sections previously mentioned discuss in detail, implementation of the Proposed Project may result in significant and unavoidable effects related to greenhouse gas emissions, due to the potential infeasibility of the identified mitigation measure.

For purposes of CEQA, CDFW's implementation of the Proposed Project may result in the following significant and unavoidable effects to the environment:

- Impact FISH-REINTRO-1: Disturbance to Suitable Spawning and Rearing Habitat, Damage to Existing Redds, and Overharvest of Eggs and Juveniles during Broodstock Collection
- Impact FISH-RECREATION-4: Riparian or Instream Habitat Degradation or Spread of Invasive Species or Pathogens from Recreational Fishing Enhancements
- Impact GHG-MANAGEMENT-1: Potential for Construction of Fish Segregation Weirs to Generate Substantial GHG Emissions or Conflict with the CARB's Applicable Plans, Policies, or Regulations Adopted for the Purpose of Reducing the Emissions of GHGs
- Impact GHG-RECREATION-1: Potential for Construction Activities Related to Enhancing Recreational Fishing Opportunities to Generate Substantial GHG Emissions or Conflict with the CARB's Applicable Plans, Policies, or Regulations Adopted for the Purpose of Reducing the Emissions of GHGs
- Impact CUM-4: Effects of Wild Broodstock Collection
- Impact CUM-6: Effects on the Generation of Greenhouse Gas Emissions

Balancing the Benefits of Final Action by the Department with the Significant and Unavoidable Environmental Effects.

As noted above, CDFW is charged by CEQA to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or

statewide environmental benefits, of the Proposed Project against the backdrop of significant unavoidable environmental impacts. This section describes those benefits. In addition, CDFW finds that, after weighing the benefits of the Proposed Project against related unavoidable significant environmental impacts, the benefits of the Proposed Project outweigh its unavoidable adverse environmental effects so that the adverse environmental effects may be considered “acceptable” (CEQA Guidelines § 15093, subd. (a).)

CDFW has determined that the Proposed Project should be approved and that any remaining unmitigated environmental impacts attributable to the Proposed Project are outweighed by the following specific overriding considerations, each one being a separate and independent basis upon which to approve the Proposed Project. In other words, any single benefit described below is adequate to support the approval of the Proposed Project in spite of its unavoidable environmental impacts. Substantial evidence in the record demonstrates the following benefits that would occur as a result of approving the Proposed Project:

- First, the Proposed Project may not in fact result in all of the significant and unavoidable impacts identified above. In the case of broodstock collection, future CEQA evaluation and development of mitigation measures are anticipated to ensure impacts would be less than significant; however, in some instances, CDFW simply lacks the data or it is infeasible to obtain sufficient information at this time to support a conclusion that mitigation will, in fact, successfully reduce the impact to a less than significant level. With respect to wild broodstock collection future more detailed analysis would be conducted as necessary through tiered CEQA documentation prior to broodstock collection from naturally spawning spring-run donor stock. This is expected to ensure that impacts from wild broodstock collection would not be significant. In the case of GHG emissions, potentially feasible mitigation exists which could reduce impacts to a level that is less than significant, but it is unknowable at this time whether CDFW would be able to acquire the funding to implement mitigation to achieve that level of reduction in the impact.
- Second, the Proposed Project arises from the SJRRP, which in turn is a product of the Settlement Agreement reached as a result of federal court action in *Natural Resources Defense Council (NRDC) et al. v. Kirk Rogers et al.* (NRDC v. Rodgers 2006). The U.S. Department of the Interior, U.S. Department of Commerce, NRDC, and the Friant FWUA signed the Settlement Agreement. Pursuant to the State Agency MOU, CDFW agreed to assist the Settling Parties in the Settlement Agreement’s implementation, consistent with CDFW’s authorities, resources, and

broader regional resource strategies. As such, the SJRRP must be implemented in order to be compliance with the Settlement Agreement, and as a signatory to the MOU, CDFW has committed to assist the Settling Parties in the Settlement Agreement's implementation, consistent with the State Agencies' authorities, resources, and broader regional resource strategies. Furthermore, implementation of the Settlement Agreement is anticipated to have beneficial effects to salmon populations and the ecosystems in which they are found, which are considered to outweigh the significant and unavoidable impacts of the Proposed Project.

More specifically, the Proposed Project would assist in achieving the Restoration Goal of the Settlement Agreement, the benefits of which are anticipated to outweigh the Proposed Project's significant and unavoidable effects. The Restoration Goal is to restore and maintain fish populations in good condition, including naturally reproducing and self-sustaining populations of salmon and other fish in the Restoration Area (defined as the main stem of the San Joaquin River from below Friant Dam to the confluence with the Merced River). The ways in which the Proposed Project would assist in achieving the Restoration Goal are described further in the following paragraphs.

As stated in detail in the DEIR, within sections 2.4.3 and 2.4.4 (pp. 2-7 through 2-41), implementation of the Proposed Project, which includes the construction and operation of the SCARF as well as associated improvements, would enable CDFW to produce a conservation stock of fall- and spring-run Chinook salmon that is genetically diverse while minimizing impacts to source populations, as described in the Proposed Project objectives. Chinook salmon historically existed in the San Joaquin River but were subsequently fully extirpated, and therefore creation of a robust broodstock would be anticipated to benefit salmon stocks statewide.

Implementation of the Proposed Project also would help satisfy the Restoration Goal of the SJRRP and would support CDFW's mission by allowing for the management and conservation of native salmon in the San Joaquin River for their ecological significance. The Proposed Project would replace the Interim Conservation Facility, which is not sufficiently large to produce the numbers of fish needed to develop a founding stock for the San Joaquin River and therefore would fail to meet the Restoration Goal of the SJRRP.

The Proposed Project may also include the removal, repurposing, or construction of instream barriers to segregate Chinook salmon runs in the Restoration Area (DEIR § 2.4.5, pp. 2-43 through 2-46) in order to prevent overlap of spring- and fall-run salmon spawning. Because many details surrounding this aspect of the Proposed Project are not known at this time, these actions are generally evaluated at a program level in the EIR. Nevertheless, if operation of instream barriers are shown to assist in the establishment of fall- and spring-run Chinook salmon, implementation of this aspect of the Proposed Project would assist in achieving the Restoration Goal of the SJRRP.

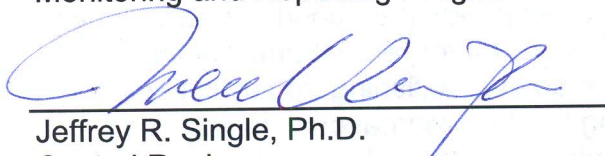
Under the Proposed Project, CDFW would also conduct research in the Restoration Area related to Chinook salmon habitat, genetics, and survival (DEIR § 2.4.6, pp. 2-46 through 2-50). The results of studies in the area may increase the success of salmon reintroduction efforts via adaptive management measures based on the results of the studies. This would also assist in achieving the Restoration Goal of the SJRRP.

- Third, the Proposed Project involves enhancement of recreational opportunities, the benefits of which are a consideration when evaluating whether to approve the Proposed Project despite its significant and unavoidable impacts. Providing such recreational opportunities is consistent with CDFW's mission. Enhancement of recreational opportunities as part of the Proposed Project include the following possible actions: enhancing off-channel ponds (i.e., ponds or abandoned gravel mining pits without river connectivity) for recreational fishing, providing access to and facilities for additional fishing opportunities in or near the Restoration Area, stocking trout for recreational fishing in off-channel ponds near the San Joaquin River, changing stocking practices in the San Joaquin River below Friant Dam to protect reintroduced Chinook salmon, increasing enforcement of fishing regulations in the Restoration Area, and/or increasing monitoring of recreational activities within the Restoration area (DEIR § 2.4.7, pp. 2-50 through 2-51).
- Finally, the following impacts that would occur as a result of implementation of the Proposed Project may have a beneficial impact on the surrounding area (refer to DEIR Executive Summary, pp. ES-24 through ES-54):
 - Impact FISH-REINTRO-6: Cascading Effects in Aquatic Food Webs from Chinook Salmon Produced either within the Restoration Area or by the SCARF

- Impact FISH-MANAGEMENT-6: Effects on Chinook Salmon in San Joaquin River Tributaries due to Non-Operation of Hills Ferry Barrier
- Impact REC-OP-2: Operation of SCARF Would Provide New Recreational Facilities
- Impact REC-REINTRO-1: An Increase in Recreational Opportunities Would Occur in the Potentially Affected Area from the Reintroduction of Chinook Salmon
- Impact CUM-3: Effects of Fish Species and Their Habitats

Taken as a whole and individually, weighing the above economic, legal, social, technological, and other benefits, including region-wide and statewide environmental benefits, of the Proposed Project against the Project's unavoidable significant environmental impacts, CDFW has found that the benefits of the Proposed Project individually and collectively outweigh its unavoidable adverse environmental effects and its adverse environmental effects are therefore considered acceptable.

CDFW has reviewed and considered the information contained in the EIR, finds that the EIR reflects its independent judgment and discretion, finds that the EIR was completed in compliance with CEQA, and hereby certifies the EIR. In so doing, CDFW adopts these findings of fact and the Statement of Overriding Considerations as set forth above, approves the Project for purposes of CEQA, and adopts the Mitigation Monitoring and Reporting Program.


 Jeffrey R. Single, Ph.D.
 Central Region
 California Department of Fish & Wildlife

June 4, 2014

REFERENCES

Cal EMA see California Emergency Management Agency
 Caltrans see California Department of Transportation
 CDFG see California Department of Fish and Game
 CNDDDB see California Natural Diversity Database
 DWR see California Department of Water Resources
 NMFS see National Marine Fisheries Service
 Reclamation see U.S. Bureau of Reclamation
 USFS see U.S. Forest Service
 USFWS see U.S. Fish and Wildlife Service

CEQA Findings
 California Department of Fish and Wildlife
 Salmon Conservation and Research Facility and
 Related Fisheries Management Actions Project