INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

LOWER PUTAH CREEK RESTORATION PROJECT, NISHIKAWA REACH

YOLO AND SOLANO COUNTIES, CALIFORNIA

LSA

May 2023

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MITIGATED NEGATIVE DECLARATION

LOWER PUTAH CREEK RESTORATION PROJECT, NISHIKAWA REACH

YOLO AND SOLANO COUNTIES, CALIFORNIA

Submitted to:

Solano County Water Agency
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LSA

May 2023

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LIST OF ABBREVIATIONS AND ACRONYMS

2016 Program EIR	Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program
2017 Ozone Plan	2017 Sacramento Regional 2008 8-Hour Ozone and Further Reasonable Progress Plan
A-40	Agriculture
AB	Assembly Bill
AB 939	California Integrated Waste Management Act
APE	Area of Potential Effect
APN	Assessor's Parcel Number
Basin Plans	Water Quality Control Plans
BMP	Best Management Practices
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
California Register	California Register of Historical Resources
CARB	California Air Resources Board
CC	State Candidate for listing as an Endangered Species
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CE	Listed as Endangered by the State of California
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	methane
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Data Base
CNEL	community noise equivalent level

CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CR	California Rare
CSC	California Species of Special Concern
CT	Listed as Threatened by the State of California
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted decibel(s)
DOC	Department of Conservation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EDR	Environmental Data Resources
EIR	Environmental Impact Report
EFZ	Earthquake Fault Zones
EQ Zapp	California Earthquake Hazards Zone Application
FC	Candidate to become a proposed species.
FE	Federally Endangered
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FP	State Fully Protected
FSC	Federal Species of Concern
FT	Federally Threatened
GHG	greenhouse gas
GP	General Permit
GSAs	Groundwater Sustainability Agencies
GSPs	Groundwater Sustainability Plans

HCP/NCCP	Yolo Habitat Conservation Plan/Natural Community Conservation Plan
HFCs	hydrofluorocarbons
IBC	International Building Code
IS/MND	Initial Study/Mitigated Negative Declaration
L_{dn}	day-night average level, also DNL
L_{eq}	equivalent continuous sound level
L_{max}	maximum noise level
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
mph	miles per hour
MRZ	Mineral Resource Zone
N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NAWCA 3	North American Wetlands Conservation Act 3 – Lower Putah Creek Floodplain Restoration Project
NCCP	Natural Community Conservation Plan
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOA	Notice of Applicability
NOD	Notice of Determination
NOI	Notice of Intent
NO_X	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
NWP	Nationwide Permit
O_3	ozone
OHWM	Ordinary High Water Mark
OPR	Governor's Office of Planning and Research
PAHs	polyaromatic hydrocarbons

Pb	lead
PCBs	polychlorinated biphenyls
PFCs	perfluorocarbons
PHMSA	U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PQP	Public/Quasi-Public
PRC	Public Resources Code
PRD	Permit Registration Document
the Program	Lower Putah Creek Restoration Project, Upper Reach Project
RCIS/LCP	Regional Conservation Investment Strategy and Local Conservation Plan
RWQCB	Regional Water Quality Control Board
SCE	State Candidate Endangered
SCWA	Solano County Water Agency
SF_6	sulfur hexafluoride
SGMA	California Sustainable Groundwater Management Act
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act of 1974
SMARTS	Stormwater Multiple Application and Report Tracking System
SO_2	sulfur dioxide
SRA	State Responsibility Area
SSC	State Species of Special Concern
SR	State Route
State Water Board	State Water Resources Control Board
Statewide Order	Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide
Statewide Order EIR	Consolidated Final Restoration Project Statewide Order Program Environmental Impact Report
SVAB	Sacramento Valley Air Basin

SWCA	Solano County Water Agency
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UC	University of California
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VELB	Valley Elderberry Longhorn Beetle
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WEAP	Worker Environmental Awareness Program
WOTUS	Waters of the United States
WPCNP	Winters Putah Creek Nature Park
YSAQMD	Yolo-Solano Air Quality Management District
ZE	Zero Emissions

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1.0 INTRODUCTION

This Supplemental Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with the provisions of the California Environmental Quality Act (CEQA) and assesses the potential environmental impacts of implementing the Lower Putah Creek Restoration Project, Nishikawa Reach (hereafter referred to as the "proposed project"). The attached Initial Study consists of a completed environmental checklist and an explanation of the environmental topics addressed in the checklist.

The proposed project involves restoring a section of active channel that is currently in an over-widened condition. This project aims to create a narrow design channel in a more central, meandering form to create 0.5 mile of nearly continuous salmon spawning habitat across a gravel-rich floodplain. The project design includes grading of 11 acres to floodplain elevation, and construction of 15 riffles and several rock vanes.

The Solano County Water Agency (SCWA) proposes to complete channel restoration involving recontouring and realignment along a 0.5-mile section of the low-flow channel of Putah Creek, upstream of the Pedrick Road Bridge near Davis, California in Yolo and Solano counties. This project is an element of the Lower Putah Creek Restoration Project, Upper Reach Project (hereafter referred to as "the Program") which proposes to restore and enhance geomorphic and ecological function on approximately 24.2 miles of Putah Creek between the Putah Diversion Dam and the Western Boundary of the Yolo Bypass Wildlife Area. Because the proposed project is an element of the Program, this Initial Study relies on the *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program*[1] (hereafter referred to as the "2016 Program EIR"), which was certified by SCWA in May 2016.

In addition, the State Water Resources Control Board (State Water Board) developed an Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide (Statewide Order) to improve the efficiency of regulatory reviews for projects throughout the State that would restore aquatic or riparian resource functions and/or services. The Statewide Order establishes an authorization process for environmentally beneficial restoration project types and associated measures to protect species and the environment. The State Water Board, as the CEQA lead agency (for Statewide Order development) prepared and certified the *Consolidated Final Restoration Project Statewide Order Program Environmental Impact Report*[2] (hereafter referred to as the "Statewide Order EIR") in August 2022. Because the proposed project qualifies as a beneficial restoration project, it may be covered under the Statewide Order, with approval by the Regional Water Quality Control Board (RWQCB). As such, it must comply with CEQA and be consistent with the Statewide Order EIR. Therefore, this Initial Study references and applies the applicable mitigation measures from the Statewide Order EIR, as necessary, to reduce potential environmental impacts.

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1 Solano County Water Agency. 2016. *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program.* May.

2 California Water Boards. 2022. *Consolidated Final Restoration Project Statewide Order Program Environmental Impact Report*. August 16.

SCWA's decision to complete channel restoration along the Nishikawa Reach associated with the Lower Putah Creek Restoration Project, Upper Reach Project constitutes a "project" under CEQA and requires a discretionary action by SCWA. SCWA is both the project proponent and the Lead Agency for review of the proposed project under CEQA. Pursuant to the requirements of CEQA, SCWA must evaluate the potential for construction or operation of the proposed project to create adverse environmental effects. This Supplemental IS/MND has been prepared for the proposed project pursuant to the rules for supplemental environmental review under Public Resources Code (PRC) Section 21166 and *State CEQA Guidelines* Section 15163. This Initial Study analyzes whether proposed changes to the Program, which comprise the Lower Putah Creek Restoration Project, Nishikawa Reach would result in any new or substantially more severe significant environmental impacts than those analyzed in the prior CEQA documents or whether any of the other standards requiring further environmental review under CEQA are met.

2.0 PROJECT INFORMATION

1. **Project Title:**

   Lower Putah Creek Restoration Project, Nishikawa Reach

2. **Lead Agency Name and Address:**

   Solano County Water Agency (SCWA)
   810 Vaca Valley Parkway, #203
   Vacaville, California 95688

3. **Contact Person and Phone Number:**

   Max Stevenson, PhD
   (530) 681-6004
   mstevenson@scwa2.com

4. **Project Location:**

   The section of Putah Creek that is central to the project site is the 2,500-foot (0.47-mile) reach of Putah Creek west of the Pedrick Road Bridge. The project area encompasses 29 acres of primarily riparian habitat between the top of the northern and southern banks of the Putah Creek channel. The project site is approximately 3.75 miles west of downtown Davis and 5.7 miles north of Dixon, California.

5. **Project Sponsor's Name and Address:**

   Solano County Water Agency
   810 Vaca Valley Parkway, #203
   Vacaville, California 95688

6. **General Plan Designation:**

   Public/Quasi-Public (PQP) to the north in Yolo County, Agriculture with Agricultural Reserve Overlay to the south in Solano County.

7. **Zoning:**

   Public/Quasi-Public (PQP) to the north in Yolo County, Agricultural (A-40) to the south in Solano County.

8. **Description of Project:**

   SCWA proposes to complete channel restoration involving recontouring and realignment along a 0.5-mile section of the low-flow channel of Putah Creek, upstream of the Pedrick Road Bridge near Davis, California in Yolo and Solano counties. The project is part of a series of restoration activities intended to restore Putah Creek to a more natural condition that is self-maintaining and supports native plant and animal species. The project involves restoring a section of active channel that is currently in an over-widened condition. This project aims to create a narrow design channel in a more central, meandering form to create 0.5-mile of nearly continuous

salmon spawning habitat across a gravel-rich floodplain. The project design includes grading of 11 acres to floodplain elevation, and construction of 15 riffles and several rock vanes. A more detailed project description is provided in Section 3.0, Project Description.

9. Surrounding Land Uses and Setting:

The project area is bounded by farmland on the south (Solano County) and the UC Davis Center for Aquatic Biology and Aquaculture, Putah Creek Facility (formerly the Animal Science Trout Hatchery) to the north. Land uses along this reach are comprised of a 400- to 600-foot swath of open space/habitat within the project reach, surrounded on the south by field crops and on the north by a wastewater pond and treatment facility. There is public access to the north side of Putah Creek from Pedrick Road/Lincoln Highway. The north bank parcel (Yolo County Assessor's Parcel Number [APN] 037-190-009) is owned by the Davis Joint Unified School District and houses numerous institutes, labs, and field sites for the University of California (UC), Davis. The riparian portion of the 433-acre parcel constitutes the UC Davis Riparian Reserve, a teaching and research site along Putah Creek. A popular hiking trail traverses portions of the UC Davis Riparian Reserve, leading from a gravel parking lot down to the floodplain and along Putah Creek towards the City of Davis. The south bank parcel (Solano County APN 0110-010-010) is owned by the Nishikawa Family Trust; the entire parcel is 496 acres and is currently in agricultural production. This project site is also known as "Site 20" or the "Nishikawa site."

10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):

- California Department of Fish and Wildlife – *Lake or Streambed Alteration Agreement*
- Regional Water Quality Control Board - *Coverage under the Statewide Order*
- U.S. Army Corps of Engineers - *Nationwide Permit (NWP) 27 Aquatic Habitat Restoration, Establishment, & Enhancement Activities*
- University of California, Davis – *License for temporary access and staging for construction on UC Davis lands*

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In January 2023, SCWA provided formal notification to those California Native American tribes that are traditionally and culturally affiliated with the geographic area within which the proposed project is located pursuant to the consultation requirements of Assembly Bill (AB) 52. Letters were sent to all tribal representatives identified by the Native American Heritage Commission. To date, SCWA has received no requests for consultation.

3.0 PROJECT DESCRIPTION

The Solano County Water Agency (SCWA) proposes to complete channel restoration involving recontouring and realignment along a 0.5-mile section of the low-flow channel of Putah Creek, upstream of the Pedrick Road Bridge near Davis, California in Yolo and Solano counties. The project is part of a series of restoration activities intended to restore Putah Creek to a more natural condition that is self-maintaining and supports native plant and animal species. The project involves restoring a section of active channel that is currently in an entrenched, unnaturally straight, and over-widened condition. This project aims to create a narrow design channel in a more central, meandering form with lower inset floodplain heights. This would create a 0.5 mile of nearly continuous salmon spawning habitat across a gravel-rich floodplain. The project design includes grading of 9 acres to floodplain elevation, and construction of 15 riffles and several rock vanes.

3.1 PROJECT LOCATION

Putah Creek forms the boundary between Solano County and Yolo counties from Monticello Dam to the outskirts of Davis, California. The section of Putah Creek that is central to the project site is the 2,500-foot (0.47-mile) reach of Putah Creek west of the Pedrick Road Bridge. The project area encompasses 29 acres of primarily riparian habitat between the top of the northern and southern banks of the Putah Creek channel. The project site is approximately 3.75 miles west of downtown Davis and 5.7 miles north of Dixon. Figure 1 shows the project site location and vicinity.

The project area is bounded by farmland on the south (Solano County) and the UC Davis Center for Aquatic Biology and Aquaculture, Putah Creek Facility (formerly the Animal Science Trout Hatchery) to the north. Land uses along this reach are comprised of a 400- to 600-foot swath of open space/habitat within the project reach, surrounded on the south by field crops and on the north by a stormwater pond. There is public access to the north side of Putah Creek from Pedrick Road/Lincoln Highway. The north bank parcel (Yolo County Assessor's Parcel Number [APN] 037-190-009) is owned by the Davis Joint Unified School District and houses numerous institutes, labs, and field sites for UC Davis. The riparian portion of the 433-acre parcel constitutes the UC Davis Riparian Reserve, a teaching and research site along Putah Creek. A popular hiking trail traverses portions of the UC Davis Riparian Reserve, leading from a gravel parking lot down to the floodplain and along Putah Creek towards the City of Davis. The south bank parcel (Solano County APN 0110-010-010) is owned by the Nishikawa Family Trust; the entire parcel is 496 acres and is currently in agricultural production. This project site is also known as "Site 20" or the "Nishikawa site" in the 2016 Program EIR. Figure 2 depicts the project site on an aerial base.

3.2 PROJECT BACKGROUND

Putah Creek is a major stream in Northern California that is a tributary of the Yolo Bypass and, ultimately, the Sacramento River. Stretching approximately 85 miles, Putah Creek runs through Yolo and Solano counties in Northern California. Prior to human intervention, Putah Creek flowed out of the Vaca Mountains across a broad area, frequently changing its course. In the lower reaches of the watershed, a mildly sloping alluvial plain formed by accumulated sediment deposition from Putah Creek created the rich agricultural land of this region.

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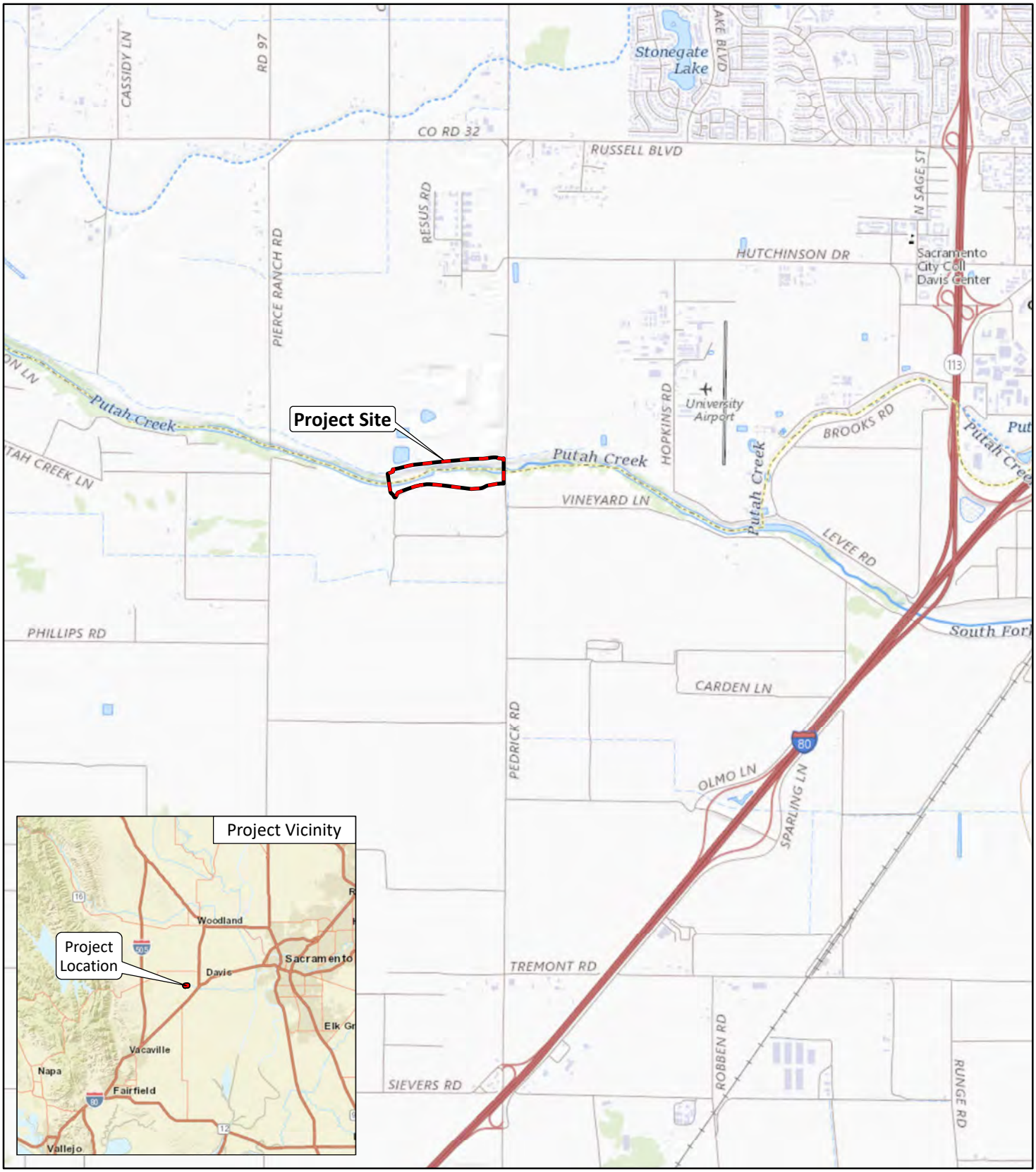

LSA

LEGEND

FIGURE 1

N

0 62500 125000

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Lower Putah Creek Salmon Habitat Restoration
Yolo and Solano Counties, California

Project Location and Vicinity

SOURCE: USGS The National Map (08/2021); Esri World Street Map (2022).

I:\SWG2201\GIS\MXD\Biological Assessment\Figure 1_Location of the Project Area.mxd (10/10/2022)

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LEGEND

- Action Area
- Existing Channel
- Existing Road
- Putah Creek Trail

0 150 300
FEET

SOURCE: Nearmap (05/2022);

I:\SWG2201\GIS\MXD\Biological Assessment\Figure 2_Location Detail on Aerial.mxd (10/10/2022)

FIGURE 2

Lower Putah Creek Salmon Habitat Restoration
Yolo and Solano Counties, California

Location Detail on Aerial

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Flood control measures, development, and grading for agriculture have caused the present lower Putah Creek to carve out a deeper channel. The excavation of a south fork channel for additional flood control and gravel mining upstream of the Pedrick Road Bridge and the city of Winters in the 1960s and 1970s also contributed to the downcutting of the channel. At the base of the railroad bridge at Winters, there is a 3-foot depth of exposed rough concrete footing beneath the smooth surface of the formed support pillar, attesting to 3 feet of incision that has occurred since the bridge was built in 1906.

After several drought years in the late 1980s, the majority of Putah Creek went dry, prompting a landmark lawsuit that resulted in the signing of the Putah Creek Accord in 2000.[3] The Accord established releases from the Monticello Dam and Putah Diversion Dam to maintain stream flows in Putah Creek, with regulated flow regimes which spike in winter/spring and ebb in summer/fall to protect native fish species. The restoration of flow regimes has resulted in a doubling of riparian bird species and a return of spawning native steelhead trout and Chinook salmon as well as protecting the livelihood of farmers on the lower watershed.

The lower Putah Creek corridor is one of the largest remaining tracts of high-quality wildlife habitat in Yolo and Solano counties and provides habitat for a unique assemblage of fish and wildlife species native to the Central Valley. However, the creek suffers from substantially reduced flows from flow diversions, altered channels and eroding banks, habitat loss and degradation, invasive weed infestations, and other problems. These reaches cannot "self-adjust" to more natural morphology because flow velocities are insufficient to mobilize sediment and natural gravel recharge is substantially arrested due to both Monticello and Putah Diversion Dams preventing sediment transport downstream. In this condition, the creek is virtually devoid of riffles and spawning habitat, and lacks the materials and functions needed to build such features naturally.

3.2.1 Lower Putah Creek Restoration Project – Upper Reach Program

In 2015, the SCWA developed a comprehensive plan for restoration of the lower Putah Creek to benefit native salmonids and their spawning and rearing habitat. Funded by a Proposition 1 grant, SCWA developed conceptual habitat restoration plans and baseline habitat assessments for 30 miles of lower Putah Creek from Monticello Dam to the Yolo Bypass. The overall program purpose is to restore and rehabilitate the creek channel, banks, and associated habitats to more natural, self-sustaining form and function, consistent with the current (post-Monticello Dam) hydrologic regime. The work included geomorphic, biological, and hydrologic/soils assessments, and facilitated public meetings to restore natural ecological form and function for 33 project sites, including 17 sites named in the draft "Programmatic Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program" prepared by SCWA in 2016. The project delivered conceptual plans for all 33 project sites and detailed plans, specifications and bid documents for 3 of these sites.

[3] Lower Putah Creek Coordinating Committee. 2000. Putah Creek Accord. Website: https://www.scribd.com/doc/249390335/putah-creek-accord-2000 (accessed September 12, 2022).

3.2.2 Winters Putah Creek Nature Park Restoration

In one of the first projects under the Lower Putah Creek Restoration Project – Upper Reach Program, the SCWA completed channel restoration involving recontouring and realignment of the low-flow channel of Putah Creek upstream, within, and downstream of the Winters Putah Creek Nature Park (WPCNP). The overall project encompasses three locations within Putah Creek from upstream to downstream: (1) WPCNP Phase I and II (408 Permission #19047, completed in 2011), (2) WPCNP Phase III (408 Permission #19047-1, completed 2018), and (3) the North American Wetlands Conservation Act 3 – Lower Putah Creek Floodplain Restoration Project (NAWCA 3). The SCWA's consulting biologists confirmed the following ecological benefits within the completed phases of the WPCNP Project:

- Salmon were observed spawning in sections of the narrowed channel that contained supplemental spawning gravel. Salmon had never been observed spawning in this section of Putah Creek prior to construction of the project.

- The project increased the range of sensitive aquatic invertebrates, which indicates an improvement in the health of the aquatic environment.

- In addition, data collected by researchers with the UC Davis, Department of Wildlife, Fish, and Conservation Biology, suggests that riparian breeding birds and native fish in Putah Creek have responded positively to large-scale habitat restoration and management work.

3.3 PROJECT ELEMENTS

As a next step in the Lower Putah Creek Restoration Project – Upper Reach Program, the SCWA proposes to restore salmon habitat along a 0.5-mile section of Putah Creek in Yolo and Solano counties. The project involves restoring a section of active channel that is currently in an over-widened condition (i.e., essentially stagnant, receiving excessive solar radiation, with long residence time of water in pools and degraded aquatic habitat). The project aims to create a narrow design channel in a more central, meandering form and to seal the existing channel to create a 0.5 mile of nearly continuous salmon spawning habitat across a gravel-rich floodplain. The project design would include grading of 9 acres to floodplain elevation, and construction of 16 riffles and several rock vanes. Figure 3 shows the proposed project elements.

Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. All in-stream activities would be implemented adaptively, based upon an understanding of the ecosystem and its changes over time. A site-specific Adaptive Management Plan would be developed based on the desired environmental outcomes and the potential for environmental impacts.

LSA

LEGEND

- Action Area
- Proposed Channel
- Proposed Rip Rap
- Proposed Soil Mitigation Trench
- Proposed Field Nursery Area

0 150 300
FEET

SOURCE: Nearmap (05/2022); SCWA (2022).

I:\SWG2201\GIS\MXD\Biological Assessment\Figure 3_Action Area.mxd (10/10/2022)

FIGURE 3

Lower Putah Creek Salmon Habitat Restoration
Yolo and Solano Counties, California

Proposed Project Elements

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The following outcomes are identified as targeted objectives of the proposed project:

- Treat, remove, and control invasive weeds.
- Establish native riparian species to replace invasive weeds and improve the diversity and population of native riparian obligate species
- Reconfigure the floodplain to a functional and natural state that is maintained and adapted to current peak flows. The operation of Monticello Dam has reduced annual peak flows from 80,000+ cubic feet per second to approximately 20,000 cubic feet per second. The reconfigured floodplain would be configured to the existing peak flows.
- Narrow the over-widened backwater reaches of the channel. The project is designed to reduce the width-to-depth ratio of the backwater reach to create a more functional channel and floodplain connection.
- Facilitate natural processes of channel recovery.
- Enhance native fish habitat and spawning areas. Fish habitat is a prime focus of the project design.

3.3.1 Channel Reconfiguration

The proposed project would include the reconfiguring of degraded areas of the creek channel to a more natural cross-sectional form to stabilize eroding banks, facilitate channel shading with bank-side riparian vegetation, lower water temperatures, and improve habitat values for native fish species. A narrower low-flow channel would also serve to increase flow velocities, restore competency of the channel to mobilize gravels for spawning, and restore geomorphic processes that support a natural channel and ecosystem. The total volume of cut for the design channel and floodplain recontouring would be 37,500 cubic yards with a total fill volume of 12,700 cubic yards. The project would result in a net gain of 1,000 feet of spawning and juvenile salmonid rearing habitat.

3.3.1.1 Floodplain Recontouring

Portions of the existing floodplain would be graded to create a lowered floodplain elevation with a gentle slope of 1-2 percent. Recontouring the floodplain to an elevation that is below the ordinary high-water mark (OHWM) would subject it to frequent overland flow of water and associated natural processes, such as erosion and depositions. The project would cut a total of 28,000 cubic yards of native floodplain material to restore natural form and function to the floodplain. This would allow the natural geomorphological processes of scour and deposition to increase both terrestrial and aquatic habitat complexity within the project area as the site modifications mature. The project would have the immediate benefit of reduced water temperatures and an increase in suitable salmon spawning and juvenile rearing habitat. The lower top-of-bank elevation and gentle floodplain slope would also maximize the surface area suited for the natural recruitment of many different native plant species, including high-value, wetland-dependent species. Additionally, a number of native trees would be planted or re-established after the floodplain work has been

completed. Plants would be chosen specifically to support a wide range of native fish, birds, insect pollinators, amphibians, and other animals.

3.3.1.2 Channel Filling

The existing over-widened channel has high water residence time and a large water surface area that is exposed to solar radiation, both of which promote warm water temperatures. In addition, the over-widened section is straight and shallow, thereby offering little cover and structure for fish and other aquatic organisms. To create a low flow channel bordered by functional floodplain surfaces, 14,000 cubic yards of alluvial material from within the stream corridor would be excavated and placed within the over-wide channel. This activity would completely fill the existing channel to the proposed floodplain elevation of 42 feet. Work areas within the active channel would be isolated from flowing water and dewatered as needed.

3.3.1.3 Design Channel

The proposed project includes the creation of a new narrow channel with an average width of approximately 18 feet that would be located within the recontoured floodplain. The new channel would be approximately 1.2 acres in surface dimensions (or approximately 50 percent of the original surface area). The stream length would be 2,720 feet (approximately 8 percent longer than the current stream channel). The new meandering low-flow channel alignment would be excavated, and the excavated material would be used to fill the former, straightened channel alignment. Narrowing the over-widened section of the channel would immediately promote cooler water temperatures by increasing flow velocity and reducing the surface area of water that is exposed to solar radiation. Water temperatures would also be reduced as nearby vegetation matures and provides shade over a larger percentage of open water than was possible with pre-project conditions. The design channel would also include 18 pools/runs and 16 riffles where the channel width would generally be widened to reduce the flow velocity. The total volume of cut for the design channel would be 8,000 cubic yards. Approximately 2,000 cubic yards of clean gravel would be placed within the channel. The gravel size and composition would be suitable for spawning salmon.

3.3.1.4 Riffles

Riffle and pool habitats are lacking in Putah Creek and are critical to successful enhancement efforts. Riffles (i.e., high points in the channel bed with higher flow velocities) provide spawning habitat if suitable gravel size and flow conditions are present. Pools (i.e., low points in the channel bed with slower velocities) provide valuable and necessary locations for juvenile salmonid rearing, cover, and foraging and are resting locations for migrating adults. Riffles would be constructed by placing appropriately sized, relatively coarse substrate material into the active channel to raise the channel invert adjacent to or within existing in-channel pools, or by realigning the low-flow channel so that it crosses suitable in-channel gravels and fills the former channel. Appropriately sized gravels would be salvaged from within the reach or imported from local sources. Where gravels must be imported, the majority would come from the nearby Putah South Canal spoil site. Gravels would be placed into the streambed using a loader. A maximum of 37,500 cubic yards of earthwork would be repositioned (cut and fill) in the project area. Wood structures would be installed in conjunction with gravel placement activities to improve channel sinuosity and bar formation. This would also support natural processes of forming and/or maintaining riffles and pools. Installation of wood

structures at the channel margins would also provide immediate critical cover and foraging habitat for fish.

3.3.1.5 Stabilized Channel Banks

Channel bank stabilization methods that may be employed as part of the proposed project include installation of rock revetment, log revetment, root wads, and/or large woody debris. Priority would be given to bank stabilization methods that can provide multiple benefits such as cover, velocity refuge, shade, and foraging opportunities. These structural approaches may also incorporate the use of native plant materials (e.g., willow fascines, live stakes and cuttings, brush matting). Rock material used in these installations would be sourced on site to the extent possible. Large logs and or root wads would be sourced on site from removed nonnative trees (primarily eucalyptus). Live native cuttings and brush would similarly be collected on site. Channel bank stabilization would be accomplished with the following methods:

1. Rock revetments may be combined with other bank stabilization measures to protect the stream bank area above the revetment. Rock revetments would be created by first excavating a trench below the invert of the stream along the toe of the stream bank. In this trench, a series of generally large, flat or rectangular boulders would be placed as a foundation for the revetment stones. Once the foundation stones have been installed, the revetment stones would be placed on top of the foundation stones. Rocks or boulders would be placed up to the OHWM elevation. Used alone, rock revetments have only a modest potential to enhance stream habitat. Rock revetment may be combined with the planting of live cuttings in interstices between the rocks to increase habitat value.

2. Wood structures would be installed in conjunction with gravel placement activities to improve channel sinuosity and stability, bar formation, and to support natural processes that would continue to form and/or maintain riffles and pools. Installation of wood structures at the channel margins would also provide immediate critical cover and foraging habitat for fish. Log revetments are constructed by cabling logs along eroding stream banks to deflect, absorb, and diffuse the erosive force of stream flows. To facilitate sediment settling, brush is densely packed around the large logs. Logs would be placed at the streambed, bank toe, and bank, up to the OHWM elevation, aligned along the channel banks, and stacked on top of each other. Logs would be anchored to the bed and bank of the channel and attached to each other using cable, rebar, or other similar materials. Logs used to construct revetments would typically vary between 12 inches and 36 inches in diameter. Live plant cuttings, brush, and in some cases, soil (e.g., where log revetments are installed in conjunction with the creation of floodplain surfaces) would be packed between the logs and into the eroding banks and incorporated with log revetments to further stabilize the structures and provide forage and refugia for fish and other aquatic and terrestrial wildlife. Root wads would be constructed by embedding the trunk of a "footer log" into the bank, below the thalweg,[4] topped diagonally by a second log, with root crown and roots projecting into the channel to form an "X." The logs would be anchored to the bed and bank of the channel and attached to each other using cable, rebar, or other similar materials. Large wood structures installed in the action area would consist of one to three logs

[4] The line of lowest elevation within a valley or watercourse.

with intact root wads. Construction would include excavation and trenching to embed logs, driving logs into the bank and bed, and interlocking individual logs. The logs would be stabilized using large boulders for ballast, pinning with other logs that would be driven vertically into the bank, or using existing trees to interlock the logs. Large logs would be sourced on site while anchoring boulders would be brought in as needed.

3. Rock weirs would be used within the floodplain to provide grade control to the adjacent upstream and downstream sections of Putah Creek and the outflow of the Willow Canal. This ensures that flow dynamics throughout the restored section maintain design specifications. Rock weirs would be V-shaped, and the top rocks would be embedded into the bank.

3.3.2 Vegetation Management

3.3.2.1 Vegetation Removal

The recontoured floodplain and the design channel would be cleared of vegetation and debris. Equipment used for this operation would include excavators, loaders/dozers, chainsaws, and hand tools. A mechanized tree spade would be used to remove and salvage rooted sandbar willows and other native trees and shrubs from the floodplain. The tree spade would be mounted on a front loader to dig or transplant trees with their complete root ball attached.

3.3.2.2 On-Site Native Plant Field Nursery

An on-site native plant field nursery would be developed to temporarily store and grow plants of native shrubs and trees salvaged from the project area in the floodplain. Due to extensive heavy clay at the site, soil amendments with organic matter (wood chips) would be applied to two areas (10 by 45 feet). Approximately 20 cubic yards of soil would be amended, replaced, and planted with natives. A 'mini' excavator would be used because discing equipment is inappropriate for a plot this small. Wood chips would be delivered by trailer and pickup truck on existing dirt access roads to the site. Total area disturbed would be 900 square feet or 2 percent of 1 acre. Water infiltration trenches (reverse French drain) through the impervious clay would connect Putah Creek to the subsurface of the test planting areas. Each reverse French drain would be 50 feet long and 32 inches wide for a total disturbed area of 533 square feet of drain. Round planting areas would be 10 feet in diameter for a total of 400 square feet. A total of 933 square feet would be disturbed. A temporary irrigation system would be installed to serve the soil amendments and the upper bench areas. No trees would be removed. Small amounts of invasive Himalayan blackberry and native sandbar willow (less than 2 inches diameter at breast heigh [DBH]) may be removed to provide access paths for equipment and irrigation, although these activities occur in already open areas with little to no canopy cover. No work would occur directly in the wetted channel. Final connections of the reverse French drains to the creek would be completed after all backfill work of the drains is completed. Nursery transplants would be replanted along the design channel after the construction is complete to ensure that floodplain substrate is stabilized, water surfaces are shaded to the greatest extent, and that habitat conditions are re-established. Care and tending of the transplanted native plants would continue for up to 2 years. Test holes may be made to evaluate success of the trials (look for root growth, rooting depth, presence of water, etc.).

3.3.2.3 Weed Control

Invasive vegetation control activities would be implemented in combination with clearing and grubbing, followed by revegetation with native wetland and riparian plant species. Invasive vegetation control would be accomplished via manual/mechanical removal, chemical control, or a combination of these methods. Temporary access trails may be created to facilitate weed control activities. Creation of such temporary access features would be undertaken during the construction season.

- **Manual and/or Mechanical Removal:** Mechanical equipment (e.g., Excavators, weed whackers, and hand tools, including broom wrenches) would be used to remove invasive weeds and other nuisance vegetation.

- **Chemical Control:** Herbicides that are approved by the California Department of Pesticide Regulation would be used in accordance with their labels to control invasive weeds and other nuisance vegetation, such as giant reed (*Arundo donax*), perennial pepperweed (*Lepidium latifolium*), Himalayan blackberry (*Rubus armeniacus*), tamarisk (*Tamarix* spp.), and tree of heaven (*Ailanthus altissima*).

3.3.3 Replanting/Maintenance

3.3.3.1 Riparian Forest Restoration

The primary goal of leveling the floodplain is to establish a functioning riparian habitat and increase the cover of a functioning riparian forest at the project site. Removal of up to 71 trees, the majority of which are nonnative, is required to facilitate grading within the floodplain and to provide material for bank revetment. All invasive vegetation within the grading area would be removed. The recontoured floodplain would be revegetated with native grasses, trees, and shrubs. Only species that are endemic to Putah Creek would be used for revegetation. The project's Streambed Alteration Agreement with the California Department of Fish and Wildlife (CDFW) likely would require approximately 26,000 native plants to be installed and maintained within the recontoured floodplain. In addition, the plantings would be maintained for a minimum of 5 years, at which point they should achieve a minimum of 80 percent survival and 75 percent coverage. Remediation would occur if the plantings do not meet the survivability and coverage requirements at the end of the 5-year period.

3.3.3.2 Reverse Drainage and Subsurface Irrigation

The current floodplain of the project area is underlain by a thick layer of clay. In some places, this layer exceeds 12 feet. Recontouring the floodplain would bring the actual surface closer to this clay layer and may expose it in places. Due the impermeability of the clay layer, planting trees may be challenging. Therefore, reverse drains are designed to bring water from the design channel to the trees in subsurface "reverse French drains". These drain channels would be constructed as a perpendicular trench leading from the design channel into the newly created floodplain. Trenches would be dug to the elevation of the design channel bottom and would be sloped slightly downward from the channel to provide a flow gradient for moisture away from the channel. The drain would be filled with up to 1 foot of coarse gravel and rocks and then backfilled to grade with regular floodplain material, mixed with mulch. Trees would be planted into these drains, while shrubs and

willows would fill the interstitial spaces between the drain locations. This design ensures that the entire floodplain is quickly re-populated with site-adapted trees and shrubs. Over the years, as the drains fill with sediment, trees and shrubs would have completely conquered the available rooting zone.

3.4 PROJECT CONSTRUCTION

Project construction is estimated to take 4 to 5 months to complete and would begin in summer 2023 or summer 2024. Project construction would start the end of nesting season (August 31) and end at the beginning of salmon migration into Putah Creek (October 15). Net spoils exported from the site would equal approximately 25,000 cubic yards not accounting for shrink and swell factors. Prior to grading actions, invasive vegetation, trees, and shrubs that are currently located within the footprint of the new design channel features would be removed under the SCWA's Routine Maintenance Agreement. Native shrubs and trees salvaged from the project area in the floodplain, including shrubs removed with the tree spade, would be temporarily stored and grown in the field nursery. Nursery transplants would be replanted along the design channel after the construction is complete to ensure that floodplain substrate is stabilized, water surfaces are shaded to the greatest extent, and that habitat conditions are re-established. Care and tending of the transplanted native plants would continue for up to 2 years.

The following construction activities would occur as part of project implementation:

- **Equipment Access and Staging:** The north side of Putah Creek would be accessed through a privately owned agricultural parcel that is adjacent to the creek and is accessible from Pedrick Road. Equipment would use a pre-existing ramp that leads from the top of the creek's embankment to the creek's terrace. The site would have staging areas on the north and south sides of the creek. Equipment would be staged along the creek's embankment.

- **Floodplain Recontouring:** The floodplain recontouring would follow vegetation clearing and salvage. Heavy equipment (e.g., graders, excavators, water trucks, dump trucks, dozers, and scrapers) would be needed to recontour portions of the existing floodplain. Access to the floodplain would be primarily from the south side and along an unimproved surface road from the Nishikawa property (Figure 3). This access road would be cleared of woody debris, if necessary. No additional reinforcement, major grading, or other surface modifications are planned.

- **Design Channel Excavation:** Construction operations would begin by mapping out the design channel location on the floodplain, avoiding existing native trees to the maximum extent possible. The forming of the design channel can begin with little to no disturbance to the existing creek or to large native trees that may be in the area. The design channel would consist of riffle and pool sequences to mimic formations found in natural settings. Heavy equipment needed for this phase would include excavators.

- **Water Diversion:** Once built, temporary coffer dams would be put in place at the beginning and end of the new channel, including the middle cross-over section, which would divert water into

the newly created design channel. After this, cut-and-fill operations can begin, with most of the material being provided by lowering the existing floodplains.

- **Channel Plugging:** The current over-widened channel would be filled with material excavated from the floodplain and the design channel. The total fill needed would be 12,700 cubic feet.

- **Grade Control:** Grade control structures (e.g., rock cross-vanes and weirs) can decrease near-bank shear stress, velocity, and stream power, but also increase the energy in the center of the channel. Rock cross-vanes and similar grade-control structures would be installed to establish grade control, reduce bank erosion, create a stable width/depth ratio, and maintain channel capacity while maintaining sediment transport capacity and sediment competence. The cross-vane also can improve stream habitat by increasing bank cover due to a differential rise in the water surface in the bank region. Furthermore, it creates holding and refuge cover during both high- and low-flow periods in the deep pool, and aids in the development of feeding lanes in the flow separation zones (the interface between fast and slow water) due to the strong down-welling and up-welling forces in the center of the channel. Finally, cross-vanes and similar structures can also create spawning habitat in the tail-out or glide portion of the pool. Heavy equipment needed for this phase would include Excavator and loader.

- **Revegetation:** Recruits can be planted directly into fill material to provide additional root structure stability against erosion in the future. Caution would be used around existing native trees that provide valuable habitat, while larger invasive species such as eucalyptus would be removed and used to reinforce banks and provide fish habitat with their root structures.

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4.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist in Chapter 3.0.

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

4.1 DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

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

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

Signature _____ Date _____

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5.0 CEQA ENVIRONMENTAL CHECKLIST

5.1 AESTHETICS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

5.1.1 Background

The visual character of the project site primarily consists of Putah Creek and its associated riparian vegetation. The public can access the Nishikawa reach by driving up to the back of the riparian zone from Pedrick Road/Lincoln Highway. The creek views include a strip of trees and a slow-moving pool of water. There is also a walking path near the creek and through the riparian vegetation of the site, which permits views of the channel and associated vegetation.

The project area is bounded by farmland on the south (Solano County) and the UC Davis Center for Aquatic Biology and Aquaculture, Putah Creek Facility (formerly the Animal Science Trout Hatchery) to the north. Land uses along the project reach are comprised of a 400- to 600-foot swath of open space/habitat within the project reach, surrounded on the south by field crops and on the north by a wastewater pond and treatment facility.

5.1.2 Prior Environmental Analysis

5.1.2.1 2016 Program EIR

The 2016 Program EIR determined that temporary impacts to aesthetics would result from the removal of vegetation and trees and the presence of construction equipment, workers, and construction fencing during the construction period. The 2016 Program EIR concluded that long-term visual quality would generally be improved due to the elimination of many stagnant pools and weedy areas and the reestablishment of a more free-flowing creek surrounded by native vegetation. The 2016 Program EIR did not include an evaluation of night lighting impacts because construction would be limited from 7:00 a.m. to 7:00 p.m. The 2016 Program EIR concluded that although the visual quality of the site would be altered during the construction period, views of the Nishikawa

reach are limited to road crossings by Pedrick Road/Lincoln Highway and most viewers would be in passing vehicles with only a few seconds of viewing time. Therefore, the 2016 Program EIR determined that visual impacts would be less than significant, and mitigation would not be required.

5.1.2.2 Statewide Order EIR

The Statewide Order EIR determined that construction activities for restoration projects permitted under the Statewide Order could cause temporary changes in local visual conditions; however, because construction elements would be removed after construction, their presence would not cause permanent changes to local visual conditions. The Statewide Order EIR determined that the long-term effects of most projects are expected to be beneficial or neutral, because the projects would involve habitat restoration that would return the existing sites to more natural characteristics. However, some projects could result in the placement of infrastructure that could cause substantial degradation of visual quality. The Statewide Order also identified a significant impact associated with the generation of nighttime lighting and glare resulting from construction activities or the use of construction lighting for restoration projects. Mitigation measures were identified in the Statewide Order EIR to reduce impacts related to visual resources to a less-than-significant level. As part of the State Water Board or RWQCB's issuance of a Notice of Applicability (NOA) for a restoration project under the Statewide Order, compliance with Mitigation Measures AES-1 and AES-2 would be required when applicable to a given project.

Applicable Mitigation Measures. As discussed further below, the proposed project would not include any structural features that would degrade visual quality or lighting for construction or operation; therefore, Mitigation Measures AES-1 and AES-2, identified in the Statewide Order EIR would not apply.

5.1.3 Impact Analysis

a. Would the project have a substantial effect on a scenic vista? ***(No New Impact)***

A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Aesthetic components of a scenic vista generally include: (1) scenic quality, (2) sensitivity level, and (3) view access. The project site is primarily characterized by Putah Creek and its associated riparian vegetation. The project site does not contain any unique visual features or scenic resources, including landmark trees, rock outcroppings or historic structures and it is not highly visible from public vantage points. Development in the project vicinity includes local roads, agricultural land, trails, and the UC Davis Center for Aquatic Biology and Aquaculture.

As previously discussed, the project site is visible from Pedrick Road/Lincoln Highway and there is a walking path near the creek and through the riparian vegetation of the site, which permits views of the channel and associated vegetation. Implementation of the proposed project would require removal of vegetation and trees within the project area; however, the proposed project would replace all trees removed and provide extensive restoration planting. All areas temporarily impacted during construction would be revegetated with native species. Implementation of the proposed project would reconfigure degraded areas of the creek channel to a more natural cross-sectional form to stabilize eroding banks, facilitate channel shading with bank-side riparian vegetation, lower

water temperatures, and improve habitat values for native fish species. All proposed improvements would either be at-grade or within the existing channel and would not obstruct scenic vistas. Once completed, the visual character or quality of the site would be enhanced due to the filling of the existing over-widened channel, the creation of a new, more natural narrow channel, and the establishment of functioning riparian habitat. Therefore, the proposed project would not have a substantial adverse effect on a scenic vista. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ***(No New Impact)***

The Caltrans Landscape Architecture Program administers the Scenic Highway Program, contained in Streets and Highways Code Sections 260–263. State highways are classified as either Officially Listed or Eligible. No Officially Listed or Eligible State Scenic Highways designated under the Scenic Highway Act are located in close proximity to the project site.[5] The nearest eligible State Scenic Highway is Route 128 in Winters, located approximately 7.7 miles west of the project site. The nearest officially designated State Scenic Highway is Route 160 in Sacramento, located approximately 16.5 miles southeast of the project site. Due to distance, the project site is not visible from either highway. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? ***(No New Impact)***

The project site is in a non-urbanized area, primarily surrounded by agricultural uses and open space. There are no County-designated scenic resources (vistas) within the boundaries of the proposed project.[6,7] The visual character of the project site is primarily defined by Putah Creek and its associated riparian vegetation.

During project construction activities, the visual character of the area would change with the introduction of construction equipment, construction materials, construction equipment staging areas, construction workers, and clearing of vegetation in the Putah Creek channel. This temporary condition would be visible to motorists approaching the project site from Pedrick Road and Levee Road and users of nearby trails and visitors to the UC Davis Center for Aquatic Biology and Aquaculture. However, construction activities would be confined to Putah Creek and its associated riparian vegetation and floodplain and construction would not degrade the visual characteristics of the open space and agricultural uses surrounding the site. Additionally, the change of visual

5 California, State of. 2019. Department of Transportation, California State Scenic Highway System Map. Website: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa (accessed October 7, 2022).

6 Yolo, County of. 2009. *2030 Countywide General Plan*. November 10.

7 Solano, County of, 2008. *Solano County General Plan.* November.

character at the project site during construction would be temporary in nature and would be returned to preconstruction conditions after completion of the proposed project.

Implementation of the proposed project would require removal of vegetation and trees within the project area; however, the proposed project would replace all trees removed and provide extensive restoration planting. All areas temporarily impacted during construction would be revegetated with native species. Implementation of the proposed project would result in the reconfiguration of degraded areas of the creek channel to a more natural cross-sectional form to stabilize eroding banks, facilitate channel shading with bank-side riparian vegetation, lower water temperatures, and improve habitat values for native fish species. All proposed improvements would either be at-grade or within the existing channel and would not obstruct scenic vistas. Once completed, the visual character or quality of the site would be enhanced due to the filling of the existing over-widened channel, the creation of a new narrow channel, and the establishment of a functioning riparian habitat. Therefore, the proposed project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(No New Impact)***

Streetlights, vehicle headlights and taillights, and lighting along Pedrick Road and Levee Road, as well as existing lighting sources associated with nearby UC Davis Center for Aquatic Biology and Aquaculture provide the existing sources of light and glare in the project area. No new light standards would be installed as part of the proposed project. Implementation of the proposed restoration project would not generate any additional traffic (e.g., additional vehicle headlights) or light or glare. As previously discussed, construction would be limited to the hours of 7:00 a.m. to 7:00 p.m. and would not contribute to nighttime light pollution. Therefore, implementation of the proposed project would not create a new source of light or glare, which would adversely affect day or nighttime views. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

5.2.1 Background

The project area is bounded by farmland on the south and the UC Davis Center for Aquatic Biology and Aquaculture, Putah Creek Facility (formerly the Animal Science Trout Hatchery) to the north. Land uses along the project reach are comprised of a 400- to 600-foot swath of open space/habitat within the project reach, surrounded on the south by field crops and on the north by a wastewater pond and treatment facility.

The project site is primarily classified as "Other Land" by the State Department of Conservation; however, portions of the project may also extend into land to the south of Putah Creek designated as "Unique Farmland" and land to the north of Putah Creek designated as "Urban and Built-Up

Land".[8] The northern portion of the project site within Yolo County is zoned as Public/Quasi-Public (PQP) and the southern portion of the project site within Solano County is zoned as Agricultural (A-40). However, no portions of the project site are currently used for agricultural or forestry purposes and the site is not subject to a Williamson Act contract.

5.2.2 Prior Environmental Analysis

5.2.2.1 2016 Program EIR

The 2016 Program EIR determined that the vast majority of land adjacent to the stream channel reaches associated with the Program are in active agricultural use and that construction could potentially result in conflicts with adjacent agricultural operations from construction vehicles using farm roads and the storage of soils and construction materials and equipment. Construction and maintenance of the Nishikawa reach would involve access through orchard properties; however, all of the work would be located within the open space and riparian creekside areas. The 2016 Program EIR determined that after the completion of stream restoration activities, boaters and hikers in the restored creek channel could find their way onto adjacent agricultural lands due to increased access afforded by the removal of existing dense non-native vegetation along the creek banks.

Impacts to agricultural resources was determined to be potentially significant; therefore, the 2016 Program EIR included Mitigation Measure 3.8-1, which requires coordination with adjacent landowners and implementation of access restrictions. The 2016 Program EIR concluded that implementation of stream restoration activities on the Nishikawa reach would not change or otherwise adversely affect long term existing or planned land uses on the site or adjacent properties and that potential impacts to agricultural lands would be reduced to a less-than-significant level with implementation of Mitigation Measure 3.8-1, below.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project.

Mitigation Measure 3.8-1: **Coordinate with Adjacent Landowners and Implement Access Restrictions**. The following measures shall be implemented to reduce impacts of restoration on adjacent agricultural lands:

- The Project sponsor shall coordinate with adjacent landowners providing access and/or storage areas for project construction activities and materials. Access and construction work area plans acceptable to all parties shall be developed prior to the start of any construction abutting potentially affected lands.
- In locations where post-construction access to private agricultural lands by the public may be facilitated by restoration efforts, the Project shall provide warning signage (i.e., Private

[8] California, State of. 2016. Department of Conservation. California Important Farmland Finder. Website: maps.conservation.ca.gov/dlrp/ciff (accessed October 7, 2022).

Property – No Trespassing) and wildlife-friendly fencing along the creek as needed.

5.2.2.2 Statewide Order EIR

The Statewide Order EIR determined that some restoration projects permitted under the Statewide Order could result in new long-term or permanent features that could result in permanent conversion of Special Designation Farmland to nonagricultural use or conflicts with agricultural zoning or Williamson Act contracts. Mitigation measures were identified to reduce potential impacts; however, because the extent and location of such actions were not known and the effectiveness of the mitigation measures could not be determined, the Statewide Order EIR determined that this impact would be significant and unavoidable. Impacts to forest and timber land were determined to be less than significant.

As part of the State Water Board or RWQCB's issuance of an NOA for a restoration project under the Statewide Order, compliance with Mitigation Measure AG-1 and AG-2 and Mitigation Measure GEO-6 (see Section 5.7, Geology and Soils) would be required when applicable to a given project.

Applicable Mitigation Measures. In addition to Mitigation Measure GEO-6 (see Section 5.7 Geology and Soils), the following mitigation measure would apply to the proposed project:

Mitigation Measure AG-1: **Minimize and Avoid Loss of Special Designation Farmland.** The following measures shall be implemented before and during construction of restoration projects permitted under the Order to minimize and avoid loss of Special Designation Farmland, as applicable.

- Restoration projects shall be designed to minimize, to the greatest extent feasible, the loss of agricultural land with the highest values.

- Restoration projects that will result in permanent conversion of Special Designated Farmland shall preserve other Special Designation Farmland in perpetuity by acquiring an agricultural conservation easement, or by contributing funds to a land trust or other entity qualified to preserve Special Designation Farmland in perpetuity (at a target ratio of 1:1, depending on the nature of the conversion and the characteristics of the Special Designated Farmland to be converted, to compensate for the permanent loss).

  Based upon the cost and availability of farmland, whether the landowner is sponsoring the project, recent (within 5 years) and ongoing farmland viability, and other factors, the CEQA lead agency for the individual restoration project should consider whether a 1:1 ratio is appropriate and feasible on a case-by-case basis. For example, contributions to a program such as the

California Farmland Conservancy Program, which establishes conservation easements to preserve existing farmland in California, may be prohibitively expensive at a 1:1 ratio where there is a significant amount of affected Special Designated Farmland because it is based on a farm real estate average value per acre. For example, the farm real estate average value per acre in 2019 was $10,000 [USDA 2019].

- Restoration project features shall be designed to minimize fragmentation or isolation of Special Designation Farmland. Where a project involves acquiring land or easements, the remaining non project area shall be of a size sufficient to allow viable farming operations. The project proponents shall be responsible for acquiring easements, making lot line adjustments, and merging affected land parcels into units suitable for continued commercial agricultural management.

- Any utility or infrastructure serving agricultural uses shall be reconnected if it is disturbed by project construction. If a project temporarily or permanently cuts off roadway access or removes utility lines, irrigation features, or other infrastructure, the project proponents shall be responsible for restoring access as necessary to ensure that economically viable farming operations are not interrupted.

- Where applicable to a project site, buffer areas shall be established between restoration projects and adjacent agricultural land. The buffers shall be sufficient to protect and maintain land capability and flexibility in agricultural operations. Buffers shall be designed to protect the feasibility of ongoing agricultural operations and reduce the effects of construction-related or operational activities (including the potential to introduce special-status species in the agricultural areas)on adjacent or nearby properties. Buffers shall also serve to protect restoration areas from noise, dust, and the application of agricultural chemicals. The width of each buffer shall be determined on a project-by-project basis to account for variations in prevailing winds, crop types, agricultural practices, ecological restoration, or infrastructure. Buffers can function as drainage swales, trails, roads, linear parkways, or other uses compatible with ongoing agricultural operations.

As noted above and described further below, the project site is not under Williamson Act contract, therefore, Mitigation Measure AG-2 identified in the Statewide Order EIR would not apply.

5.2.3 Impact Analysis

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ***(No New Impact)***

The project site is primarily classified as "Other Land" by the State Department of Conservation; however, portions of the project may extend into land to the south of Putah Creek designated as "Unique Farmland" and land to the north of Putah Creek designated as "Urban and Built-Up Land."[9] The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Although project activities may occur on land designated as "Unique Farmland," the proposed project would be limited to riparian creekside areas and would not result in the conversion of agricultural land to a non-agricultural use. After the completion of construction, the land use of the project site would be consistent with existing conditions. Furthermore, Mitigation Measure 3.8-1 identified in the 2016 Program EIR and Mitigation Measure AG-1 identified in the Statewide Order EIR would be implemented to ensure restoration activities would not result in any significant impacts to adjacent agricultural lands. Therefore, with implementation of Mitigation Measure 3.8-1 and Mitigation Measure AG-1, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No New Impact)***

The California Land Conservation Act of 1965 (the Williamson Act) is a voluntary program that incentivizes the preservation of farmland. The project site is not located on land that is under a Williamson Act contract.[10,11]

The northern portion of the project site within Yolo County is zoned as Public/Quasi-Public (PQP) and the southern portion of the project site within Solano County is zoned as Agricultural (A-40). Although portions of the project site are located on land zoned for agricultural use, project activities would be limited to riparian creekside areas and no portions of the project site are currently used for agricultural purposes. The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. These activities would not conflict with the Solano County Agricultural (A-40) zoning and project activities would have no impact on the nearby agricultural operations with implementation of Mitigation Measure 3.8-1 and Mitigation Measure AG-1. Therefore, with

9 California, State of. 2016. op. cit.
10 Solano, County of, 2008. *Solano County General Plan.* Figure AG-2, Williamson Act Contracts (2006). November.
11 Yolo, County of, 2009. *County of Yolo 2030 Countywide General Plan.* Figure AG-5, Williamson Act Contracts. November 10.

implementation of Mitigation Measure 3.8-1 and Mitigation Measure AG-1, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? ***(No New Impact)***

Neither the project site nor the surrounding area is zoned for forest land, timberland, or timberland production. Therefore, no new or substantially more severe significant impacts to farmland beyond what has been analyzed in the prior environmental document would occur. No additional analysis is required.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? ***(No New Impact)***

No forest or timberland exists on the project site or in the surrounding area. Therefore, the proposed project would not result in the loss of forest land or the conversion of forest land to non-forest use. Therefore, no new or substantially more severe significant impacts to forest land beyond what has been analyzed in the prior environmental document would occur. No additional analysis is required.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? ***(No New Impact)***

As previously discussed, no forest land or timberland exists on the project site or in the surrounding area and the proposed project would not result in the conversion of forest land to non-forest use. The southern portion of the project site within Solano County is located on land zoned as Agricultural (A-40); however, the proposed restoration activities would be limited to riparian creekside areas and no portions of the project site are currently used for agricultural or purposes. Furthermore, implementation of Mitigation Measure 3.8-1 and Mitigation Measure AG-1 would ensure that restoration activities would not result in any significant impacts to the adjacent agricultural lands. Therefore, with implementation of Mitigation Measure 3.8-1 and Mitigation Measure AG-1, no new impacts or substantially more severe significant impacts would occur with implementation of the proposed project.

5.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☐	☒
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

5.3.1 Background

The proposed project is located in the Sacramento Valley Air Basin (SVAB), which encompasses 11 counties including all of Shasta, Tehama, Glenn, Colusa, Butte, Sutter, Yuba, Sacramento, and Yolo counties, the westernmost portion of Placer County and the northeastern half of Solano County and is within the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD). The YSAQMD operates a regional monitoring network for ambient concentrations of criteria pollutants. Currently, the criteria pollutants of most concern in the SVAB are ozone and particulate matter (PM). The YSAQMD-operated monitoring stations closest to the project site that represent the rural nature of the project area are the Davis station at UC Davis, approximately 2 miles to the north of the site, and the Woodland station on Gibson Road, approximately 10 miles to the north of the project site. Data from these air monitoring stations for the last three years show a small number of violations related to State and federal ozone standards, and State PM_{10} standards. No other State or federal air quality standards were exceeded during the three-year period.[12]

Within the SVAB, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The SVAB is currently designated "nonattainment" for State and federal ozone standards, the State PM_{10} standard, and federal $PM_{2.5}$ standard. The SVAB is designated "attainment" or "unclassified" with respect to the other ambient air quality standards.

12 California Air Resources Board (CARB), 2022. *iAdam: Air Quality Data Statistics. Top 4 Summary: Top 4 Measurements and Days Above the Standard*. Website: https://www.arb.ca.gov/adam/index.html

5.3.2 Prior Environmental Analysis

5.3.2.1 2016 Program EIR

The 2016 Program EIR concluded that implementation of the Program would not result in population or employment growth and therefore would result in no impact related to the applicable air quality plans. However, the 2016 Program EIR determined that short-term emissions generated from construction activities and use of construction equipment including dump trucks, rubber-tired loaders, off-highway trucks, tractors/loaders/backhoes, an excavator, and a generator could result in potentially significant impacts to air quality that could contribute to existing or projected air quality violations. Therefore, the 2016 Program EIR included Mitigation Measure 3.5-1, below, which requires implementation of air quality construction Best Management Practices, to reduce potential impacts to air quality from construction emissions to a less-than-significant level.

The 2016 Program EIR determined that although construction activities would entail the use of diesel equipment that would generate emissions of diesel particulate matter (DPM), exhaust emissions associated with construction would be relatively low, short-term in nature, and would not result in an elevated health risk to nearby homes. Additionally, although objectionable odors could occur during project construction with the use of diesel-powered heavy equipment, the 2016 Program EIR concluded that these odors would be temporary in nature and would not generate any objectionable odors that would affect a substantial number of people. The proposed stream restoration activities would be primarily self-maintaining and although some maintenance and adaptive management may be required, the 2016 Program EIR determined that implementation of the Program would not result in long-term emissions.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project.

Mitigation Measure 3.5-1: **Implementation of Construction Best Management Practices.** Project construction activities should implement as feasible and necessary to control dust, the Best Management Practices for construction identified in Section 6.1 of the YSAQMD 2007 CEQA Handbook. Best Management Practices identified to reduce dust emissions include:

- Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Haul trucks shall maintain at least 2 feet of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed area.

- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6 to 12 inch layer of wood chips or mulch.
- Treat accesses to a distance of 100 feet from the paved road with a 6- inch layer of gravel.

5.3.2.2 Statewide Order EIR

The Statewide Order EIR concluded that operation and maintenance activities associated with the various restoration projects permitted under the Statewide Order could temporarily generate emissions of air pollutants; however, given the temporary and intermittent nature of the impacts and the dissipation of pollutant concentrations, such emissions were unlikely to affect a substantial number of people. In addition, implementation of general protection measures identified in the Statewide Order would further reduce emissions such that air quality impacts associated with operation and maintenance activities would be less than significant. However, the Statewide Order EIR determined that short-term emissions associated with construction activities could result in potentially significant air quality impacts. The Statewide Order EIR included Mitigation Measures AIR-1 and AIR-2 to reduce potential impacts to air quality from construction emissions; however, these impacts were still determined to be significant and unavoidable.

As part of the State Water Board or RWQCB's issuance of an NOA for a restoration project under the Statewide Order, compliance with Mitigation Measures AIR-1 and AIR-2 would be required when applicable to a given project.

Applicable Mitigation Measures. The following mitigation measure would apply to the proposed project:

Mitigation Measure AIR-1: **Minimize Conflicts with Applicable Air Quality Plans.** Proponents of restoration projects permitted under the Order and their construction contractors shall implement the following measures to minimize conflicts between project construction and applicable air quality plans:

- Use equipment and vehicles that comply with CARB requirements and emission standards for on-road and off-road fleets and engines. New engines and retrofit control systems should reduce NOX and PM emissions from diesel-fueled on-road and off-road vehicles and equipment.

- Minimize idling times, either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure, Title 13, Section 2485 of the California Code of Regulations). Clear signage should be posted for construction workers at all entrances to the site.

- Maintain all equipment in proper working condition according to the manufacturer's specifications.

- Use electric equipment when possible. Use lower emitting alternative fuels to power vehicles and equipment where feasible.

- Use low–volatile organic compound (VOC) coatings and chemicals; minimize chemical use.

Mitigation Measure AIR-2: **Minimize Construction Air Pollutant Emissions.** Air quality analyses prepared for future restoration projects shall evaluate human health risks from potential exposures of sensitive receptors to substantial pollutant concentrations from the projects. The need for a human health risk analysis should be evaluated using approved screening tools, and discussed with the local air quality management district or air pollution control district during the preparation of the air quality analysis.

If the project's health risk is determined to be significant, control measures should be implemented to reduce health risks to levels below the applicable air district threshold.

Implementation of one or more of the following requirements, where feasible and appropriate, would reduce the effects of construction:

- Use equipment with diesel engines designed or retrofitted to minimize DPM emissions, usually through the use of catalytic particulate filters in the exhaust.

- Use electric equipment to eliminate local combustion emissions.

- Use alternative fuels, such as compressed natural gas or liquefied natural gas.

If the restoration project would result in significant emissions of airborne, naturally occurring asbestos, or metals from excavation, hauling, blasting, tunneling, placement, or other handling of rocks or soil, a dust mitigation and air monitoring plan shall identify individual restoration project measures to minimize emissions and ensure that airborne concentrations of the TACs of concern do not exceed regulatory or risk-based trigger levels.

5.3.3 Impact Analysis

a. Would the project conflict with or obstruct implementation of the applicable air quality plan? ***(No New Impact)***

The applicable air quality plan is the 2017 Sacramento Regional 2008 8-Hour Ozone and Further Reasonable Progress Plan (2017 Ozone Plan). Consistency with the 2017 Ozone Plan can be determined if the proposed project supports the goals of the plan, includes applicable control measures from the plan, and would not disrupt or hinder implementation of any control measures from the plan. Consistency with the 2017 Ozone Plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan.

In compliance with the *State CEQA Guidelines*, the analysis below evaluates whether implementation of the proposed project would conflict with or otherwise obstruct implementation of regional air quality plans. For air quality planning purposes, the 2017 Ozone Plan contains emissions inventories based on existing and foreseeable future land uses within its jurisdiction. If a new project is consistent with the planned land use designation that was considered in the development of an air quality management plan, the proposed project would not conflict with and would not obstruct implementation of the applicable air quality management plan. Generally, a project's conformance with a local general plan that was considered in the preparation of an air quality management plan would demonstrate that the project would not conflict with or obstruct implementation of the air quality management plan.

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed stream channel restoration activities would not conflict with Yolo and Solano counties' land use plan designations and zoning. In addition, as discussed below, the proposed project would not generate emissions that would exceed YSAQMD thresholds. As such, the project would not conflict with or obstruct implementation of the applicable air quality plan, and this impact would be less than significant. Therefore, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? ***(No New Impact)***

The YSAQMD is currently designated as a non-attainment area for State and national $PM_{2.5}$ and O_3 standards. The YSAQMD non-attainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the YSAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. To meet these standards, the YSAQMD has established project-level thresholds for criteria pollutant emissions generated during both construction and operation of projects as shown in Table A, below.

Table A: YSAQMD Thresholds of Significance for Criteria Pollutants of Concern

Pollutant	Thresholds of Significance
ROG	10 tons per year
NO_x	10 tons per year
PM_{10}	80 pounds per day
CO	Violation of a State ambient air quality standard for CO

Source: YSAQMD, 2007. Handbook for Assessing and Mitigating Air Quality Impacts. July 11. Website: https://yolosolanoair.wpenginepowered.com/wp-content/uploads/Planning/CEQAHandbook2007.pdf (accessed January 2023).
CO = carbon monoxide
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 microns in size
ROG = reactive organic gases

The following analysis assesses the potential construction- and operation-related air quality impacts and CO impacts of the proposed project.

Construction Emissions. During restoration activities, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by demolition, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, nitrogen oxide (NO_x), reactive organic gases (ROG), directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and toxic air contaminants (TACs) such as diesel exhaust particulate matter.

Site preparation and project construction would involve demolition, grading, paving, and other activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these

activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. In addition to dust related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, sulfur dioxide (SO_2), NO_x, ROG, and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the California Emissions Estimator Model version 2022.1 (CalEEMod), consistent with YSAQMD recommendations (Appendix A). The proposed project is estimated to take 4 to 5 months to complete beginning in summer 2023 or summer 2024, which was included in CalEEMod. In addition, net spoils exported from the site would equal approximately 25,000 cubic yards, which was included in CalEEMod. This analysis also assumed the use of graders, excavators, water trucks, dump trucks, dozers, scrapers, and loaders during project construction. Other construction details are not yet known (construction worker trips); therefore, default assumptions were used. Construction-related emissions are presented in Table B, below.

Table B: Project Construction Emissions

	Maximum Daily Emissions (pounds per day)				
	ROG	**NO_x**	**CO**	**$PM_{2.5}$**	**PM_{10}**
Maximum Daily	4.8	46.7	39.3	12.2	74.7
YSAQMD Significance Threshold	N/A	N/A	N/A	N/A	80
Above Threshold?	N/A	N/A	N/A	N/A	No
	Annual Emissions (tons per year)				
	ROG	**NO_x**	**CO**	**$PM_{2.5}$**	**PM_{10}**
Annual Emissions	0.3	2.5	2.1	0.6	4.1
YSAQMD Significance Threshold	10	10	N/A	N/A	N/A
Above Threshold?	No	No	N/A	N/A	N/A

Source: (December 2022).
CalEEMod = California Emissions Estimator Model
CO = carbon monoxide
N/A = not applicable
NO_x = nitrogen oxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROG = reactive organic gases

As shown in Table B, maximum daily emissions from project construction would be 74.7 pounds/day for PM_{10}, which is below the threshold of 80 pounds/day for PM_{10}. Additionally, as shown in Table B, the annual emissions from project construction would be 0.3 tons/year for ROG and 2.5 tons/year for NO_x, which is below the threshold of 10 tons/year for ROG and NO_x. The YSAQMD also requires the implementation of best management practices to reduce construction fugitive dust impacts, as required by 2016 Program EIR Mitigation Measure 3.5-1 and Mitigation Measure AQ-1 identified in the Statewide Order EIR. As such, construction emissions associated with the proposed project would be below established thresholds. Therefore, with implementation of 2016 Program EIR Mitigation Measure 3.5-1 and Statewide Order EIR Mitigation Measure AQ-1, which require the implementation of BMPs, construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard. With implementation of the mitigation measures identified in the prior CEQA documents, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Operational Emissions. Long-term air emission impacts are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin. As discussed above, the proposed project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The project would not result in an increase in the generation of operational vehicle trips or vehicle miles traveled that would increase air pollutant emissions. The project would not be a source of stationary source emissions. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standards. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? ***(No New Impact)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

Construction of the proposed project may expose nearby sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, construction contractors would be required to implement BMPs to reduce construction fugitive dust, as required by 2016 Program EIR Mitigation Measure 3.5-1 above and Statewide Order EIR Mitigation Measure AQ-1. With implementation of Mitigation Measure 3.5-1 and Mitigation Measure AQ-1, project construction emissions would be below YSAQMD significance thresholds. Once the project is constructed, the project would not be a source

of substantial emissions. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction or operation. With implementation of mitigation measures identified in the prior CEQA documents, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? ***(No New Impact)***

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source, the wind speeds and direction, and the sensitivity of the receiving location each contribute to the intensity of the impact. While offensive odors rarely cause any physical harm, they can be unpleasant and cause distress among the public and generate citizen complaints.

During construction, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be temporary and would not persist upon construction completion.

Once operational, the proposed project would not include any sources of odor emissions; therefore, operation of the proposed project would not generate any odor impacts. The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.4 BIOLOGICAL RESOURCES

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

5.4.1 Background

To identify biological resources on the project site, a biological resources reconnaissance-level survey was conducted at the project site on August 18, 2020, while an additional site visit was completed on October 20, 2020. A complete tree inventory was conducted from March 30 through April 1, 2020. Prior to conducting the reconnaissance-level survey, the California Natural Diversity Database,[13] California Native Plant Society Inventory of Rare and Endangered Plants,[14] official species list from the United States Fish and Wildlife Service (USFWS) of federally listed species[15] and other background studies were reviewed in order to compile a list of special-status species that

[13] California Department of Fish and Wildlife (CDFW). 2022. California Natural Diversity Database (CNDDB), Rarefind V. 5. Website: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data (accessed July 7, 2022)

[14] California Native Plant Society (CNPS). 2022. Rare Plant Program, Inventory of Rare and Endangered Plants of California (online edition). Website: https://www.rareplants.cnps.org (accessed July 24, 2022).

[15] U.S. Fish and Wildlife Service. 2020. IPaC Information for Planning and Consultation. List of Threatened and Endangered Species That May Occur in Your Proposed Project Location, and/or May Be Affected By Your Proposed Project. November 16.

could occur at the site. The vegetation and jurisdictional waters present at the project site are described below.

Vegetation. Most of the project area is characterized by varying levels of disturbance. Some areas are relatively unimpacted native habitats; other areas include invasive plant vegetation. The survey area is located within the Sacramento Valley subregion of the California Floristic Province.[16] Invasive weed species are common along both banks of the reach, with Himalayan blackberry being the most prevalent and insidious species. Some effort has been initiated by the Lower Putah Creek Coordinating Committee and UC Davis to control invasives along the banks of the project area. Vegetation communities in the project area consist of riparian and upland habitat, which support a diverse assemblage of trees, shrubs, grass, and herbaceous species.

The site's primary vegetation community type is valley foothill riparian natural community, which consists of a multilayered woodland plant community with a tree overstory and diverse shrub layer. The valley foothill riparian natural community is usually associated with streams and creeks with low-velocity flows, floodplains, and low topography. The riparian natural community supports a diversity of plant and animal species and a variety of specialized plant and animal species that are restricted to this natural community. The following plant community descriptions are considered representative of current plant community conditions at the project site:

- **Mixed Riparian Forest:** The most common plant community in the lower Putah Creek riparian corridor and at the project area is Mixed Riparian Forest. The width and complexity of Mixed Riparian Forest varies and is characterized by one or more well-developed canopy layers, consisting of an upper layer of tall Fremont cottonwood trees (*Populus fremontii*) and black walnut (*Juglans nigra*); intermediate canopy layers composed of valley oak (*Quercus lobata*), Oregon ash (*Fraxinus latifolia*), red willow (*Salix laevigata*), Goodding's willow (*Salix gooddingii*), box elder (*Acer negundo*); and a discontinuous shrub layer comprising elderberry (*Sambucus nigra*), Himalayan blackberry (*Rubus armeniacus*), wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), and wild grape (*Vitis californica*). In some areas near the creek, a subcanopy layer consists of dense riparian vegetation dominated by willow species, including scattered individuals of arroyo willow and sandbar willow. Mixed Riparian Forest at the project area has been invaded by tree of heaven in the subcanopy and shrub layers, and red gum (Eucalyptus camaldulensis) in the canopy layer. The most abundant tree species in the project area is black walnut (31 percent), followed by valley oak (24 percent), red gum (15 percent), and Oregon ash (12 percent). Consequently, the project area's primary vegetation community is a black walnut–valley oak riparian forest.

- **Riparian Scrub:** Riparian Scrub occurs within the floodplain along stream margins. Dominant species include sandbar willow, arroyo willow, and red willow. Sometimes the early-successional stage stands of mixed riparian forest (e.g., arroyo willow) are considered riparian scrub because

[16] Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California (2nd edition). Berkeley and Los Angeles, California: University of California Press

of the shrub-like stature of the trees. Stands typically lack an understory but may support an understory of Himalayan blackberry, wild rose, wild grape, and various nonnative grasses.[17]

- **Annual Grasslands:** Small patches of Annual Grasslands are distributed throughout the project area in upland positions. These areas can support non-wetland species and a variety of nonnative grasses and forbs such as soft chess (*Bromus hordeaceus*), filaree (*Erodium botrys*), Mediterranean barley (*Hordeum marinum*), slender oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), and rose clover (*Trifolium hirtum*). Annual Grasslands may occasionally contain small areas of perennial native grasses, including purple needlegrass (*Stipa pulchra*) and creeping wildrye (*Elymus triticoides*). These patches of native grasslands are very small and scattered in areas with relict floodplains and prior restoration areas. Invasive weeds such as milk thistle (*Silybum marianum*) and Italian thistle (*Carduus pycnocephalus*) are abundant.

- **Ruderal:** Ruderal vegetation occurs throughout the project area in the riparian corridor and particularly along the edge of agricultural fields, roads, parking lots, etc. These areas are generally disturbed by adjacent land uses (farming, roadsides) and are therefore dominated by nonnative herbs such as yellow starthistle (*Centaurea solstitialis*), milk thistle, Italian thistle, prickly lettuce (*Lactuca serriola*), mustard species (*Brassica nigra, Hirschfeldia incana*), soft chess, ripgut brome, and wild oat (*Avena fatua*).

- **Riverine Wetland:** Riverine Wetlands within the project area are perennial wetlands along the creek channel and lower bank, and instream wetlands that formed on sand or gravel bars. There are no patches of emergent freshwater marsh (i.e., dominated by cattails, tules, and California bulrush [*Schoenoplectus californicus*]). Riverine Wetlands are influenced by frequent flooding, scour, and seasonal and annual water level fluctuations. Common associates in these and more seasonal types of Riverine Wetlands include smartweed (*Polygonum* spp.), umbrella sedge (*Cyperus eragrostis*), sedges (*Carex* spp.), common rush (*Juncus effusus*), mugwort (*Artemisia douglasiana*), cocklebur (*Xanthium strumarium*), rice cutgrass (*Leersia oryzoides*), canary grass (*Phalaris* spp.), field mint (*Mentha arvensis*), and western goldenrod (*Euthamia occidentalis*).

The project site may support two natural communities that are considered rare: Elderberry Savannah and Great Valley Cottonwood Riparian Forest.

Jurisdictional Waters. The entire project area was evaluated to determine the current presence, location, and size of federal and State jurisdictional wetlands and other waters of the United States (WOTUS), and to identify their connection to on-site and off-site hydrologic resources. Based on the jurisdictional delineation, the total area of jurisdictional wetlands within the study area boundaries is 6.35 acres (Table C). The total length of non-wetland waters that cross the study area boundaries is 2.121 acres. The total area of non-wetland areas within the study area boundaries is 20.528 acres.

[17] EDAW. 2005. Lower Putah Creek Watershed Management Action Plan: Phase I—Resource Assessments. Prepared for Lower Putah Creek Coordinating Committee. Vacaville, California.

Table C: Wetland Delineation Summary

Waters Name	Acres	Description	Latitude	Longitude
Wetland 1	2.865	Forested, Lotic, Riparian (RP1FO)	38.52700000	-121.81110000
Wetland 2	3.485	Forested, Lotic, Riparian (RP1FO)	38.52600000	-121.80800000
Total Wetlands	**6.350**			
Putah Creek	2.121	Unconsolidated Shore, Upper Perennial, Riverine (R3US)	38.52600000	-121.81000000

Source: Nishikawa Wetland Delineation Draft. Unpublished report to the Solano County Water Agency (Vollmar & LifeSciences! 2020).

5.4.2 Prior Environmental Analysis

5.4.2.1 2016 Program EIR

The 2016 Program EIR determined that the proposed stream restoration activities would result in temporary disturbance of the project area which could support special-status wildlife species, such as federal and California threatened or endangered species of special concern, including the valley elderberry longhorn beetle, Swainson's hawk, and the western pond turtle. Additionally, herbicide use during project activities could impact elderberry plants that may be present within the Nishikawa reach. However, implementation of Mitigation Measures 3.4-1 through 3.4-12 would be required which entail implementation of a worker environmental awareness program; avoidance and minimization measures for western pond turtle, giant garter snake, valley elderberry longhorn beetle, Swainson's hawk, nesting birds, special-status bats, and rare plants; implementation of a Riparian Revegetation and Monitoring Plan; implementation of aquatic habitat protection measures; avoidance and minimization measures for native or migratory fish or wildlife species; and implementation of herbicide protective actions. The 2016 Program EIR concluded that implementation of Mitigation Measures 3.4-1 through 3.4-12 would reduce potential impacts to special-status species to a less-than-significant level.

The 2016 Program EIR determined that riparian habitat and riverine wetlands would be enhanced and restored in the long-term but short-term construction activities associated with the Program, including the removal or alteration of the existing vegetation, soil, and channel would result in potential impacts to riparian habitat and wetlands. However, this impact would be reduced to a less-than-significant level with the implementation of Mitigation Measure 3.4-9, which requires implementation of a Riparian Revegetation and Monitoring Plan.

The 2016 Program EIR determined that in the long-term, the Program would result in the conversion of aquatic habitat within the project area from low quality open water habitat to high quality and function transitional floodplain and riparian habitat. However, short-term construction activities could have direct and indirect impacts to aquatic habitat through potential disturbance to existing vegetation, soils, and species. The 2016 Program EIR determined that implementation of Mitigation Measure 3.4-10, which requires implementation of aquatic habitat protection measures, would reduce short-term impacts to less-than-significant levels.

The 2016 Program EIR determined that project implementation may temporarily interfere with the movement of species within the project area, including Song sparrow, Swainson's hawk, valley elderberry longhorn beetle, western pond turtle, and white-tailed kite, North American beaver,

North American river otter, and fish species. However, potential impacts would only occur during construction activities and implementation of Mitigation Measure 3.4-11, which requires the implementation of avoidance and minimization measures for native or migratory fish and wildlife species, would prevent any significant impacts on species movement during the construction period. The 2016 Program EIR concluded that species movement would be improved after the completion of construction.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project.

Mitigation Measure 3.4-1: **Worker Environmental Awareness Program (WEAP).** During construction of individual projects under the Program, before any work occurs on the Project site, including grading, vegetation removal and equipment staging, all construction personnel shall participate in an environmental awareness training regarding special-status species and sensitive habitats present on the Project site. Any additional construction personnel that are employed following the initial start of construction shall receive the mandatory training before starting work. As part of the training, an environmental awareness handout shall be provided to all personnel that describes and illustrates sensitive resources (i.e., special-status species and habitat, nesting birds/raptors) to be avoided during proposed Project construction and lists measures to be followed by personal for the protection of biological resources. Such measures shall include, but are not limited to:

- Procedures to follow if a special-status species is found within the work area. Haul trucks shall maintain at least 2 feet of freeboard.
- Checking under equipment and staging areas for wildlife species each morning prior to work.
- Staying within designated work areas.
- Maintaining exclusion/silt fencing.
- Reduced Project speed limits.
- No pets or firearms on-site.
- Contain trash/food waste and remove daily to avoid encouraging predators onto the Project site.
- Following Project Best Management Practices (BMPs).

Mitigation Measure 3.4-2: **Western Pond Turtle Avoidance.** The western pond turtle shall be protected from restoration project staging and operations areas through monitoring by a qualified biologist. For individual restoration projects, the project work area shall be inspected daily for the presence of turtles. If necessary, with consultation with CDFW, barriers shall be used when needed to direct the turtles and move them to an area of suitable habitat outside of the construction activity.

Mitigation Measure 3.4-3: **Giant Garter Snake Avoidance.** In areas that provide suitable habitat for giant garter snake, construction shall only occur during the active period for the snake, between May 1 and October 1. During the active period for giant garter snake direct mortality is lessened because snakes are expected to actively move and avoid danger. Preconstruction surveys for the giant garter snake shall occur within 24 hours prior to ground disturbing activities. A survey of the project work area shall be repeated if a lapse in construction activity of two weeks or greater has occurred.

If a snake is encountered during construction, work shall stop within the vicinity of the snake and the USFWS will be contacted immediately. Only following receipt of USFWS approval shall giant garter snake be collected and transferred to the nearest suitable habitat outside the work area. Work shall not re-commence until a qualified biologist has either removed the snake from the construction area or, after thorough inspection, determined that the snake has vacated the construction area.

Any dewatering or vegetation clearing within 200 feet of potential aquatic habitat for giant garter snake shall be limited to the minimum amount necessary.

Mitigation Measure 3.4-4: **Valley Elderberry Longhorn Beetle (VELB) Avoidance.** Blue elderberry plants (with stems greater than 1-inch diameter at ground level) occurring within Program Area shall be avoided and, if avoidance is not possible, relocated to a designated location. Where Project impacts to elderberry shrubs cannot be avoided, or where shrubs are located within 30.5 meters (100 feet) of project-specific restoration activities, activities shall be conducted according to USFWS Conservation Guidelines for VELB (1999), or other VELB guidance as updated by the USFWS.

VELB habitat shall be considered directly affected if Project construction requires the removal of elderberry shrubs or if ground-disturbing activities would occur within 6.1 meters (20 feet) of the dripline of an elderberry shrub. The species would be considered

indirectly affected if Project construction would disturb the ground between 6.1 and 30.5 meters (20 and 100 feet) from the dripline of the shrub (USFWS, 1999). Transplantation or temporary removal of the affected shrubs may be necessary as prescribed by the guidelines, but plants that are extremely difficult to remove may be exempted. Planting of additional seedlings or cuttings may be required under the Project or program USFWS Biological Opinion, depending on the number of elderberry shrubs with emergence holes present in the Project Area.

A monitoring plan of any mitigation measures in the Project Area shall be implemented as required under the Biological Opinion, including monitoring the general condition of individual project sites and/or the entire Program Area and the condition of the elderberry plantings for up to ten consecutive years. The plan shall describe monitoring responsibilities, intervals, intensity, and success rates. The monitoring plan shall further include requirements for reporting observations and findings to the applicable agency, for example, for VELB observations, to USFWS.

Mitigation Measure 3.4-5: **Swainson's Hawk Avoidance.** For any construction activities initiated between March 15 and September 1, surveys for nesting Swainson's hawk shall be conducted within 0.5-mile of areas of disturbance for this species as described in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000). The recommended minimum survey protocol is completion of surveys for at least the two survey periods immediately prior to a project's initiation. Survey periods correspond to typical migration, courtship, and nesting behavior and defined as follows:

Survey Period	Survey Dates	Survey Time	Number of Surveys
1	January 1 to March 20	All day	1
2	March 20 to April 5	Sunrise to 1000 or 1600 to sunset	3
3	April 5 to April 20	Sunrise to 1200 or 1630 to sunset	3

4	April 21 to June 10	All day; Monitoring known nests only	Ongoing
5	June 10 to July 30	Sunrise to 1200 or 1630 to sunset	3

If surveys determine that the species is present and nesting within a restoration project site, a buffer zone of 0.5-mile shall be established and coordination with CDFW shall be required prior to any work in this buffer zone during the nesting season. Work within 0.5-mile may be permitted with CDFW approval if a qualified biologist monitors the nest when Project disturbance activities occur within 0.5-mile of the nest. If the monitor determines that construction may result in abandonment of the nest, all construction activities within 0.5-mile shall be halted until the nest is abandoned or all young have fledged. The monitor shall continue monitoring the nest until construction within 0.5-mile of the nest is completed, or until all chicks have completely fledged and are no longer dependent on the nest.

Mitigation Measure 3.4-6: **Nesting Bird Avoidance.** A pre-construction survey by a qualified biologist for nesting birds shall be required for individual projects if construction activities are scheduled to occur during the breeding season (February 1 to August 31) for raptors and other migratory birds, including special-status bird species. The survey shall be conducted 15 days prior to ground disturbing activities and shall cover 500-foot radius surrounding the construction zone.

If active nests are found, actions typically include, but are not limited to, monitoring by agency-approved biologists, establishment or refinement of species-specific buffers, reduction or elimination of the use of loud equipment, reducing foot traffic and remaining in the vehicles, and the maintenance of visual screens. Migratory birds shall be protected from staging and construction operations through the use of a buffer established based on the birds' sensitivity and response to the potential activities. Baseline behavior of the bird should be established to inform the buffer size. The qualified biologist may start with a 100-foot nest buffer or a 250-foot nest buffer for raptors but may adjust the buffer size based of the reaction of the bird(s) to the construction activity. If there is a potential for nest abandonment due to intrusion into the buffer zone, as established by the qualified biologist, then CDFW and the USFWS shall be consulted. If a lapse in project-related work of 15

days or longer occurs, another focused survey, and if required, consultation with CDFW and the USFWS shall be performed before Project work can resume.

Mitigation Measure 3.4-7: **Avoid and Minimize Impacts to Special-Status Bats.** In areas where suitable habitat occurs and there is potential for special-status bat species to be present, specific mitigation measure(s) will be developed in consultation with CDFW. Specific measures may vary depending on the project reach and project activities, and may include the following:

A pre-construction bat survey shall be conducted by a qualified biologist to establish the presence or absence of roosting bats prior to May 1st in order to put exclusionary measures into place before the active season of this species (no exclusionary efforts should be conducted during May 1 to August 31 of the construction year). If no roosting bats are found, no further mitigation shall be necessary; however, it is recommended that exclusionary measures be conducted prior to May 1st of each construction year to prevent bats from utilizing the riparian corridor.

If pallid bats, western red bats, or other bat species are detected within a roost at the time of the survey, excluding any bats from roosts, if possible, will be accomplished by a qualified biologist prior to the removal of roost trees. The timing and other methods of exclusionary activities will be developed by the qualified biologist in consultation with CDFW in order to reduce the stress on the bats to the extent feasible. Exclusionary devices, such as plastic sheeting, plastic or wire mesh, may be used to allow for bats to exit but not re-enter any occupied roosts, if applicable. A qualified biologist will also be notified and present during any tree removal or tree trimming.

Mitigation Measure 3.4-8: **Avoid and Minimize Impacts to Rare Plants.** Before the initiation of any vegetation removal or ground-disturbing activities, in areas that provide suitable habitat for special-status plants, the following measures shall be implemented:

- A qualified botanist shall conduct appropriately timed surveys for special-status plant species, in all suitable habitats that would be potentially disturbed by the Project.
- Surveys shall be conducted following CDFW- or other approved protocol.

- If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter to the lead agency, and other appropriate agencies as needed, and no further mitigation will be required.

- If special-status plants are found during focused surveys, the following measures shall be implemented:

- Information regarding the special-status plant population shall be reported to the CNDDB.

- If the populations can be avoided during Project implementation, they shall be clearly marked in the field by a qualified botanist and avoided during construction activities. Before ground clearing or ground disturbance, all on-site construction personnel shall be instructed as to the species' presence and the importance of avoiding impacts to this species and its habitat.

- If special-status plant populations cannot be avoided, consultations with CDFW and/or USFWS would be required. If allowed under the appropriate regulations, the plants shall be mapped, photographed, and then transplanted to a suitable location by a qualified botanist. If required by the relevant agency, a plan to compensate for the loss of special-status plant species, detailing appropriate replacement ratios, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures that would be implemented if the initial mitigation fails; the plan would be developed in consultation with the appropriate agencies prior to the start of construction activities.

- If mitigation is required, the Project proponent shall maintain and monitor the mitigation area for 5 years following the completion of construction and restoration activities. Monitoring reports shall be submitted to the resource agencies at the completion of restoration and for 5 years following restoration implementation. Monitoring reports shall include photo-documentation, planting specifications, a site layout map, descriptions of materials used, and justification for any deviations from the mitigation plan. Additional mitigation, monitoring may be required or modified by the administering agency, and those requirements would supersede this section.

Mitigation Measure 3.4-9: **Monitor Riparian Habitat.** In advance of construction of each individual project under the Program, a Riparian Revegetation and Monitoring Plan shall be prepared. Each plan will describe the

thresholds of revegetation success, monitoring and reporting requirements, and a description of the site-specific planting plan. The Plan will be submitted to the appropriate regulatory agencies for review and approval.

Monitoring Plans shall include the following, subject to modification based upon regulatory agencies review and approval.

Monitoring shall commence immediately following construction of each project implemented under the Program. Monitoring shall be performed for a period of at least five years and may be extended if contingency measures were required beyond the third year, and/or if the final success criteria are not met at the end of five years. In this event, monitoring shall continue until such time as all disturbed areas and restoration plantings are established and the long-term viability of the target replacement habitat is assured, as determined in consultation with the permitting agencies.

Monitoring Methods. Monitoring shall be performed by a qualified biologist, horticulturist, or ecologist with appropriate credentials and demonstrated experience in native habitat restoration. The project monitor shall provide oversight of maintenance operations to ensure high quality project maintenance, which conforms to standards established in the restoration plan for each individual project, and to immediately address any unanticipated problems. The monitor shall be in direct contact with SCWA/LPCCC, via regular telephone reports of maintenance activities and periodic site visits.

Recording of As-Built Conditions. Accurate plans shall be prepared depicting the finished grades, locations of any grade control or hydraulic structures, erosion control measures, and species, quantities and locations of all planted materials. Methods of construction and planting, as well as any significant problems or unexpected conditions encountered, shall also be recorded. As-built plans shall include surveyed cross-sections of the restored creek channel. Cross-section locations shall be permanently marked in the field. Permanent photo stations shall be established and depicted on the as-built plans. Baseline information shall be incorporated into a written report describing the as-built status of the restoration project and submitted with the as-built drawings to the permitting agencies within 6 weeks of completion of construction activities.

Monitoring Schedule. Monitoring visits shall be conducted monthly for the first year and at least quarterly thereafter, as determined necessary by the relative success of the project plantings in the first year.

Monitoring Protocol. During the monitoring visits, detailed records shall be made of the conditions existing at the restoration site. In order to maintain continuity and ensure comparable assessments, standardized data sheets shall be used to record monitoring data. A copy of the as-built planting plan shall be attached to the data sheets for each monitoring visit, so that monitoring data and observations may be tied to exact locations on the restoration site. Sample channel cross-sections, quadrats, and permanent photo stations shall be permanently marked in the field using rebar stakes.

Channel cross-sections shall be surveyed in the field to record the condition of the channel and banks, and any changes occurring as a result of natural geomorphic adjustment or other causes (e.g. possible vandalism, or human activity in the channel, wildlife trails/laydown areas, etc.).

Quadrat sampling methods shall be used to record data for selected areas of the restoration site. Required monitoring data would include:

- Percent survival and average height of all trees planted (with the exception of willows and cottonwoods, which shall be evaluated based upon aerial cover);
- Overall cover, percent cover by species (dominant as well as incidental species present shall be recorded), and natural recruitment of native and invasive species;
- Mortality and other problems such as insect damage, erosion, or other soil problems shall be noted and documented with photographs; and
- General health and vigor of restoration plantings.

Photographs showing overall views of the restoration site shall be taken at established photopoints during each visit.

The following is a description of specific monitoring data to be collected for the restoration site.

Vegetation:

Riparian vegetation. Riparian vegetation planted on the restoration site shall consist of liner and one-to two-gallon materials. As-built planting plans shall identify the locations and species of each planting. During monitoring visits, the percent cover, species

diversity and natural recruitment (both by native and invasive species) within these areas shall be assessed.

Existing riparian trees retained within the project site. The general conditions and health of these trees and seedlings shall be documented during monitoring visits. Any natural recruitment of native tree and shrub species in these areas shall be noted.

Success Criteria. The restoration prescribed for individual restoration projects under the Program shall be considered successful if, at the end of the 5-year monitoring period, restoration objectives are achieved, the channel morphology is stable, planted areas are self-sustaining, and plant survivorship and vigor are adequate to assure a viable, high-quality wildlife habitat.

The section below provides proposed minimum success criteria for the different vegetation types within the individual project sites. Success criteria presented below may be modified based upon site specific conditions and subject to review and approval of regulatory stakeholders and permitting agencies.

Plantings in each restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met. Non-native cover includes plant species that are non-native, but not considered invasive. To measure this success criteria, Invasive plants are defined as having a moderate or high rating by the California Invasive Plant Council (Cal-IPC). Maintenance and/or replanting shall be performed as necessary to achieve these standards. If significant numbers of replacement plantings are required after the third year, the applicant shall consult with the permitting agencies to determine whether the monitoring period should be extended.

Vegetation Success Criteria:

Plantings in the restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met:

Riparian trees and shrubs

- 80 percent cover of the planted area, as indicated on as-built plans submitted to the regulatory agencies.

All revegetated areas within the restoration site

- Percent cover by invasive plants not to exceed 5 %

Maintenance and/or replanting necessary to achieve these standards shall be performed as required. If significant numbers of replacement plantings are required after the third year, the applicant shall consult with the CDFW and other regulatory agencies, as appropriate, to determine whether the monitoring period should be extended.

Annual Reports. Annual monitoring reports shall be submitted by LPCCC/SCWA to the Corps, CDFW and other appropriate agencies and stakeholders. The first annual report for each project shall be delivered by December 31 of the year following the first growing season after planting, and by December 31 of each year thereafter.

The reports shall include analyses of all quantitative monitoring data, prints of monitoring photographs, and maps identifying monitoring transects and/or quadrats, monitoring photo points, and restoration plantings by vegetation type and height class, and provide discussion of the implications of monitoring data for site evolution, and comparison to the success criteria. The reports shall discuss problems and successes encountered, any replacement planting or other remedial measures taken, and shall recommend steps to ensure continued success (or remediation of problems encountered) of the restoration project.

Mitigation Measure 3.4-10: **Implement Aquatic Habitat Protection.** Aquatic habitat shall be protected during Program activities by limiting the amount of in-channel work and implementing aquatic habitat protection measures. Silt fencing and other BMPs shall be to prevent the unintended discharge of excavated material and/or turbid water. Protective fencing and other measures shall be checked regularly and maintained until construction is complete. If portions of the channel are isolated, dewatered or bypassed, fish salvage shall be performed under the direct supervision of an approved biologist to avoid incidental take. Following installation of any water diversion structures, and prior to placement of any fill, the approved biologist shall perform surveys for any fish in the Project Area, collect, and transfer native fish, including Pacific lamprey, to the nearest suitable habitat. During holding and transportation, fish would be held in stream water collected from the Project reach.

- Before removal and relocation begins, the approved biologist, in consultation with the appropriate agencies, shall identify the most appropriate release location(s). Release locations should offer ample habitat for Pacific

lamprey and other native fish and should be selected to minimize the likelihood of fish reentering the work area.

- Relocation activities shall be performed during the morning when temperatures are coolest. Air and water temperatures would be periodically measured during dewatering activities to ensure native fish that may be present are protected.

- If native fish are relocated, the following procedure shall be used:

    1. Handling of fish would be minimized. However, when handling is necessary, hands and nets would be wetted prior to handling.

    2. Any handled fish would be immediately placed in an aerated container with a lid in cool, shaded water. Aeration would be provided with a battery powered external bubbler. Fish would not be held more than 30 minutes.

    3. All handled fish would be moved directly to the nearest suitable habitat in the creek, as identified above.

Mitigation Measure 3.4-11: **Native or Migratory Fish or Wildlife Species Avoidance.** Native or migratory fish and wildlife species, such as North American beaver, North American otter, and other wildlife species shall be protected from ~~Project~~ construction staging and operations impacts through monitoring by a qualified biologist. Prior to construction, the construction work area shall be inspected for the presence of these species. If necessary, with consultation with CDFW, appropriate measures shall be taken to avoid and minimize Project impacts to these species. Additional specific measures to protect native or migratory wildlife species, may be required by CDFW under the 1600 series permit for the Project and shall be adhered to by the Project proponent.

Mitigation Measure 3.4-12: **Implement Herbicide Protective Actions.** During all Program activities, herbicides shall only be used by a licensed applicator and shall be applied only to target plants. Herbicides shall not be used within 100 feet of blue elderberry plants.

In order to avoid and minimize impacts related to herbicide use, use any herbicides during Program activities in accordance with all

directions and protective actions listed on the product label of the herbicide being applied.

In addition, take the following actions to ensure protection of fish, plant, and bird life during use of the herbicides listed below:

Glyphosate:

a. Implement the following US EPA recommendations during Project activities:

    i. For non-aquatic uses, do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters and rinsate.

    ii. For aquatic uses, only end-use products that are registered for aquatic uses. Do not contaminate water when disposing of equipment washwaters and rinsate. Treatment of aquatic weeds can result in oxygen loss from decomposition for dead plants. This loss can cause fish kills.

Triclopyr:

a. As recommended by US EPA, avoid spray drift to prevent toxicity to non-target plants during Program activities.

b. Do not apply to open water or wetland areas to prevent toxicity to freshwater fish.

Imazapyr:

a. Implement the following US EPA recommendations during Program activities:

    i. If groundborne application is performed, take the following precautions to minimize potential risk to non-target terrestrial plants, aquatic vascular plants, and threatened and endangered species:

        - Use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size. (ASABE S572) or, if specifically using a spinning atomizer

nozzle, use a volume mean diameter (VMD) of 385 microns or greater.
- Do not apply with wind speeds greater than 10 mph.
- Do not apply into temperature inversions.

b. To minimize potential risk to aquatic vascular plants, do not apply to bodies of water or portions of bodies of water where emergent and/or floating weeds do not exist.

Aminopyralid:

a. In addition to following all directions and protective actions listed on the product label, apply aminopyralid using hand-spray and spot treatments only.

Chlorsulfuron:

a. To minimize potential harm to non-target plants, implement the following US EPA recommendations during Project activities:

    i. Employ measures to control spray drift.

    ii. Restrict use to only one application per growing season.

Dithiopyr:

a. Do not apply dithiopyr in or near water due to its toxicity to fish.

b. To minimize potential harm to non-target plants, implement the following US EPA recommendations during Program activities:

    i. Do not apply dithiopyr aerially.

Isoxaben:

a. To minimize exposure to fish and aquatic invertebrates, implement the following actions:

    i. Do not apply directly to water, to areas where surface water is present, to wetlands, or to intertidal areas below the mean high-water mark.

ii. Employ measures to control spray drift.

iii. Do not contaminate water when disposing of equipment wash waters and rinsate.

5.4.2.2 Statewide Order EIR

The Statewide Order EIR concluded that implementing restoration projects permitted under the Statewide Order could adversely affect habitat for special-status plant species and result in adverse direct effects on special-status wildlife species. Projects would be required to integrate applicable general protection measures and species protection measures included in the Statewide Order into project designs and plans, which would reduce, avoid, or minimize direct construction-related impacts on special-status plant and wildlife species and would address many indirect effects of construction activities. However, the Statewide Order EIR determined that these measures may not be sufficient on their own to address all long-term effects of restoration projects on special-status plants and wildlife; therefore, impacts on special-status plant and wildlife species were determined to be significant and unavoidable.

The Statewide Order EIR also concluded that implementing restoration projects permitted under the Statewide Order could result in adverse effects on riparian habitat or sensitive natural communities and State and federally protected wetlands through direct removal, hydrological interruption, or other means. Implementing restoration projects permitted under the Order could interfere with the movement of native resident and migratory wildlife species. As described above, projects would be required to integrate applicable general protection measures and species protection measures included in the Statewide Order into project designs and plans, which would reduce the potential for impacts on riparian habitat, sensitive natural communities, jurisdictional wetlands and other waters, and wildlife movement. Further, prior to project implementation, project proponents would be required to consult with appropriate federal, State, and/or local agencies, potentially including USACE, EPA, USFWS, and CDFW in addition to the State and/or RWQCBs. Implementing these regulatory requirements, the general protection measures, and species protection measures included in the Statewide Order would reduce the impact of project construction on riparian habitat, sensitive natural communities, jurisdictional waters and other waters, and wildlife movement to a less-than-significant level.

The Statewide Order EIR determined that implementing restoration projects permitted under the Statewide Order could conflict with local policies or ordinances protecting biological resources and with the provisions of various adopted habitat conservation plans or natural community conservation plans throughout the State. It is expected that the general protection measures identified in the Statewide Order that would protect special-status plants, special-status wildlife, sensitive natural communities, and jurisdictional wetlands and waters of the United States and/or state would be adequate to satisfy any requirements set forth by a local jurisdiction intended to protect biological resources. Therefore, these impacts were determined to be less than significant. Although constructed facilities and operation and maintenance activities are expected to provide a net benefit, the potential exists for conflicts with approved conservation plans. Implementation of Mitigation Measure TERR-1 would reduce this impact to less than significant. As part of the State

Water Board or RWQCB's issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measure TERR-1 would be required when applicable to a given project.

Applicable Mitigation Measures. The following mitigation measure applies to the proposed project:

Mitigation Measure TERR-1: **Coordinate with CDFW, USFWS, and Permittees Regarding HCPs, NCCPs, and Other Conservation Plans.** If the site for a restoration project permitted under the Order is within the planning area for any adopted HCP, NCCP, or similar conservation plan, the CEQA lead agency for the project shall consult with the plan permittee(s), CDFW and/or USFWS, as applicable, to identify any potential conflicts with the plan's goals, objectives, or conservation measures. As part of this consultation, the CEQA lead agency shall seek input regarding potential design features, conservation measures, or other mitigation strategies to avoid potential conflicts and achieve substantial conformance with the objectives of the HCP, NCCP, or similar conservation plan. The CEQA lead agency shall implement these elements as applicable to ensure that the restoration project conforms to applicable goals and policies set forth in the adopted conservation plan.

5.4.3 Impact Analysis

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

The California Natural Diversity Database (CNDDB) lists 9 plant species and 19 animal species occurrences within 5 miles of the project site (Table D); the CNPS lists 5 rare plant species (all contained within the CNDDB species) for Quad 3812157 (Merritt). Impacts to special-status species that have a California rare plant rank of 1B, meaning that they are rare, threatened, or endangered throughout their range and many are endemic to California, would be considered significant under CEQA. The USFWS lists an additional 15 animal species with federal status that could be present. Due to prior disturbance, no suitable habitat for special-status plants is present. Therefore, the proposed project would have no impact on special-status plant species.

Special-status animal species detected in the project area or that have moderate potential to occur on the project site are discussed in more detail below. As shown in Table D, other species, which

Table D: Special-Status Species and Sensitive Natural Communities Occurring within 5 Miles of the Project Site

Common Name/Scientific Name	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank	CDFW Status	Habitat	Potential to Occur
Plants								
Alkali Milk-vetch *Astragalus tener var. tener*	None	None	G2G1	S1	1B.2		Occurs in playas, vernal-pools, freshwater wetlands, alkali sink, valley grassland, wetland-riparian	No suitable habitat
Brittlescale *Atriplex depressa*	None	None			1B.2		Saline or alkaline depressions or vernal pools	No suitable habitat
Ferris' Milk-vetch *Astragalus tener var. ferrisiae*	None	None	G2T1	S1	1B.1		Meadows in valley grasslands, wetland-riparian	No suitable habitat
Heartscale *Atriplex cordulata var. cordulata*	None	None	G3T2	S2	1B.2		Shadscale Scrub, Valley Grassland, wetland-riparian	No suitable habitat
Heckard's Pepper-grass *Lepidium latipes var. heckardii*	None	None			1B.2		Occurs usually in wetlands, occasionally in non-wetlands in Valley Grassland, wetland-riparian	No suitable habitat
Keck's Checkerbloom *Sidalcea keckii*	Endangered	None	G2	S2	1B.1		Foothill Woodland, Valley Grassland. grassy slopes in Colusa, Napa, Solano, Yolo County	No suitable habitat
San Joaquin Spearscale *Extriplex joaquinana*	None	None	G2	S2	1B.2		On alkaline soils in non-wetlands, occasionally in wetlands, Meadows, Shadscale Scrub, Valley Grassland	No suitable habitat
Adobe-lily *Fritillaria pluriflora*	None	None	G2G3	S2S3	1B.2		Grasslands, adobe clay soils of the Coast Ranges and low hills in the Central Valley from Tehama and Mendocino counties south to Solano County	No suitable habitat
California Alkali Grass *Puccinellia simplex*	None	None	G2	S2	1B.2		Occurs usually in wetlands, occasionally in non-wetlands, Valley Grassland, wetland-riparian	No suitable habitat
Crustaceans								
Vernal pool fairy shrimp *Branchinecta lynchi*	Threatened	None	G3	S3			Vernal pools	No suitable habitat
Conservancy fairy shrimp *Branchinecta conservatio*	Endangered	None	G2	S2			Vernal pools	No suitable habitat
Insects								
Monarch butterfly *Danaus plexippus*	Candidate		G4	None			Milkweed species (*Asclepias* spp.) are the sole larval host plants	High to Moderate
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	Threatened	None	G3T2	S2			Riparian habitat, requires elderberry bushes	No suitable habitat
Crotch Bumble Bee *Bombus crotchii*	None	Candidate Endangered	G2	S1			Open grassland and scrub habitats. Nesting occurs underground.	No suitable habitat
Western Bumble Bee *Bombus occidentalis*	None	Candidate Endangered	G2	S1			Open grassland and scrub habitats. Nesting occurs underground.	No suitable habitat

Fish								
Delta smelt *Hypomesus transpacificus*	Threatened	Endangered	G1	S1			Coastal lagoons, bays, estuaries, sloughs, tidal freshwater streams and offshore habitat	No suitable tidal habitat
Steelhead *Oncorhynchus mykiss*	Threatened		T2	S2			Inland streams and rivers	Low
CV fall run Chinook *Oncorhynchus tshawytscha*	None	High Concern	T2	S3			Inland streams and rivers	High to moderate
CV winter-run and spring-run Chinook salmon *Oncorhynchus tshawytscha*	Endangered	High Concern	T2	S3			Inland streams and rivers	No suitable habitat
Reptiles								
Giant garter snake *Thamnopis gigas*	Threatened	None	G2	S2			Agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley	No suitable habitat
Western Pond Turtle *Emys marmorata*	None	None	G3	none		SSC	Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, irrigation ditches and reservoirs. Turtles bask on land or near water on logs, branches or boulders. Nesting and overwintering in uplands.	Present Widespread along the creek (Truan et al. 2010).
Amphibians								
California tiger salamander *Ambystoma californiense*	Threatened	Threatened	G2G3	S2S3		WL	Vernal pool grasslands	No suitable habitat
Birds								
Western yellow-billed cuckoo *Coccyzus americanus*	Threatened	Endangered	T2	S1			Mature riparian woodlands	High to Moderate
Burrowing Owl *Athene cunicularia*	None	None	G4	S3		SSC	Open, dry, sparsely vegetated land with available burrows, adequate food supply, and perches for horizontal visibility.	No suitable habitat
Swainson's Hawk *Buteo swainsoni*	None	Threatened	G5	S3			Needs open habitats for foraging; adjusted well to agricultural settings (e.g., hay and alfalfa fields, pastures, grain crops, and row crops). Nests in riparian woodlands and scattered stands of trees near agricultural fields and grasslands.	Present
Tricolored Blackbird *Agelaius tricolor*	None	Threatened	G1G2	S1S2		SSC	Nests in wetlands with cattails, bulrushes, and willows, triticale fields, patches of Himalayan blackberry near stock ponds or irrigated pastures. Foraging habitats include cultivated fields, feedlots associated with dairy farms, and wetlands.	No suitable habitat
White-tailed Kite *Elanus leucurus*	None	None	G5	S3S4		FP	Common in savannas, open woodlands, marshes, desert grasslands, partially cleared lands, and cultivated fields.	High

Mammals								
American Badger *Taxidea taxus*	None	None	G5	S3		SSC	Open areas like plains and prairies, farmland, and the edges of woods	None. No suitable habitat
Pallid Bat *Antrozous pallidus*	None	None	G4	S3		SSC	Grasslands and deserts. Roosts in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows. Some hibernate; many remain active all year in low to mid-elevations.	Moderate
Silver-haired Bat *Lasionycteris noctivagans*	None	None	G3G4	S3S4			Roosts singly or in small groups in wooded areas, especially in old growth forests. During migration, may be found in sheds, wood piles, outbuildings and fence posts.	Low

Source: California Native Plant Society (2020). California Department of Fish and Wildlife. (2020), US Fish and Wildlife Service (2020).

Status Codes:

Federal (USFWS)
FE = Listed as Endangered (in danger of extinction) by the Federal Government.
FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.
FC = Candidate to become a proposed species.
FSC = Federal Species of Concern. May be Endangered or Threatened, but not enough biological information has been gathered to support listing at this time.

State (CDFW)
CE = Listed as Endangered by the State of California
SSC = California Species of Special Concern
CT = Listed as Threatened by the State of California
CR = California Rare
CC = State Candidate for listing as an Endangered Species

California Native Plant Society Rare Plant Inventory
Rank 1A: Plants Presumed Extinct in California
Rank 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
Rank 2: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
Rank 3: Plants About Which We Need More Information—A Review List
Rank 4: Plants of Limited Distribution—A Watch List

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were identified by the CNDDB[18] or are on the USFWS species list,[19] are not likely to occur at the project site because the site does not contain suitable habitat for these species.

5.4.3.1 Invertebrates

Monarch Butterfly (*Danaus plexippus*) is a migratory butterfly that has been listed as a candidate for inclusion on the USFWS list of endangered and threatened wildlife since December 2020. The USFWS has concluded that listing monarchs under the Federal Endangered Species Act would be warranted but is precluded due to other high priority species. Currently, the monarch is scheduled to be federally listed in 2024. Monarchs are not listed as threatened or endangered under the California Endangered Species Act (CESA) and were therefore, not considered in the 2016 Program EIR.

However, monarch butterflies are listed by the State of California as a California Special Resource because their overwintering habitat is threatened by disturbance and by alteration and destruction of habitat. However, the likelihood that the monarch butterfly is overwintering in the project site is considered to be none.

Monarch butterfly relies exclusively on milkweed species as a larval host plant. No milkweed plants have been identified during biological surveys of the site. Milkweed plants, however, may be present in the project action area; therefore, monarch larvae may be present as well. The likelihood that monarch butterfly is present in the project area is considered to be moderate; therefore, project activities could impact this species. Implementation of Mitigation Measure BIO-1 would reduce potential impacts to milkweed and monarch butterfly to a less-than-significant level because it would require preconstruction surveys to identify and relocate (if needed) monarch breeding habitat prior to project construction activities.

Mitigation Measure BIO-1: **Monarch Butterfly Avoidance.** Preconstruction surveys shall be conducted during the monarch breeding season (March 16 through November 30) to determine if milkweed is present on the site and, if present, is being used for monarch breeding. Surveys shall be conducted by a qualified biologist no more than 14 days prior to ground or vegetation disturbance activities. The biologist shall search for evidence of monarch eggs, caterpillars, chrysalises, and adults. If active monarch breeding is identified, the milkweed stand shall be avoided until the applicant develops and implements a salvage and relocation plan that has been reviewed and approved by SCWA and the applicable Resource Agencies**.**

Valley Elderberry Longhorn Beetle (*Desmoderus californicus*) has been observed to occur along Putah Creek from Monticello Dam east to Davis.[20] The beetle is dependent on blue elderberry shrubs (*Sambucus mexicana*), which is its host plant. Elderberry is a common shrub in Lower Putah Creek and has been found along the borders of the project area. As specified in Mitigation Measure

18 California Department of Fish and Wildlife. 2022. op. cit.
19 U.S. Fish and Wildlife Service. 2020, op. cit.
20 California Department of Fish and Wildlife (CDFW). 2022. op. cit.

3.4-4, in the 2016 Program EIR, the project shall avoid all elderberry shrubs, and construction activities shall keep a minimum distance of 20 feet from the drip lines of the shrubs. Construction would occur after the beetle's adult emergence period (March through June), and temporary protective fencing and signage would be erected around the elderberry shrubs, consistent with the Conservation Guidelines for the Valley Elderberry Longhorn Beetle.[21] With implementation of Mitigation Measure 3.4-4, as identified in the Program EIR, impacts to Valley elderberry longhorn beetle would be less than significant. No new impacts or substantially more severe significant impacts on Valley elderberry longhorn beetle would result with implementation of the proposed project.

Western Bumble Bee (*Bombus occidentalis*) and **Crotch Bumble Bee** (*Bombus crotchii)* are currently considered candidate species by the California Department of Fish and Wildlife. As candidate species, the Western and Crotch's bumble bee receive the same legal protection afforded to endangered or threatened species.[22] No meadow habitat or grasslands would be affected by project activities, thus the potential for destruction of underground nests is very low. However, there is some suitable grassland habitat and nectar plants within the project site; therefore, the potential for Crotch's and western bumble bees to occur in the project area is moderate. Ground disturbance and vegetation removal may impact low quality foraging habitat. Vegetation clearing and ground disturbance for floodplain recontouring, design channel installation and channel plugging could affect some foraging plants. Implementation of Mitigation Measure 3.4-1, as identified in the Program EIR, would minimize potential impacts to Western and Crotch's bumble bee by requiring that workers be trained to identify special-status species and associated habitats and to implement appropriate measures to avoid impacts during construction activities. In addition, implementation of the following mitigation measure would limit all herbaceous vegetation removal activities from September 1 through February 28, which would benefit pollinators. With implementation of these mitigation measures, impacts to western bumble bee and Crotch's bumble bee would be reduced to a less-than-significant level.

Mitigation Measure BIO-2: **Pollinator Habitat Restoration.** To limit any potential adverse effects on pollinators, all herbaceous vegetation removal activities shall be conducted from September 1 through February 28, including any vegetation control with herbicides (refer to Mitigation Measure 3.4-12 of the 2016 Program EIR). When using herbicides, application shall be implemented by a person holding a Qualified Applicator License from the State of California. Any application of pesticides shall be completed in a manner that avoids drift and contamination of non-target plants and areas. Ecologically invasive weeds shall be treated with spot spraying of an approved herbicide only. Targeted application of herbicides may be used in conjunction with removal of nonnative invasive weeds. Restoration of floodplain

[21] United States Fish and Wildlife Service. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service, Sacramento, California. 28 pp. Website: https://www.fws.gov/sites/default/files/documents/survey-guidelines-for-valley-elderberry-longhorn-beetle.pdf. (Accessed September 20,2022)

[22] California Code, Fish and Game Code - FGC § 2074.2 and §2085.

habitat shall include establishing native seed mixes containing a diversity of native wildflowers, including milkweed, as appropriate. Native seed mixes should be applied in bare soil areas, including those recently cleared, graded, or disturbed. Nesting needs of ground nesting bees and bumble bees should be taken into consideration when restoring this habitat. Snags and other resources should be left for wood nesting bees.

5.4.3.2 Fish

Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*) are anadromous fish that migrate upstream as adults to spawn in freshwater streams and migrate downstream as juveniles to physically develop in the ocean. This species is classified as a California Special Species of Concern. This species, while not abundant, are commonly found within the project area. Spawning, rearing, and migratory habitat is present within the project area and fall-run Chinook salmon occur in Putah Creek from fall through spring. Therefore, the likelihood that fall-run Chinook salmon are present in the project area is considered to be high. However, no in-water work would be conducted during times when adult Chinook salmon are present in Putah Creek. Implementation of Mitigation Measure 3.4-10, identified in the 2016 Program EIR, which requires SWCA to protect aquatic habitat during project activities, would reduce potential impacts to a less-than-significant level. Overall, the project would result in a net gain of 1,000 feet of spawning and juvenile salmonid rearing habitat. Therefore, the proposed project would have significant beneficial effects on this species by providing spawning habitat.

Pacific Lamprey (*Entosphenus tridentatus*) rears in freshwater before migrating to the ocean, where it grows to full size prior to returning to natal streams to spawn. This species is classified as an SSC. Pacific lampreys have been reported to maintain small runs in Putah Creek.[23] Adults are expected to migrate upstream into the project area between December and early April, when the Los Rios Check Dam, located approximately 9 miles east of the project site, is open, and continue to migrate upstream to spawn between March and July. The larval stage (ammocoetes) and juveniles are expected to occur throughout the Upper Reach upstream of the Highway 505 bridge (approximately 6 miles west of the project site) year-round and may occur downstream of Highway 505 when water temperatures are suitable. Because Pacific lamprey have been documented within Putah Creek and may occur year-round, this species has a high occurrence potential within the project area. Implementation of Mitigation Measure 3.4-10 identified in the 2016 Program EIR, which requires SWCA to protect aquatic habitat during project activities, would ensure that aquatic habitat would be protected during project activities by limiting the amount of in-channel work and acquiring proper permits for work done within aquatic habitats. With implementation of this mitigation measure, impacts to Pacific lamprey would be reduced to a less-than-significant level. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Steelhead trout (*Oncorhynchus mykiss* (i.e., the anadromous type of rainbow trout), is listed by the National Marine Fisheries Service (NMFS) as potentially present at the site. This species could be

[23] Moyle, P. B. 2002. Inland fishes of California. Revised edition. University of California Press, Berkeley

within the project area for a limited timeframe, specifically from December 1st through April 1st when the flashboards at the Los Rios Check Dam are installed.[24] Although steelhead have been observed on the Yolo Bypass during flooding events, there has been no confirmed documentation of steelhead in Putah Creek since 1959, when the Monticello Dam was constructed. Lower Putah Creek is not considered Critical Habitat for steelhead. Therefore, the likelihood that steelhead is present in the project area is considered to be low.

Rainbow trout are commonly found during fish surveys in Lower Putah Creek. Most of the trout are found in the upper reach of the creek, between the Putah Diversion Dam and the city of Winters, where water temperatures are lowest. The existing population of rainbow trout in the creek are likely resident fish. Construction of the proposed project is not likely to adversely affect rainbow trout, because the project would occur during the summer months when the daily average water temperature within the project area would be too high. In addition, the project's construction activities would have a minimal effect on water quality because any work areas within the channel would be isolated from flowing water, and any fish or turtles within the isolated area would be rescued and relocated immediately upstream of the project area. The proposed project would improve salmonid habitat by narrowing a wide segment of the existing channel to promote cooler water temperatures, creating a design channel with riffles and spawning gravel, and creating a functional floodplain that will recruit native vegetation and ultimately increase the area of shaded water within the project area. Therefore, impacts to this species would be less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.4.3.3 Birds

The **western yellow-billed cuckoo** (*Coccyzus americanus*) is a migratory bird species. It is federally listed as threatened, State listed as threatened, and a Covered Species under the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP). The species winters in Central and South America and moves to breeding grounds in North America (Continental U.S. and Mexico) each spring.

The western yellow-billed cuckoo is presently a rare migrant in Yolo County. The likelihood that yellow-billed cuckoo would be found in the project area is considered moderate since there have been a few sightings of single birds along Putah Creek between 2005 and 2007[25] and from 2012[26] and 2013.[27] Because individual western yellow-billed cuckoos have been documented within the

[24] The Los Rios Check Dam—a 30-foot-wide concrete dam, fitted with wooden flash-boards—is operated in conjunction with installation of the flash-boards at the dam at Road 106A (approximately 6 miles east of the project site) to control the hydrology of the lower creek. From approximately from April 1 to December 1, these dams are operated to form a pool of water for diversion to irrigation canals, and are also operated to impound water for irrigation and flood-up of wetlands managed by CDFW.

[25] Truan, M.L., A. Engilis, Jr., and J.R. Trochet. 2010. Putah Creek Terrestrial Wildlife Monitoring Program: Comprehensive Report 1997–2009. Department of Wildlife, Fish, and Conservation Biology, Museum of Wildlife and Fish Biology. University of California, Davis.

[26] Hampton, S. 2012. Hampton's checklist S11489178 from eBird: an online database of bird distribution and abundance. Ithaca New York. Website: (http://www.ebird.org accessed August 29, 2022).

[27] Gallagher, L. 2013. Gallagher's checklist S14936688 from eBird: an online database of bird distribution and abundance. Ithaca New York. Website: http://www.ebird.org (accessed August 29, 2022).

project area, which overlaps with their historical range, this species could occur within the project area but are not expected to nest within the project area. While migrants could potentially use riparian habitats along Putah Creek, there are few areas that support sufficient contiguous patches of suitable habitat to support breeding cuckoos.

The proposed project would restore the channel to a more natural, meandering condition, which would enhance habitat conditions in the project area for yellow-billed cuckoo. In addition, implementation of the proposed project would maintain mature riparian trees, multiple canopy layers, and a diverse mixed-forest type of a sufficient size. However, impacts to yellow-billed cuckoo could occur during project activities, including:

- Disruption of courtship, nesting, incubation, and rearing of young during the breeding season due to disturbance from equipment and human presence.
- Loss of nest trees (if they choose to nest in invasive eucalyptus tree earmarked for removal); and
- Predation of young due to nest predators (ravens, crows) being attracted to the construction site.

Implementation of Mitigation Measure 3.4-1 (Worker Environmental Awareness Program) and Mitigation Measure 3.4-6 (Nesting Bird Avoidance), as modified below, would reduce impacts to western yellow-billed cuckoo during habitat restoration and maintenance activities associated with the project to less than significant by requiring preconstruction surveys for nesting birds and establishment of buffers and other measures, if needed, to protect identified nests. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Mitigation Measure 3.4-6: **Nesting Bird Avoidance.** A pre-construction survey by a qualified biologist for nesting birds shall be required for individual projects if construction activities are scheduled to occur during the breeding season (February 1 to August 31) for raptors and other migratory birds, including special-status bird species. The survey shall be conducted ~~15 days~~ within 7 days prior to ground disturbing activities and shall cover 500-foot radius surrounding the construction zone.

If active nests are found, actions typically include, but are not limited to, monitoring by agency-approved biologists, establishment or refinement of species-specific buffers, reduction or elimination of the use of loud equipment, reducing foot traffic and remaining in the vehicles, and the maintenance of visual screens. Migratory birds shall be protected from staging and construction operations through the use of a buffer established based on the birds' sensitivity and response to the potential activity. Baseline behavior of the bird should be established to inform the buffer size. The qualified biologist may start with a 100-foot nest buffer or a 250-foot nest buffer for raptors but may adjust the buffer size based of the reaction of the bird(s) to the activities. If there is a potential for

nest abandonment due to intrusion into the buffer zone, as established by the qualified biologist, then CDFW and the USFWS shall be consulted. If a lapse in Project-related work of ~~15~~7 days or longer occurs, another focused survey, and if required, consultation with CDFW and the USFWS shall be performed before Project work can resume.

White-tailed kite (*Elanus leucurus*) is a Covered Species under the Yolo HCP/NCCP. White-tailed kite is a CDFW Fully Protected species. White-tailed kite is a resident (breeding and wintering) species throughout central and coastal California, up to the western edge of the foothills of the Sierra Nevada. White-tailed kite is widely distributed within the project area.[28] There is nesting habitat in tall trees along the majority of Putah Creek. Because white-tailed kites have been documented along the project area, this species is likely to occur in the project area. However, all work would occur during the time when white-tailed kite is not breeding, nesting or rearing young (i.e., from August to February). In addition, implementation of Mitigation Measure 3.4-1 (Worker Environmental Awareness Program) and 3.4-6 (Nesting Bird Avoidance) as modified above, would further reduce impacts to white-tailed kite during habitat restoration and maintenance activities associated with the project by requiring preconstruction surveys for nesting birds and establishment of buffers and other measures, if needed, to protect identified nests. With implementation of these mitigation measures, impacts to this species would be less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Swainson's hawk (*Buteo swainsoni*) occurs widely in the lowlands of Solano and Yolo counties. Swainson's hawks are known to nest in trees within industrial landscapes as long as suitable foraging habitat is located in nearby areas. The closest known Swainson's hawk nest site is approximately 300 yards from the project site in a farmyard tree south of Putah Creek. Impacts to Swainson's hawk from project activities could include:

- Disruption of courtship, nesting, incubation, and rearing of young during the breeding season due to disturbance from equipment and human presence. However, Swainson's hawks frequently select roadside tree rows, isolated trees, and rural residential trees as nesting trees and exhibit a remarkable tolerance to human presence, noise and disturbance. This species is also highly responsive to farming activities that expose and concentrate prey, such as cultivating, harvesting, and disking. During these activities, particularly late in the season, Swainson's hawks will hunt behind tractors searching for exposed prey.
- Loss of nest trees (if they choose to nest in invasive eucalyptus tree earmarked for removal); and
- Predation of young due to nest predators (ravens, crows) being attracted to the construction site.

However, all work would occur during the time when Swainson's hawk is likely not present (i.e., from August to February). In addition, implementation of Mitigation Measure 3.4-1 (Worker Environmental Awareness Program), 3.4-5 (Swainson's Hawk Avoidance) and 3.4-6 (Nesting Bird Avoidance), as modified above, would avoid and minimize effects on Swainson's hawk during

[28] Truan et al. 2010. op. cit.

habitat restoration and maintenance activities associated with the project by requiring that workers be trained to identify and avoid special-status species, preconstruction surveys for Swainson's hawk and establishment of buffers and other measures, if needed, to protect identified nest trees. With implementation of these mitigation measures, impacts to this species would be less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Other Birds: Birds protected under the California Fish and Game Code and the Migratory Bird Treaty Act (MBTA) could potentially nest on or near the property; however, implementation of Mitigation Measures 3.4-1 (Worker Environmental Awareness Program) and 3.4-6 (Nesting Bird Avoidance), as modified above, would avoid and minimize effects on all nesting birds during habitat restoration and maintenance activities associated with the project by requiring preconstruction surveys for nesting birds and establishment of buffers and other measures, if needed, to protect identified nests. With implementation of these mitigation measures, impacts to other bird species would be less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Tricolored blackbird (*Agelaius tricolor*) is State listed as threatened and a CDFW Species of Special Concern. This species is a year-round resident in California, where it is largely endemic. The species is common locally throughout the Central Valley and in coastal areas from Sonoma County south through Monterey County. There may be suitable nesting habitat in expansive marsh vegetation or large blackberry thickets along Putah Creek. However, there is no suitable nesting habitat present within the project area, and no known colonies of breeding tricolored blackbirds exist within 5 miles of the project area. However, foraging blackbirds could occasionally use the surrounding agricultural fields outside the project area. Project activities, such as noise, dust, machinery and staging along access roads could disturb foraging tricolored blackbirds. Implementation of Mitigation Measures 3.4-1 (Worker Environmental Awareness Program) and 3.4-6 (Nesting Bird Avoidance), as modified above, would reduce impacts to this species to a less-than-significant level by requiring preconstruction surveys for nesting birds and establishment of buffers and other measures, if needed, to protect identified nests. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.4.3.4 Reptiles

The **western pond turtle** (*Actinemys marmorata marmorata*) is a California Species of Special Concern that inhabits permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, irrigation ditches, and reservoirs. Western pond turtle is documented as being widespread along Putah Creek.[29] There is suitable aquatic habitat where sections of creek are relatively slow-moving and deep, with structures for basking such as logs, rocks, or exposed banks. Nesting habitat may include upland areas not prone to flooding that are exposed to sun, with low-growing vegetation. Because western pond turtle has been documented as widespread in Putah Creek, this species is likely to occur in the project area and could be impacted by project activities if present in the project area during habitat restoration and maintenance activities. Implementation of Mitigation Measure 3.4-2 (Western Pond Turtle Avoidance), identified in the 2016 Program EIR,

[29] Truan et al. 2010. op. cit.

would reduce potential impacts to this species to a less-than-significant level by requiring daily monitoring of the project area for the presence of this species, and relocation, as needed, to an area of suitable habitat outside of the construction area. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

The **Giant Garter Snake** (GGS) is considered a threatened species in California. Injuring or killing a GGS would substantially reduce the number of GGS, a potentially significant impact pursuant to CEQA Guidelines section 15065, subdivision (a) Mandatory Findings of Significance. Although the habitat quality of the project site is marginal, GGS could potentially occur in the Project area and be subject to impacts and 'take' under CESA. GGS typically occur in slow-moving, warm irrigation canals and rice fields as wetlands have been reduced in the Central Valley.[30] Small mammal burrows in upland habitat are generally used for cover and retreat during the active season and for refuge from flood waters during the dormant season.[31] The proposed project has the potential to impact GGS through a biologist relocating the species, mowing, earthmoving, and removing burrow refugia and vegetation, possibly injuring or crushing GGS. Implementation of Mitigation Measure 3.4-3, identified in the 2016 Program EIR and modified below, which requires consultation with CDFW, construction timing restrictions, and preconstruction surveys, would reduce impacts to GGS to a less-than-significant level:

Mitigation Measure 3.4-3: **Giant Garter Snake Avoidance.** In areas that provide suitable habitat for giant garter snake, construction shall only occur during the active period for the snake, between May 1 and October 1. During the active period for giant garter snake direct mortality is lessened because snakes are expected to actively move and avoid danger. Preconstruction surveys for the giant garter snake shall occur within 24 hours prior to ground disturbing activities. A survey of the ~~P~~project work ~~A~~area ~~should~~shall be repeated if a lapse in construction activity of two weeks or greater has occurred.

~~If a snake is encountered during construction, work shall stop within the vicinity of the snake and the USFWS will be contacted immediately. Only following receipt of USFWS approval shall giant garter snake be collected and transferred to the nearest suitable habitat outside the work area. Work shall not re-commence until a qualified biologist has either removed the snake from the construction area or, after thorough inspection, determined that the snake has vacated the construction area. St~~

30 Halstead, B.J., G. D. Wylie, and M. L. Casazza. 2010. Habitat Suitability and Conservation of Giant Gartersnakes (Thamnophis gigas) in the Sacramento Valley of California. Copeia 4: 591-599. Website https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=72655.

31 Halstead, B.J. S.M. Skalos, G.D. Wylie, and M.L. Casazza. 2015. Terrestrial Ecology of semi-aquatic giant gartersnakes (Thamnophis gigas). Herpetological Conservation and Biology 10(2): 633-644.

~~Any dewatering or vegetation clearing within 200 feet of potential aquatic habitat for giant garter snake shall be limited to the minimum amount necessary.~~

SWCA shall consult with the California Department of Fish and Wildlife to develop project specific avoidance measures for giant garter snake. If development and implementation of avoidance measures is not feasible and take of giant garter snake cannot be avoided by the proposed project, SWCA shall obtain an Incidental Take Permit from CDFW pursuant to the California Endangered Species Act prior to construction and shall comply with the ITP.

5.4.3.5 Mammals

Pallid bat (*Antrozous pallidus*), a CDFW Species of Special Concern, is fairly widespread in California. Pallid bats occupy a variety of habitats, from arid deserts to grasslands to conifer forests and riparian areas. Roosts (including day, night, and maternity roosts) are typically located in rock crevices and cliffs; day roosts can also be found in tree hollows and caves. Overwintering roosts require relatively cool and stable temperatures out of direct sunlight. Pallid bats may day-roost in the project area within the riparian forest if there are large tree hollows present. However, pallid bats are not expected to night or maternity roost within the project area, which has no rock crevices for reproduction and rearing young, though roosts could occur in abandoned structures immediately outside the riparian corridor. Though pallid bats have not been documented within the project area, their range overlaps with the project area, which contains roosting habitat, and therefore pallid bats have a low to moderate potential to occur within the project area. However, implementation of Mitigation Measures 3.4-1 (Worker Awareness Program) and 3.4-9 (Avoid and Minimize Impacts to Special-Status Bats), as identified in the 2016 Program EIR, would reduce potential impacts to pallid bat to a less-than-significant level because these measures would ensure that on-site construction workers are trained to identify and avoid these species and that, if encountered, appropriate mitigation measures would be implemented in consultation with CDFW. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Western red bat (*Lasiurus blossevillii*) is a CDFW Species of Special Concern. In California, the western red bat has been observed near the Pacific Coast, Central Valley, and the Sierra Nevada range and foothills. Western red bat roosts have often been observed in edge habitats near streams, fields, orchards, and urban areas. There is suitable roosting habitat for western red bat in riparian stands of cottonwood along Putah Creek, thus there is a moderate potential for western red bats to occur within the project area. However, implementation of Mitigation Measures 3.4-1 (Worker Awareness Program) and 3.4-9 (Avoid and Minimize Impacts to Special-Status Bats), as identified in the 2016 Program EIR, would reduce potential impacts to western red bat to a less-than-significant level because these measures would ensure that on-site construction workers are trained to identify and avoid these species and that, if encountered, appropriate mitigation measures would be implemented in consultation with CDFW. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

As described above, project activities, including habitat restoration and maintenance, have the potential to impact several special status wildlife species with the potential to occur within the project area. Implementation of mitigation measures identified in the 2016 Program EIR and project-specific mitigation measures described herein, would reduce potential impacts to special-status species to a less-than-significant level.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(No New Impact)***

Riparian woodland covers the majority of the project site and occurs along both banks of Putah Creek. Riparian habitat is considered a sensitive habitat and is subject to CDFW jurisdiction. The primary goal of the project is to establish a functioning riparian habitat and increase the cover of a functioning riparian forest at the project site. Removal of up to 71 trees, the majority of which are nonnative, is required to facilitate grading within the floodplain and to provide material for bank revetment. All invasive vegetation within the grading area would be removed and the recontoured floodplain would be revegetated with native grasses, trees, and shrubs. Only species that are endemic to Putah Creek would be used for revegetation.

Project activities would, in the long-term, improve the quality and extent of riparian habitat and wildlife access to habitat by removing invasive vegetation and increasing the extent of riparian habitat within the project site. However, short-term adverse impacts to riparian habitat would occur due to the removal, movement, and alteration of the existing channel. These short-term impacts would be temporary, until new native vegetation is planted or establishes itself. Temporary loss of riparian habitat would last 1 to 3 years in the lower understory. Removal of mature eucalyptus trees would affect the canopy for 5 to 10 years until replanted trees have occupied the vacated canopy space. Although the proposed project would result in beneficial impacts to riparian habitat along the creek channel, impacts due to removal of vegetation during construction could result in a minor temporal loss of functions and values of riparian habitat.

The proposed project would establish approximately 26,000 native plants within the recontoured floodplain. In addition, the plantings would be maintained for a minimum of 5 years, at which point they should achieve a minimum of 80 percent survival and 75 percent coverage. Remediation would occur if the plantings do not meet the survivability and coverage requirements at the end of the 5-year period. Mitigation Measure 3.4-9 (Monitor Riparian Habitat), identified in the 2016 Program EIR and modified below, requires compliance with the applicable regulatory permits, ~~the~~ development of a site-specific planting plan, long-term ecological monitoring, and minimum performance standards to ensure that after completion of the revegetation and monitoring period the project site would support a functioning riparian forest consisting of a majority of native species. With Implementation of Mitigation Measure 3.4-9, identified in the 2016 Program EIR and modified below, impacts to riparian habitat would be less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Mitigation Measure 3.4-9a: Lake Streambed Alteration (LSA) Notification and other Regulatory Agency Permits. Prior to commencement of project construction, SCWA shall notify the California Department of Fish and Wildlife

pursuant to Section 1600 et. seq. of the California Fish and Game Code using the Environmental Permit Information Management System for project activities affecting lakes or streams, associated riparian, or otherwise hydrologically connected habitat, and any connected wetlands, and shall comply with the LSA Agreement, if issued. SWCA shall also obtain and comply with applicable permits from the Regional Water Quality Control Board (RWQCB) and U.S. Army Corps of Engineers (USACE) pursuant to the Clean Water Act and Porter-Cologne Water Quality Control Act.

Mitigation Measure 3.4-9b: **Monitor Riparian Habitat.** In advance of construction of each individual project under the Program, a Riparian Revegetation and Monitoring Plan shall be prepared. Each plan will describe the thresholds of revegetation success, monitoring and reporting requirements, and a description of the site-specific planting plan. The Plan will be submitted to the appropriate regulatory agencies for review and approval.

Monitoring Plans shall include the following, subject to modification based upon regulatory agencies review and approval.

Monitoring shall commence immediately following construction of each project implemented under the Program. Monitoring shall be performed for a period of at least five years and may be extended if contingency measures were required beyond the third year, and/or if the final success criteria are not met at the end of five years. In this event, monitoring shall continue until such time as all disturbed areas and restoration plantings are established and the long-term viability of the target replacement habitat is assured, as determined in consultation with the permitting agencies.

Monitoring Methods. Monitoring shall be performed by a qualified biologist, horticulturist, or ecologist with appropriate credentials and demonstrated experience in native habitat restoration. The project monitor shall provide oversight of maintenance operations to ensure high quality project maintenance, which conforms to standards established in the restoration plan for each individual project, and to immediately address any unanticipated problems. The monitor shall be in direct contact with SCWA/LPCCC, via regular telephone reports of maintenance activities and periodic site visits.

Recording of As-Built Conditions. Accurate plans shall be prepared depicting the finished grades, locations of any grade control or hydraulic structures, erosion control measures, and species, quantities and locations of all planted materials. Methods of construction and planting, as well as any significant problems or

unexpected conditions encountered, shall also be recorded. As-built plans shall include surveyed cross-sections of the restored creek channel. Cross-section locations shall be permanently marked in the field. Permanent photo stations shall be established and depicted on the as-built plans. Baseline information shall be incorporated into a written report describing the as-built status of the restoration project and submitted with the as-built drawings to the permitting agencies within 6 weeks of completion of construction activities.

Monitoring Schedule. Monitoring visits shall be conducted monthly for the first year and at least quarterly thereafter, as determined necessary by the relative success of the project plantings in the first year.

Monitoring Protocol. During the monitoring visits, detailed records shall be made of the conditions existing at the restoration site. In order to maintain continuity and ensure comparable assessments, standardized data sheets shall be used to record monitoring data. A copy of the as-built planting plan shall be attached to the data sheets for each monitoring visit, so that monitoring data and observations may be tied to exact locations on the restoration site. Sample channel cross-sections, quadrats, and permanent photo stations shall be permanently marked in the field using rebar stakes.

Channel cross-sections shall be surveyed in the field to record the condition of the channel and banks, and any changes occurring as a result of natural geomorphic adjustment or other causes (e.g. possible vandalism, or human activity in the channel, wildlife trails/laydown areas, etc.).

Quadrat sampling methods shall be used to record data for selected areas of the restoration site. Required monitoring data would include:

- Percent survival and average height of all trees planted (with the exception of willows and cottonwoods, which shall be evaluated based upon aerial cover);
- Overall cover, percent cover by species (dominant as well as incidental species present shall be recorded), and natural recruitment of native and invasive species;
- Mortality and other problems such as insect damage, erosion, or other soil problems shall be noted and documented with photographs; and

- General health and vigor of restoration plantings.

Photographs showing overall views of the restoration site shall be taken at established photopoints during each visit.

The following is a description of specific monitoring data to be collected for the restoration site.

Vegetation:

Riparian vegetation. Riparian vegetation planted on the restoration site shall consist of liner and one-to two-gallon materials. As-built planting plans shall identify the locations and species of each planting. During monitoring visits, the percent cover, species diversity and natural recruitment (both by native and invasive species) within these areas shall be assessed.

Existing riparian trees retained within the project site. The general conditions and health of these trees and seedlings shall be documented during monitoring visits. Any natural recruitment of native tree and shrub species in these areas shall be noted.

Success Criteria. The restoration prescribed for individual restoration projects under the Program shall be considered successful if, at the end of the 5-year monitoring period, restoration objectives are achieved, the channel morphology is stable, planted areas are self-sustaining, and plant survivorship and vigor are adequate to assure a viable, high-quality wildlife habitat.

The section below provides proposed minimum success criteria for the different vegetation types within the individual project sites. Success criteria presented below may be modified based upon site specific conditions and subject to review and approval of regulatory stakeholders and permitting agencies.

Plantings in each restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met. Non-native cover includes plant species that are non-native, but not considered invasive. To measure this success criteria, Invasive plants are defined as having a moderate or high rating by the California Invasive Plant Council (Cal-IPC). Maintenance and/or replanting shall be performed as necessary to achieve these standards. If significant numbers of replacement plantings are required after the third year, the applicant shall consult with the permitting agencies to determine whether the monitoring period should be extended.

Vegetation Success Criteria:

Plantings in the restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met:

Riparian trees and shrubs

- 80 percent cover of the planted area, as indicated on as-built plans submitted to the regulatory agencies.

All revegetated areas within the restoration site

- Percent cover by invasive plants not to exceed 5 %

Maintenance and/or replanting necessary to achieve these standards shall be performed as required. If significant numbers of replacement plantings are required after the third year, the applicant shall consult with the CDFW and other regulatory agencies, as appropriate, to determine whether the monitoring period should be extended.

Annual Reports. Annual monitoring reports shall be submitted by LPCCC/SCWA to the Corps, CDFW and other appropriate agencies and stakeholders. The first annual report for each project shall be delivered by December 31 of the year following the first growing season after planting, and by December 31 of each year thereafter.

The reports shall include analyses of all quantitative monitoring data, prints of monitoring photographs, and maps identifying monitoring transects and/or quadrats, monitoring photo points, and restoration plantings by vegetation type and height class, and provide discussion of the implications of monitoring data for site evolution, and comparison to the success criteria. The reports shall discuss problems and successes encountered, any replacement planting or other remedial measures taken, and shall recommend steps to ensure continued success (or remediation of problems encountered) of the restoration project.

As described above, the project site may support two rare natural communities – elderberry savanna and Great Valley cottonwood riparian forest. Several mitigation measures previously identified in the 2016 Program EIR would be applicable and would ensure that any potentially occurring elderberry savanna or Great Valley cottonwood riparian forest are not significantly impacted. With implementation of Mitigation Measures 3.4-4 and 3.4-9, impacts to these rare natural communities would be less than significant. Therefore, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(No New Impact)***

Project construction activities would have direct and indirect impacts to wetlands, including potential disturbance to existing vegetation and soils. Over the long term, impacts to wetlands would be mitigated through the conversion of low-quality to high-quality wetlands. Although the creation of a narrower design channel (compared with the over widened current conditions) would cause a net loss of approximately 1.2 acres in low-value wetland surface dimensions (or approximately 50 percent of the original surface area), the proposed project would increase the ecological function and habitat value of the channel by creating multiple pool/riffle/run sequences, overhanging banks, structural diversity and increased velocity in riffle sections that would increase aeration. With implementation of the proposed project, the total stream length would be 2,720 feet (approximately 8 percent longer than the current stream channel). Nearly all of the current open-water river (pool) area would be converted to high-quality riverine emergent wetland. Low-value wetlands that are currently overrun with invasive non-native plant species would be converted to high-value wetlands occupied by primarily native wetland plant species. The project would result in a net gain of 1,000 feet of high-quality aquatic habitat with improved ecological function. Therefore, the proposed project would result in a net benefit related to wetland habitat. No new impact would occur.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(No New Impact)***

The proposed project would restore and enhance habitat for native or migratory corridor species. Project construction could result in short-term disturbance and habitat removal that may impede species migration or movement along the river corridor. Resident and migratory species such as North American beaver (*Castor canadensis*) and North American river otter (*Lontra canadensis*) may be present within the project area.

Although the proposed channel restoration may temporarily affect the local movement of aquatic species along Putah Creek, such impacts are expected to be minor and short-term in duration. Wildlife movement through the creek for some aquatic species is already limited since barriers to upstream fish movement exist within and downstream of the project site. After project completion, native fish and wildlife species would be able to move through this reach of Putah Creek, resulting in a beneficial effect for wildlife movement. The impacts to migratory fish and wildlife species would be temporary and reduced to a less-than-significant level with the implementation of Mitigation Measures 3.4-1 and 3.4-11 (Native or Migratory Fish or Wildlife Species Avoidance) as identified in the 2016 Program EIR.

If conducted during the breeding season (March through July), construction activities could directly impact nesting birds by removing trees, understory vegetation, and structures that support active nests. Prolonged loud construction noise could also disturb nesting birds, resulting in nesting failure. All nesting native birds are protected under the federal Migratory Bird Treaty Act and/or California

Fish and Game Code. Implementation of the Mitigation Measure 3.4-6 identified in the 2016 Program EIR would reduce the proposed project's impacts to nesting birds to less than significant.

With implementation of mitigation measures identified in the 2016 Program EIR, the proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(No New Impact)***

The Solano County General Plan contains policies to protect and improve water quality, preserve wetlands, protect watersheds and aquifer recharge areas, and conserve riparian vegetation.[32] The General Plan also discusses special-status species within the County.

The Yolo County General Plan contains policies to protect and enhance biological resources through the conservation, maintenance, and restoration of key habitat areas and corresponding connections that represent the diverse geography, topography, biological communities, and ecological integrity of the landscape.[33]

The 2016 Program EIR addresses all pertinent local regulations, particularly the Solano and Yolo county General Plans. The mitigation measures identified in this section reference and supplement the relevant measures in the 2016 Program EIR and therefore are in compliance with all local and regional laws, ordinances, Plans and Conservation strategies. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(No New Impact)***

The project area is covered by two, partially overlapping Habitat Conservation Plans (HCP), the Solano HCP (due to be approved in early 2023) and the Yolo HCP/NCCP (approved 2018). The Yolo HCP/NCCP Plan Area encompasses all areas within the boundaries of Yolo County and a 1,174-acre expanded Plan Area for riparian conservation in Solano County, on the south side of Putah Creek. This expanded area includes the project site.

Both plans include Conservation Measures designed to protect, enhance and restore Covered Species and to mitigate unavoidable impacts from Covered Activities. The 2016 Program EIR for the Upper Reach Program addresses the Yolo County HCP/NCCP, the Draft Solano HCP, and the Yolo Regional Conservation Investment Strategy and Local Conservation Plan (RCIS/LCP).

32 Solano, County of. 2008. op. cit.
33 Yolo, County of. 2009. op. cit.

The mitigation measures identified in this section reference and supplement the relevant measures in the 2016 Program EIR and therefore are in compliance with all local and regional laws, ordinances, Plans and Conservation strategies. In addition, in compliance with Mitigation Measure TERR-1, identified in the Statewide Order EIR, SWCA would be required to implement design measures, conservation measures or other mitigation strategies to achieve conformance with the adopted conservation plans. Therefore, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.5 CULTURAL RESOURCES

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

5.5.1 Background

CEQA defines a "historical resource" as a resource which meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources (California Register);
- Listed in a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k);
- Identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code; or
- Determined to be a historical resource by a project's lead agency (PRC Section 21084.1 and State CEQA Guidelines Section 15064.5[a]).

The California Register defines a "historical resource" as a resource that meets one or more of the following criteria: (1) associated with events that have made a significant contribution to the broad patterns or local or regional history of the cultural heritage of California or the United States; (2) associated with the lives of persons important to local, California, or national history; (3) embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values; or (4) has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation. Under CEQA, historical resources can include precontact (i.e., Native American) archaeological deposits, historic period archaeological deposits, historic buildings, and historic districts.

LSA conducted a cultural resources study for the proposed project consisting of background research and a field survey. The results of the study are summarized below.

Background Research. On August 1, 2022, a cultural resources record search was conducted for the project by staff at the Northwest Information Center (NWIC) at Sonoma State University. It included a review of all recorded historic and prehistoric archaeological sites within 0.5 mile of the project and a review of known cultural resource survey and excavation reports. Data from the NWIC

indicate there have been four cultural resource studies previously conducted within 0.5 mile of the proposed project, none of which included any portion of the project area. Similarly, no cultural resources are documented within the project site or within 0.5 mile.

Native American Heritage Commission (NAHC) Sacred Lands File. A Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on June 15, 2022, and the NAHC responded on July 25, 2022, with negative results and a list of tribes and individuals recommended for contact.

Historic-Period Aerial Photograph and Map Review. Based on review of historic aerial photographs and historic maps, a building was depicted within the project area on the southern bank of Putah Creek in the early 1940s, but it had been removed by the early 1950s, and two pumps depicted on the periphery of the project site (on either side of the creek) between the early 1950s and mid-1980s were removed by the early 1990s.

Field Survey. On August 11 and 31, 2022, an LSA archaeologist conducted a pedestrian survey of all accessible areas of the project area. No cultural resources were identified.

5.5.2 Prior Environmental Analysis

5.5.2.1 2016 Program EIR

The 2016 Program EIR concluded that there are no known cultural resources within the Nishikawa reach; however, there is a possibility that significant sites, features, and artifacts could be discovered or disturbed as a result of the project. Subsurface disturbances have the potential to destroy or damage undiscovered prehistoric or historic-era cultural resources and if these resources were to represent "unique archaeological resources" or "historical resources" as defined by CEQA, a significant impact would occur. However, implementation of Mitigation Measures 3.11-2 and 3.11-3 would be required, which require following proper protocols if unrecorded cultural resources or human remains are encountered. Implementation of these measures would reduce impacts to less-than-significant levels.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project.

Mitigation Measure 3.11-2: **If Unrecorded Cultural Resources are Encountered.** If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, glass, ceramics, structure/building remains, dark soil deposits and charcoal, stone implements and flakes, etc.) is made during Project-related construction activities, ground disturbances in the area of the find shall be halted and a qualified professional archaeologist will be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant per the CRHR and develop appropriate mitigation to protect the integrity of the resource and ensure that no additional resources are impacted. Mitigation could include, but not necessarily be limited to preservation in-place, archival

research, subsurface testing, or contiguous block unit excavation and data recovery.

Mitigation Measure 3.11-3: **Human Remains.** The county sheriff/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 the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]).

Following the coroner's findings, the property owner, contractor or Project proponent, an archaeologist, and the NAHC-designated MLD shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.9.

The landowner shall ensure that the immediate vicinity (according to generally accepted cultural or archaeological standards and practices) is not damaged or disturbed by further development activity until consultation with the MLD has taken place. The MLD shall have 48 hours to complete a site inspection and make recommendations after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. Assembly Bill (AB) 2641 suggests that the concerned parties may extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. AB 2641(e) includes a list of site protection measures and states that the landowner shall comply with one or more of the following:

- Record the site with the NAHC or the appropriate Information Center;
- Utilize an open-space or conservation zoning designation or easement; and/or
- Record a document with the county in which the property is located.

The landowner or their authorized representative shall rebury the Native American human remains and associated grave goods with

appropriate dignity on the property in a location not subject to further subsurface disturbance if the NAHC is unable to identify a MLD or the MLD fails to make a recommendation within 48 hours after being granted access to the site. The landowner or their authorized representative may also re-inter the remains in a location not subject to further disturbance if they reject the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner.

5.5.2.2 Statewide Order EIR

The Statewide Order EIR determined that project construction and operation activities for restoration projects permitted under the Statewide Order are the types of activities that have the potential to affect historical (i.e., architectural) and archaeological resources and human remains. Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 were identified to reduce potential impacts to historical and archaeological resources; however, because the efficacy of the mitigation measures could not be determined at the time the EIR was certified, these impacts were determined to be significant and unavoidable.

As part of the State Water Board or RWQCB's issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would be required when applicable to a given project.

Applicable Mitigation Measures. As described further below, no architectural resources are located within the project area; therefore, Mitigation Measure CUL-1 identified in the Statewide Order EIR would not apply. The following mitigation measures would be applicable to the proposed project:

Mitigation Measure CUL-2: **Conduct Inventory and Significance Evaluation of Archaeological Resources.** Before implementation of any project permitted under the Order that includes ground disturbance, an archaeological records search and sensitivity assessment, inventory and significance evaluation of archaeological resources identified in the C-APE shall be conducted. The inventory and evaluation should be done by or under the direct supervision of a qualified archaeologist, defined as one who meets the U.S. Secretary of the Interior's Professional Qualifications Standards for Archeology, and shall include the following:

- Map(s) and verbal description of the project C-APE for cultural resources that delineates both the horizontal and vertical extents of where a project could result in impacts, including both direct and indirect, on cultural resources.

- A records search at the appropriate repository of the California Historical Resources Information System (CHRIS) for the C-APE and vicinity (typically areas within 0.25 or 0.5 mile, based on

setting) to acquire records on previously recorded cultural resources in the C-APE and vicinity and previous cultural resources studies conducted for the C-APE and vicinity. This task can be performed by either the qualified archaeologist or the appropriate local CHRIS center staff.

- Outreach to the California Native American Heritage Commission, including a request of a search of the Sacred Lands File for the C-APE, to determine if any documented Native American sacred sites could be affected by the project.

- Consultation with California Native American Tribes pursuant to PRC Section21080.3 to determine whether any indigenous archaeological resource or tribal cultural resources could be affected by the project. Project proponents shall submit a Sacred Lands File & Native American Contacts List Request to the Native American Heritage Commission (NAHC) at the initial stages of project development (or as early as practicable) to determine if a project would have an impact on Native American cultural resources. The project proponent shall coordinate with the approving Water Board or other CEQA lead agency, if applicable, as soon as possible whenever tribes that are traditionally and culturally affiliated to a project area are identified. Any tribe identified by the NAHC will require notification of the proposed project by the lead agency as soon as practicable during early design. Tribes will be consulted if a request is received after initial notification. Consultation will include discussion regarding project design, cultural resource survey, protocols for construction monitoring, and any other tribal concern. Construction of the project will not commence until the approving Water Board or other CEQA lead agency achieves compliance with the California Environmental Protection Agency Tribal Consultation Protocol (April 2018).

- If the C-APE is in or adjacent to navigable waterways, outreach to the California State Lands Commission to request a search of their Shipwrecks Database, to determine whether any submerged archaeological resources may be present in the C-APE.

- Background research on the history, including ethnography and indigenous presence, of the C-APE and vicinity.

- An archaeological sensitivity analysis of the C-APE based on mapped geologic formations and soils, previously recorded

archaeological resources, previous archaeological studies, and Native American consultation.

- If an archaeological study is not warranted based on the above review, a summary of the assessment and justification of the determination will be prepared. If the CEQA lead agency agrees with the determination, no further study is needed.

If a study is warranted, as a result of these archival studies and consultations, an archaeological field survey of the C-APE will be conducted. The field survey shall include, at a minimum, a pedestrian survey. If the archaeological sensitivity analysis suggests a high potential for buried archaeological resources in the C-APE, a subsurface survey shall also be conducted. If previous archaeological field surveys no more than two years old have been conducted for the C-APE, a new field survey is not necessary, unless their field methods do not conform to those required above (e.g., no subsurface survey was conducted but C-APE has high potential for buried archaeological resources). Any archaeological resources identified in the C-APE during the survey shall be recorded on the appropriate California Department of Parks and Recreation 523 forms (i.e., site record forms).

- An evaluation of any archaeological resources identified in the C-APE for California Register eligibility (i.e., as qualifying as historical resources, as defined in State CEQA Guidelines Section 15064.5) as well as whether they qualify as unique archaeological resources, pursuant to PRC Section 21083.2. Such evaluation may require archaeological testing (excavation), potentially including laboratory analysis, and consultation with relevant Native American representatives (for indigenous resources).

- An assessment of potential project impacts on any archaeological resources identified in the C-APE that qualify as historical resources (per State CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2). This shall include an analysis of whether the project's potential impacts would materially alter a resource's physical characteristics that convey its historical significance and that justify its inclusion (or eligibility for inclusion) in the California Register or a qualified local register.

- A technical report meeting U.S. Secretary of the Interior's Standards for archaeological technical reporting. This report will document the mitigation measures taken and any study results,

and, following CEQA lead agency review and approval, completes the requirements of this mitigation measure.

If potentially significant impacts on archaeological resources that qualify as historical resources (per State CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2) are identified, develop, before project implementation and in coordination with interested or consulting parties (e.g., Native American representatives [for indigenous resources], historical societies [for historic-era resources], local communities) an approach for reducing such impacts. If any such resources are on or in the tide and submerged lands of California, this process. shall also include coordination with the California State Lands Commission. Typical measures for reducing impacts include:

- Modify the project to avoid impacts on resources.
- Plan parks, green space, or other open space to incorporate the resources.
- Develop and implement a detailed archaeological resources management plan to recover the scientifically consequential information from archaeological resources before any excavation at the resource's location. Treatment for most archaeological resources consists of (but is not necessarily limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the project.
- Develop and implement interpretive programs or displays, and conduct community outreach.

Mitigation Measure CUL-3: **Implement Measures to Protect Archaeological Resources during Project Construction or Operation.** If archaeological resources are encountered during project construction or operation of any project permitted under the Order, all activity within 100 feet of the find shall cease and the find shall be flagged for avoidance. The lead agency and a qualified archaeologist, defined as one meeting the U.S. Secretary of the Interior's Professional Qualifications Standards for Archeology, shall be immediately informed of the discovery. The qualified archaeologist shall inspect the discovery and notify the lead agency of their initial assessment. If the qualified archaeologist determines that the resource is or is potentially indigenous in origin, the lead agency shall consult with culturally affiliated California

Native American Tribes to assess the find and determine whether it is potentially a tribal cultural resource.

If the lead agency determines, based on recommendations from the qualified archaeologist and culturally affiliated California Native American Tribes, that the resource is indigenous, that the resource may qualify as a historical resource (per State CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074), then the resource shall be avoided if feasible. If avoidance of an identified indigenous resource is not feasible, the lead agency shall consult with a qualified archaeologist, culturally affiliated California Native American Tribes, and other appropriate interested parties to determine treatment measures to minimize or mitigate any potential impacts on the resource pursuant to PRC Section 21083.2 and State CEQA Guidelines Section 15126.4. If any such resources are on or in the tide and submerged lands of California, this process shall also include coordination with the California State Lands Commission. Once treatment measures have been determined, the lead agency shall prepare and implement an archaeological (and/or tribal cultural) resources management plan that outlines the treatment measures for the resource. Treatment measures typically consist of the following steps:

- Determine whether the resource qualifies as a historical resource (per State CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074) through analysis that could include additional historical or ethnographic research, evaluative testing (excavation), or laboratory analysis.

- If it qualifies as a historical resource (per State CEQA Guidelines Section15064.5) and/or unique archaeological resource (per PRC Section 21083.2),implement measures for avoiding or reducing impacts such as the following:

    - Modify the project to avoid impacts on resources.

    - Plan parks, green space, or other open space to incorporate resources.

    - Recover the scientifically consequential information from the archaeological resource before any excavation at the resource's location. This typically consists of (but is not necessarily limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to

target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the project.

- Develop and implement interpretive programs or displays.

- If it qualifies as a tribal cultural resource (per PRC Section 21074) implement measures for avoiding or reducing impacts such as the following:
  - Avoid and preserve the resource in place through measures that include but are not limited to the following:
    - Plan and construct the project to avoid the resource and protect the cultural and natural context.
    - Plan greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria.
  - Treat the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, through measures that include but are not limited to the following:
    - Protect the cultural character and integrity of the resource.
    - Protect the traditional use of the resource.
    - Protect the confidentiality of the resource.
  - Implement permanent conservation easements or other interests in real property, with cultural appropriate management criteria for the purposes of preserving or using the resource or place.

Mitigation Measure CUL-4: **Implement Measures to Protect Human Remains during Project Construction or Operation.** If human remains are encountered during construction or operation and maintenance of any project permitted under the Order, all work shall immediately halt within 100 feet of the find and the lead agency shall contact the appropriate county coroner to evaluate the remains and follow the procedures and protocols set forth in State CEQA Guidelines Section 15064.5(e)(1). If human remains encountered are on or in the tide and submerged lands of California, the lead agency shall also contact the California State Lands Commission. If the coroner

determines that the remains are Native American in origin, the appropriate county shall contact the California Native American Heritage Commission, in accordance with California Health and Safety Code Section 7050.5(c) and PRC Section 5097.98. Per PRC Section 5097.98, the project's lead agency shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the lead agency has discussed and conferred, as prescribed PRC Section 5097.98, with the most likely descendants and the property owner regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.

5.5.3 Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? ***(No New Impact)***

Although a built environment (a building and two pumps) was depicted within the project area from the early 1940s into the mid-1980s, these improvements had all been removed by the late 1990s and no trace of these former improvements was identified via survey. Additionally, no archaeological resources have been identified within the project area as a result of the NWIC records search, additional research, or the cultural resources survey. The project site consists of a stream channel, which is a dynamic geological context and not conducive to archaeological deposition. Therefore, subsurface sensitivity appears low, and potential to encounter undocumented archaeological resources is low.

Despite the negative results of the field survey, it cannot be entirely be ruled out that archaeological historical cultural resources could be encountered during project construction at the project site. Should archaeological historical deposits be encountered during project ground disturbance, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1)). With implementation of Mitigation Measure 3.11-2, identified in the 2016 Program EIR and Mitigation Measure CUL-3 identified in the Statewide Order EIR, which require following proper protocols if unrecorded cultural resources or are encountered, potential impacts to historical resources would be reduced to a less-than-significant level. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? ***(No New Impact)***

According to the CEQA Guidelines, "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (CEQA Guidelines Section 15064.5(c)(1)). Those archaeological sites that do not qualify as historical resources shall be

assessed to determine if these qualify as "unique archaeological resources" (California PRC Section 21083.2).

Archaeological deposits identified during project construction shall be treated by SCWA—in consultation with a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology—in accordance with Mitigation Measure 3.11-2 identified in the 2016 Program EIR and Mitigation Measure CUL-3 identified in the Statewide Order EIR. With implementation of Mitigation Measure 3.11-2, identified in the 2016 Program EIR and Mitigation Measure CUL-3 identified in the Statewide Order EIR, which require following proper protocols if unrecorded cultural resources are encountered, impacts to archaeological resources would be less than significant. Therefore, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

*c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? **(No New Impact)***

Based on previous archaeological investigation and analysis, there is a low potential for the disturbance of archaeological cultural resources or human remains. However, if human remains are encountered in the project area, State Health and Safety Code Section 7050.5 and State CEQA Guidelines Section 15064.5(e)(1) state that no further disturbance shall occur to the area of the find until the County Coroner has made a determination of origin and disposition of the human bone pursuant to PRC Section 5097.98 and as required by Mitigation Measure 3.11-3 identified in the 2016 Program EIR and Mitigation Measure CUL-4 identified in the Statewide Order EIR. The County Coroner must be notified of the find immediately and shall make a determination within two working days of being notified. If the remains are determined to be Native American, the County Coroner shall notify the NAHC by phone within 24 hours, and the NAHC shall then immediately determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment of the remains within 48 hours of being granted access to the site. The MLD's recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

Implementation of Mitigation Measure 3.11-3 identified in the 2016 Program EIR and Mitigation Measure CUL-4 identified in the Statewide Order EIR, which requires compliance with Section 7050.5 of the California Health and Safety Code and Public Resources Code Section 5097.98 regarding the treatment of human remains would ensure that potential impacts to human remains would be less than significant. Therefore, no new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.6 ENERGY

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

5.6.1 Background

Energy demand is typically associated with day-to-day operations and fuel consumption associated with project construction. This section discusses energy use resulting from implementation of the proposed project and evaluates whether the proposed project would result in the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with any applicable plans for renewable energy and energy efficiency.

5.6.2 Prior Environmental Analysis

5.6.2.1 2016 Program EIR

The topic of energy use was not analyzed in the 2016 Program EIR.

5.6.2.2 Statewide Order EIR

Impacts associated with energy use were determined to be less than significant in the Statewide Order EIR.

5.6.3 Impact Analysis

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? ***(No New Impact)***

This analysis evaluates energy consumption for both construction and operation of the proposed project, including diesel fuel use for construction off-road equipment.

Construction. Restoration activities would require the use of energy to fuel construction equipment and vehicles. All or most of this energy would be derived from non-renewable resources. Construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. As such, construction energy usage would be less than significant. In addition, construction workers would be required to shut off idle equipment, which would increase energy

efficiency on the site during project construction. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Operation. Typically, energy consumption is associated with fuel used for vehicle trips and electricity and natural gas use. The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Once restoration activities are complete, the project would not result in energy use. Therefore, operational energy impacts would be less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ***(No New Impact)***

In 2002, the Legislature passed Senate Bill 1389, which required the California Energy Commission (CERCLA) to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission (ZE) vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The most recently CEC adopted energy reports are the 2021 Integrated Energy Policy Report[34] and 2022 Integrated Energy Policy Report Update.[35] The Integrated Energy Policy Reports provide the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The Integrated Energy Policy Reports cover a broad range of topics, including implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. Because California's

[34] California Energy Commission, 2021. *2021 Integrated Energy Policy Report.* California Energy Commission. Docket # 21-IEPR-01.

[35] California Energy Commission, 2022. 2022 Integrated Energy Policy Report Update. California Energy Commission. Docket # 22-IEPR-01.

energy conservation planning actions are conducted at a regional level, and because the proposed project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the CEC's Integrated Energy Policy Reports. Impacts would be less than significant, and no mitigation is required. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.7 GEOLOGY AND SOILS

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

5.7.1 Background

The project site is located in the northwestern portion of Great Valley Geomorphic Province. The California Coast Range rises to the west of the project alignment and consists of uplifted northwest-trending mountain ranges and valleys. Lower Putah Creek is situated on a broad alluvial fan that originates in the Coast Ranges to the west and extends to the deep alluviums of the valley floor at the Yolo Bypass.[36]

No faults pass through the project site; however, it is located in an area with a high potential for moderate to intense ground shaking. Topography at the project site is generally flat lying except for the incised channel. Soils in the project reach have a moderate to moderately high erosion potential. Soil types occurring in the project reach include Yolo loam, Yolo silt loam, Riverwash, and Water.[37]

[36] Solano County Water Agency, 2016. op. cit.
[37] Ibid.

5.7.2 Prior Environmental Analysis

5.7.2.1 2016 Program EIR

The 2016 Program EIR concluded that the completion of the proposed channel restoration activities along the Nishikawa reach would not increase the existing seismic and landslide risks at the project site. The 2016 Program EIR determined that there is a small potential for inadvertent, short-term bank destabilization during construction activities, which could present a hazard to workers on-site. However, the 2016 Program EIR concluded that normal grading operations would include consideration of these hazards and implementation of channel restoration activities along the Nishikawa reach would have a less than significant impact related to seismic hazards and landslides.

The 2016 Program EIR concluded that project activities would not increase existing erosion or long-term erosion risks within the Nishikawa reach. Restoration activities could result in potential short-term effects related to erosion during construction activities; however, erosion and sediment controls implemented to comply with Section 401 Water Quality Certification and the Construction General Permit would ensure that short-term construction-related project erosion and siltation impacts would be less than significant.

Due to the location and characteristics of the Nishikawa reach, the 2016 Program EIR concluded that there would be no impacts related to on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. Additionally, the analysis determined that that the proposed restoration activities would not worsen the existing lateral spread risk of the creek because the project includes creek restoration activities aimed at stabilizing the stream banks. Overall, the 2016 Program EIR determined that the proposed stream restoration activities would not result in any significant or potentially significant impacts related to geology and soils and no mitigation measures were required.

5.7.2.2 Statewide Order EIR

The Statewide Order EIR determined that because the specific locations and scale of possible future permitted restoration projects were not known at the time the EIR was certified, the impacts associated with seismic hazards, including fault rupture, and liquefaction, and expansive soils would be potentially significant. Mitigation measures were identified to reduce potential impacts to a less-than-significant level. Additionally, the Statewide Order EIR determined that restoration projects permitted under the Statewide Order could directly or indirectly result in the loss of a unique paleontological resource or geological resource. Mitigation measures were identified to reduce potential impacts; however, because the efficacy of the mitigation measures could not be determined at the time the EIR was certified, impacts to paleontological resources/unique geologic resources were determined to be significant and unavoidable.

As part of the State Water Board or RWQCB's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measures GEO-1 through GEO-10 would be required when applicable to a given project.

Applicable Mitigation Measures. As described below, the project site is not located within an Alquist-Priolo Fault Zone, therefore, Mitigation Measure GEO-2 would not apply. The following mitigation measures would be applicable to the proposed project:

Mitigation Measure GEO-1: **Include Geotechnical Design Recommendations.** To minimize potential impacts from seismic events and the presence of adverse soil conditions, lead agencies shall ensure that geotechnical design recommendations are included in the design of facilities and construction specifications. Recommended measures to address adverse conditions shall conform to applicable design codes, guidelines, and standards.

~~**Mitigation Measure GEO-2:** **Comply with the Alquist-Priolo Act.** For construction in an Alquist-Priolo Earthquake Fault Zone, a determination must be made by a licensed practitioner (California Certified Engineering Geologist) that no fault traces are present within structures, such as setback levees. The standard of care for such determinations includes direct examination of potentially affected subsurface materials (soil and/or bedrock) by logging of subsurface trenches. Levee structures may also be required to have heavier reinforcement against strong ground motion, in compliance not only with California regulations but, in many cases, with additional federal regulations.~~

Mitigation Measure GEO-3: **Conduct Individual Restoration Project Geotechnical Investigation and Report.** When a restoration project involves potentially significant grading activities and warrants consideration of geotechnical factors and/or constraints (e.g., work on flood control levees, work in areas with certain soil types subject to liquefaction), the project proponent shall conduct and prepare a geotechnical report to address potential issues and concerns. The geotechnical report shall include a quantitative analysis to determine whether excavation or fill placement would result in a potential for damage due to soil subsidence during and/or after construction. Project designs shall incorporate measures to reduce the potential damage to a less-than-significant level. Measures shall include but not be limited to:

- Removal and recompaction of existing soils susceptible to subsidence
- Ground improvement (such as densification by compaction or grouting, soil cementation)
- Reinforcement of structural components to resist deformation due to subsidence

The assessment of subsidence for specific projects shall analyze the individual restoration projects potential for and severity of cyclic seismic loading. A geotechnical investigation shall also be performed by an appropriately licensed professional engineer and/or geologist to determine the presence and thickness of potentially liquefiable sands that could result in loss of bearing value during seismic shaking events. Project designs shall incorporate measures to mitigate potential damage to a less-than-significant level. Measures shall include but not be limited to:

- Ground improvement (such as grouting or soil cementation)
- Surcharge loading by placement of fill, excavation, soil mixing with non-liquefiable finer-grained materials, and replacement of liquefiable materials at shallow depths
- Reinforcement of structural components to resist deformation due to liquefaction

An analysis of individual restoration projects probable and credible seismic acceleration values, conducted in accordance with current applicable standards of care, shall be performed to provide for a suitable project design. Geotechnical investigations shall be performed, and geotechnical reports shall be prepared in the responsible care of California licensed geotechnical professionals including professional civil engineers, certified geotechnical engineers, professional geologists, certified engineering geologists, and certified hydrogeologists, all of whom practice within the current standards of care for such work.

Mitigation Measure GEO-4: **Adhere to International Building Code.** Constructed facilities shall be required to adhere to the current approved version of the International Building Code (IBC), and to comply with the IBC for critical structures (e.g., levees).

Mitigation Measure GEO-5: **Conduct Expansive Clay Investigation.** In areas where expansive clays exist, a licensed professional engineer or geologist shall perform a hydrogeological/geotechnical investigation to identify and quantify the potential for expansion, particularly differential expansion of clayey soils caused by leakage and saturation beneath new improvements. Measures could include but are not limited to removing and recompacting problematic expansive soils, stabilizing soils, and/or reinforcing the constructed improvements to resist deformation from expansion of subsurface soils.

Mitigation Measure GEO-6: **Implement Measures for Waterway Construction Activities.** For projects that involve the engineered subsurface structural components (e.g., of surface impoundments, levees, bridge footings/abutments) project design shall provide for protection from leakage to the subsurface. Measures could include but are not limited to rendering concrete less permeable by specifying concrete additives such as bentonite, designing impermeable liner systems, designing leakage collection and recovery systems, and constructing impermeable subsurface cutoff walls.

For restoration projects that could cause subsurface seepage of nuisance water onto adjacent lands, the following measures shall be implemented:

- Perform seepage monitoring studies by measuring the level of shallow groundwater in the adjacent soils, to evaluate baseline conditions. Continue monitoring for seepage during and after project implementation.
- Develop a seepage monitoring plan if subsurface seepage constitutes nuisance water on the adjacent land.
- If it is determined that seepage from the restoration project is responsible for making adjacent lands not usable, implement seepage control measures, such as installing subsurface agricultural drainage systems to avoid raising water levels into crop root zones. Cutoff walls and pumping wells can also be used to mitigate the occurrence of subsurface nuisance water.

Mitigation Measure GEO-7: **Implement Measures for Levee Construction and Other Fill Embankment Designs.** For projects that involve the construction of setback levees, surface impoundments, and other fill embankments, the project design shall place fill in accordance with state and local regulations and the prevailing standards of care for such work. Measures could include but are not limited to blending the soils most susceptible to landsliding with soils that have higher cohesion characteristics; installing slope stabilization measures; designing top-of-slope berms or v-ditches, terrace drains, and other surface runoff control measures; and designing slopes at lower inclinations.

Mitigation Measure GEO-8: **Assess the Presence of Highly Organic Soils.** For projects that would result in a significant or potentially significant risk to structures because of the presence of highly organic soils, the lead agencies shall require a geotechnical evaluation before construction to identify measures to mitigate organic soils. The following measures may be considered:

- Over-excavation and import of suitable fill material.
- Structural reinforcement of constructed works to resist deformation.
- Construction of structural supports below the depth of highly organic soils into materials with suitable bearing strength.

Mitigation Measure GEO-9: **Conduct a General Project-Level Analysis.** Restoration projects implemented by other public proponents under the Order would be required to do a desktop search on whether the project site would be located in a paleontological sensitive unit. If the project site was determined to be located on a paleontological sensitive unit, then Mitigation Measure GEO-9 (and Mitigation Measure GEO-10, below, as applicable) would be implemented. If restoration projects implemented under the Order fall outside a paleontological sensitive unit, GEO-9 (and Mitigation Measure GEO-10, below) would be not required.

During project development and project-level analysis, a paleontological resource monitoring and recovery plan shall be developed and implemented for all actions determine by the project proponent to be located on a paleontological sensitive unit. The plan shall include protocols for paleontological resources monitoring in areas where construction-related excavation would affect sediment with moderate to high paleontological sensitivity.

The paleontological resource monitoring and recovery plan shall provide guidelines for the establishment of a yearly or biannual monitoring program led by a qualified paleontologist to determine the extent of fossiliferous sediment being exposed and affected by erosion and determine whether paleontological resources are being lost. If the loss of scientifically significant paleontological resources is documented, then a recovery program should be implemented.

Mitigation Measure GEO-10: **Conduct Worker Training.** For projects that are determined to have moderate to high paleontological sensitivity, before the start of any ground-disturbing activity (e.g., excavation or clearing), a qualified paleontologist shall prepare paleontological resources sensitivity training materials for use during project worker environmental training or equivalent. This training shall be conducted by a qualified environmental trainer under the supervision of the qualified paleontologist. For restoration projects that involve construction crew phases, additional trainings shall be conducted for new construction personnel. The paleontological resource sensitivity training shall focus on the types of resources that could be

encountered within the individual restoration project site and the procedures to follow if they are found. Project proponents and/or project contractors shall retain documentation demonstrating that all construction personnel attended the paleontological resource sensitivity training before the start of work on the site and shall provide documentation to the project manager upon request.

5.7.3 Impact Analysis

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

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ***(No New Impact)***

The State of California enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972, requiring the State Geologist to delineate Earthquake Fault Zones (EFZ) along known active faults that have high potential for fault rupture. Active faults are defined as a fault that has surface displacement within the last 11,000 years.[38] State regulations prohibit habitable structures from being sited within 50 feet of an active fault. According to the California Earthquake Hazards Zone Application ("EQ Zapp"),[39] the project site is approximately 23 miles northeast of the Green Valley Fault, which is the nearest Alquist-Priolo Fault Zone. Therefore, fault rupture through the site is not anticipated and the proposed project would not directly or indirectly cause substantial adverse effects related to fault rupture. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

ii. Strong seismic ground shaking? ***(No New Impact)***

The project site is located in an area with a high potential for moderate to intense ground shaking. However, the project proposes no changes to the existing land use and the potential for strong seismic ground shaking to occur at the project area would be the same as in the existing condition. No structures or other developments are proposed as part of the project. The project footprint would be limited to Putah Creek and its associated riparian habitat and human occupation of the project area would not occur after the completion of construction other than for occasional maintenance activities. Consequently, the proposed project is not expected to expose people or structures to risks associated with strong ground shaking. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

[38] California, State of. 2019. Department of Conservation. Alquist-Priolo Earthquake Fault Zones. Website: www.conservation.ca.gov/cgs/alquist-priolo (accessed October 10, 2022).

[39] California, State of. Department of Conservation. *California Earthquake Hazards Zone Application ("EQ Zapp").* Website: https://maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed October 10, 2022).

*iii. Seismic-related ground failure, including liquefaction? **(No New Impact)***

Liquefaction occurs when loose, fine-grained soil temporarily transforms to a fluid-like state similar to quicksand. This phenomenon occurs due to strong seismic activity and lessens the soil's ability to support a structural foundation. The Solano County General Plan and earthquake planning documents indicate that the project site has a medium liquefaction potential.[40] The Yolo County General Plan and emergency planning documents do not identify the level of liquefaction risk in the project area. However, no habitable structures or other developments are proposed as part of the project. The project footprint would be limited to Putah Creek and its associated riparian habitat and human occupation of the project area would not occur after the completion of construction other than for occasional maintenance activities. Consequently, the proposed project is not expected to expose people or structures to risks associated with seismic-related ground failure. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

*iv. Landslides? **(No New Impact)***

Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes in areas with significant ground slopes. Topography at the project site is generally flat lying except for the incised channel. The Solano County General Plan identifies the project area as having slopes of less than 4 percent and does not include the project area as an area of slope hazard.[41] The Yolo County General Plan identifies the project area's landslide susceptibility as low.[42] Additionally, no habitable structures or other developments are proposed as part of the project. The project footprint would be limited to Putah Creek and its associated riparian habitat and human occupation of the project area would not occur after the completion of construction other than for occasional maintenance activities. Consequently, the proposed project would not expose people or structures to risks associated with landslides. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

*b. Would the project result in substantial soil erosion or the loss of topsoil? **(No New Impact)***

Construction activity anticipated for the proposed project components would disturb soil that could be subject to wind or water erosion. The potential for soil erosion exists during the period of earthwork activities and between the time when earthwork is completed and new vegetation is established. Exposed soils could be entrained in stormwater runoff and transported off the project site. Construction specifications require the preparation of a Stormwater Pollution and Prevention Plan (SWPPP) prior to any ground disturbance activities as required by the National Pollutant Discharge Elimination System (NPDES) General Permit (GP) for Construction (Order 2009-009-DWQ). The SWPPP would provide the details of the erosion control measures to be applied on the project site during the construction period, including Best Management Practices (BMPs) for erosion control

40 Solano, County of. 2008. *Solano County General Plan.* Figure HS-9, Liquefaction Potential. November.
41 Solano, County of, 2008. *Solano County General Plan.* Figure HS-7, Slope Hazards. November.
42 Yolo, County of, 2009. *Yolo County General Plan.* Figure HS-2, Landslide Susceptibility. November.

that are recognized by the San Francisco Bay RWQCB. Additional details regarding the SWPPP are provided in Section 5.10, Hydrology and Water Quality.

Additionally, project activities would be subject to Clean Water Act (CWA) Section 401, Water Quality Certification, for discharges of dredged and fill materials through the Central Valley Regional Water Quality Control Board (CVRWQCB). As part of this certification, CVRWQCB would require erosion controls in all areas disturbed by project activities, as is discussed in further detail in Section 5.10, Hydrology and Water Quality. These regulatory controls would ensure that the project's erosion impacts are less than significant.

One of the purposes of project activities is to reduce existing erosion in the project reach. The project would utilize a number of stabilization methods, including slope recontouring, constructing rock cross-vane grade/flow control structures and installing of rock revetment, log revetment, and/or root wads to stabilize stream banks and reduce erosion. Meandering of the low-flow stream channel within the incised larger channel over time is a natural process and would not be considered an adverse impact if sediment inputs and outputs are more or less in equilibrium.

Erosion and sediment controls implemented to comply with Section 401, Water Quality Certification, with any required SWPPPs would ensure that project impacts resulting in substantial soil erosion or the loss of topsoil would be less than significant. No new or substantially more severe significant impacts related to erosion would occur.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? ***(No New Impact)***

With the exception of the stream banks, there are no steep slopes in the project area that could become unstable. One of the purposes of the proposed project is to stabilize streambanks in the project area, which would reduce risk of landslides and slope failure compared to existing conditions. There is a small potential for inadvertent, short-term bank destabilization during construction, which could present a hazard to workers on-site. Under these conditions, the construction manager and equipment operators would take all precautions to minimize this hazard as part of normal operations.

No habitable structures or other developments are proposed as part of the project. The project footprint would be limited to Putah Creek and its associated riparian habitat and human occupation of the project area would not occur after the completion of construction other than for occasional maintenance activities. Consequently, the proposed project is not expected to expose people or structures to risks associated with unstable soils. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? ***(No New Impact)***

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction.

Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. No structures or other developments are proposed as part of the project. The project footprint would be limited to Putah Creek and its associated riparian habitat and human occupation of the project area would not occur after the completion of construction other than for occasional maintenance activities. No new or substantially more severe significant impacts related to expansive soils would occur.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? ***(No New Impact)***

The proposed project would not involve the use of septic systems or alternative wastewater disposal systems. No new impacts or substantially more severe significant impacts related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems would occur.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(No New Impact)***

Paleontological resources include fossilized remains or traces of mammals, plants, and invertebrates, as well as their imprints. Such fossil remains, as well as the geological formations that contain them, are also considered a paleontological resource. Together, they represent a limited, nonrenewable scientific and educational resource. No paleontological resources are currently known to exist on the project site; however, the proposed project would require excavation of approximately 27,686 cubic yards of soil. Ground-disturbing activities could adversely impact previously unidentified fossils. Implementation of Mitigation Measures GEO-9 and GEO-10, identified in the Statewide Order EIR would reduce impacts on paleontological resources to less-than-significant levels by requiring monitoring in paleontologically sensitive areas and training for construction workers so that they can identify and avoid paleontological resources during construction activities.

5.8 GREENHOUSE GAS EMISSIONS

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

5.8.1 Background

Greenhouse gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF_6).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as CO_2, methane, and N_2O, some gases, like HFCs, PFCs, and SF_6 are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular

GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

5.8.2 Prior Environmental Analysis

5.8.2.1 2016 Program EIR

The 2016 Program EIR determined that implementation of the Program would not conflict with any of the 39 recommended actions contained in the State's AB 32 Climate Change Scoping Plan and that the State's AB 32 Scoping Plan will generally be implemented through mandatory regulations enacted by the CARB. Additionally, the 2016 Program EIR determined that the maximum total GHG emissions from the project would be approximately 997 metric tons per year of CO_2e, which would be less than 4 percent of the threshold of 25,000 metric tons per year. If a project's total emissions are below this limit, it is assumed that the activities of the project would generally not conflict with the State's ability to reach AB 32 overall goals. The 2016 Program EIR determined that the Program would not be in conflict with any of the local plans for Yolo County, Solano County, the City of Winters, or the YSAQMD AQMP for reducing GHG emissions and that the local plans do not contain restrictions on minor construction projects. Overall, the 2016 Program EIR concluded that impacts regarding GHG emissions would be less than significant and mitigation would not be required.

5.8.2.2 Statewide Order EIR

The Statewide Order EIR determined that construction activities for restoration projects permitted under the Statewide Order could emit GHGs. Mitigation Measure AIR-3 was identified to reduce impacts associated with GHG emissions during construction activities; however, because the efficacy of this mitigation measure could not be quantified, this impact was determined to significant and unavoidable. Operation and maintenance activities associated with potential restoration projects permitted under the Statewide Order were determined to be less than significant.

As part of the State Water Board or RWQCB's issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measure AIR-3 would be required when applicable to a given project.

Applicable Mitigation Measures. The following mitigation measure would apply to the proposed project:

Mitigation Measure AIR-3: **Minimize GHG Emissions.** Restoration projects permitted under the Order shall implement the GHG mitigation measures listed in the most recent air district guidance documents (e.g., CAPCOA 2010; BAAQMD 2011), as appropriate for the project site and conditions. Current versions of such guidance documents list the following for construction of projects:

- Use alternative fuels for construction equipment.
- Use electric and hybrid construction equipment.

- Limit construction equipment idling beyond regulatory requirements.
- Institute a heavy-duty off-road vehicle plan.
- Implement a construction vehicle inventory tracking system.
- Use local building materials for at least 10 percent of total materials.
- Recycle or reuse at least 50 percent of construction waste or demolition materials.

In addition, the California Attorney General's Office has developed a list of measures and strategies to reduce GHG emissions at the individual project level. As appropriate, the measures can be included as design features of a restoration project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees). The measures are examples; the list is not intended to be exhaustive. The following are best management practices to consider and implement (as applicable) during design, construction, and O&M of project facilities.

Transportation and Motor Vehicles

- Limit idling time for commercial vehicles, including delivery and construction vehicles.
- Use low- or zero-emission vehicles, including construction vehicles.
- Institute a heavy-duty off-road vehicle plan and a construction vehicle inventory tracking system for construction projects.
- Promote ridesharing.
- Provide the necessary facilities and infrastructure to encourage the use of low- or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).
- Provide a shuttle service to public transit/work sites.
- Provide information on all options for individuals and businesses to reduce transportation-related emissions.

SmartWay Truck Efficiency

This strategy involves requiring existing trucks/trailers to be retrofitted with the best available "SmartWay Transport" and/or CARB-approved technology. Technologies that reduce GHG emissions from trucks include devices that reduce aerodynamic drag and rolling resistance. Aerodynamic drag may be reduced using devices such as cab roof fairings, cab side gap fairings, cab side skirts, and on the trailer side, skirts, gap fairings, and trailer tail. Rolling resistance can be reduced using single wide tires or low-rolling resistance tires and automatic tire inflation systems on both the tractor and the trailer.

Tire Inflation Program

The strategy involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications.

Blended Cements

The strategy to reduce CO2 emissions involves the addition of blending materials such as limestone, fly ash, natural pozzolan, and/or slag to replace some of the clinker in the production of Portland cement.

Anti-Idling Enforcement

The strategy guarantees emissions reductions as claimed by increasing compliance with anti-idling rules, thereby reducing the amount of fuel burned through unnecessary idling. Measures include enhanced field enforcement of anti-idling regulations, increased penalties for violations of anti-idling regulations, and restriction on registrations of heavy-duty diesel vehicles with uncorrected idling violations.

5.8.3 Impact Analysis

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ***(No New Impact)***

This section describes the proposed project's construction- and operational-related GHG emissions and contribution to global climate change.

Construction Activities. The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation

management plan. During restoration activities, GHGs would be emitted through the operation of construction equipment and from worker vehicles, which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment.

The YSAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction. Using CalEEMod, it is estimated that construction of the proposed project would generate approximately 579.6 metric tons of CO_2e (Appendix A). Because construction activities would be temporary and emissions would not exceed an established threshold, project construction impacts associated with GHG emissions would be considered less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

Operational Emissions. Long-term GHG emission impacts are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin. As discussed above, the proposed project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The project would not result in an increase in the generation of operational vehicle trips or vehicle miles traveled that would generate GHG emissions. The project would not be a source of stationary source emissions. Therefore, project operational impacts associated with GHG emissions would be considered less than significant. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

*b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? **(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Due to the nature of the proposed project, the proposed stream channel restoration activities would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. No new impacts or substantially more severe significant impacts would result with implementation of the proposed project.

5.9 HAZARDS AND HAZARDOUS MATERIALS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

5.9.1 Background

The project site is undeveloped and there is no evidence of hazardous materials storage within the project area including underground or aboveground storage tanks; polychlorinated biphenyl (PCB)-containing equipment; hazardous storage pits, ponds, or lagoons; or other physical evidence of contamination at the project site or in the nearby project vicinity.

5.9.2 Prior Environmental Analysis

5.9.2.1 2016 Program EIR

The 2016 Program EIR determined that there were no hazards or hazardous material sites within or in the nearby vicinity of the Nishikawa reach. However, it was determined that a potentially significant impact could arise if hazardous materials were discovered in the reach during construction. Implementation of Mitigation Measures 3.7-1 and 3.2-1, which require procedures to prevent contamination from construction equipment and implementation of procedures if hazardous materials are discovered, would reduce potential risks related to construction vehicle and equipment fluid drips, spills, or leaks to a less-than-significant level.

The 2016 Program EIR determined that the misapplication of herbicides during project activities to reduce invasive species and weeds could result in potential environmental impacts. Implementation of Mitigation Measure 3.4-12, which requires implementation of herbicide protective actions (as detailed in Section 5.4, Biological Resources), would reduce this potential impact to a less-than-significant level.

The 2016 Program EIR determined that the potential exists for an accidental ignition of a wildland fire due to the use of power equipment and vehicles. Implementation of Mitigation Measure 3.7-2 would reduce this impact to less-than-significant levels by requiring on-site fire suppression equipment and spark arrestors on all equipment with internal combustion engines and restricting activities on high fire danger days.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project.

Mitigation Measure 3.2-1: **Procedures to Prevent Contamination from Construction Equipment.** In order to prevent contamination from vehicle or equipment leaks during Project activities, the Project Applicant shall implement the following actions:

1. Vehicles shall be maintained and operated in a leak-free condition.

2. Project vehicles shall not park or stored on impervious surfaces.

3. No fueling or maintenance of vehicles or equipment shall occur in the channel or floodplain. The exception would be if equipment that cannot be readily relocated (e.g., pumps and generators).

4. All off-site fueling sites (e.g., on access roads above the top-of-bank) shall be equipped with secondary containment and avoid a direct connection to underlying soil, surface water, or the storm drainage system.

5. For any stationary equipment (e.g., pumps and generators) that must be fueled on-site, secondary containment, such as a drain pan, drop cloth or booms, shall be provided in such a manner to prevent accidental spill of fuels to underlying soil, surface water, or the storm drainage system.

6. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with

the aforementioned materials shall not be allowed to enter receiving waters or the storm drainage system.

7. Waste disposal containers shall be covered when they are not in use.

Mitigation Measure 3.7-1: **Procedures if Hazardous Materials Discovered**. If evidence of hazardous materials is discovered during Project activities, the Applicant shall notify the appropriate County Environmental Health Services. The Applicant shall test and analyze the materials following proper protocols to determine the presence of hazardous substances prior to making arrangements for off-site reuse/recycling or disposal. Testing shall be performed according to one of the following methods:

1. The method recommended by the County Environmental Health Services in the county in which the materials are located.

2. If the County Environmental Health Services does not specify a method, then the potentially hazardous material shall be tested as follows:

    a. Conduct representative sampling of the material in accordance with procedures specified in Section One of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" SW-846, 3rd Edition, US EPA.

    b. Arrange for testing of the material by a laboratory following the analytical procedures outlined in CCR Title 22, Division 4.5. The laboratory performing the testing shall be certified to perform the specific waste analysis by the State of California Department of Environmental Health.

    c. Deliver samples to the testing laboratory with a "Chain of Custody" type document which indicates the sample type, date and time sample was taken, sample size, source of the waste, quantity of the waste, the type of sample container, place and address of collection, and the name and signature of collector.

3. If testing indicates the presence of contamination, then the contaminated materials shall be excavated and disposed of

in a permitted off-site disposal facility prior to completion of construction.

Mitigation Measure 3.7-2: **Fire Prevention Measures.** The following fire prevention measures shall be implemented:

1. All earthmoving and portable equipment with internal combustion engines shall be equipped with spark arrestors.
2. Work crews shall have appropriate fire suppression equipment available at the work site.
3. On days when the fire danger is high and a burn permit is required (as issued by the Yolo-Solano Air Quality Management District), flammable materials, including flammable vegetation slash, shall be kept at least 10 feet away from any equipment that could produce a spark, fire, or flame.

5.9.2.2 Statewide Order EIR

The Statewide Order EIR determined that certain restoration projects permitted under the Statewide Order would have ground-disturbing construction activities that could cause the release of previously unidentified contaminated soil and/or groundwater that could expose construction workers, the public, and the environment to hazardous materials. Implementation of Mitigation Measures HAZ-1 through HAZ-3, which require implementation of procedures if hazardous materials are discovered, would reduce potential risks related to construction to a less-than-significant level.

The Statewide Order EIR determined that construction of restoration projects, constructed facilities (natural or artificial infrastructure), and operations and maintenance of those facilities permitted by the Statewide Order could be located within 2 miles of an airport, which could create a safety hazard for construction workers, people in the surrounding area, and airport operations. Mitigation Measure HAZ-4 was identified to reduce this impact; however, because the efficacy of the mitigation measure could not be determined at the time the EIR was certified, this impact was determined to be significant and unavoidable.

The Statewide Order EIR determined that future restoration projects permitted under the Statewide Order could be located in areas where their construction could physically interfere with adopted emergency response plans or evacuation plans or result in inadequate emergency access. Implementation of Mitigation Measure HAZ-5 would reduce potential risks related to emergency access to a less-than-significant level. In addition, the Statewide Order EIR determined that restoration projects could pose a threat to people and structures because of wildfires and could create new vector habitat that would pose a significant public health hazard. The Statewide Order EIR identified Mitigation Measures FIRE-1 (see Section 5.20 Wildfire) and HAZ-6 to reduce these impacts to a less-than-significant level.

As part of the State Water Board or RWQCB' issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measures FIRE-1 and HAZ-1 through HAZ-6 would be required when applicable to a given project.

Applicable Mitigation Measures. As described further below in Section 5.20, Wildfire, Mitigation Measure FIRE-1 would not apply to the proposed project. The following mitigation measures would apply to the proposed project:

Mitigation Measure HAZ-1: **Prepare and Implement a Health and Safety Plan and Provide Qualified Oversight of Fill Removal Related to Earthmoving Activities.** The following measures shall be implemented before and during construction of any restoration project permitted under the Order:

A health and safety plan for the project shall be developed and implemented. This plan shall clearly notify all workers of the potential to encounter hazardous materials during ground-disturbing work and other construction activities. The plan shall identify proper handling and disposal procedures for contaminants expected to be on-site and shall provide maps and phone numbers for local hospitals and other emergency contacts. Construction workers shall comply with all protocols outlined in the health and safety plan throughout project implementation.

Any hazardous materials being stored in the project area and not needed for construction activities shall be removed and disposed of at appropriately permitted locations before construction. A qualified professional (e.g., geologist or engineer) shall oversee fill excavation activities and work in potential project areas that contain abandoned underground storage tanks requiring removal, to properly identify any contaminated soils that may be present. Excavation of underground storage tanks must comply with county ordinances and policies. If contaminated soils are found, Mitigation Measure HAZ-2 shall be implemented.

Removal of underground storage tanks associated with the restoration project shall include measures to ensure their safe transport and disposal. Remediation actions, if necessary, shall be defined in consultation with the local RWQCB and implemented during construction.

Mitigation Measure HAZ-2: **Notify Appropriate Federal, State, and Local Agencies If Contaminated Soils Are Identified, and Complete Recommended Remediation Activities.** The following measures shall be implemented before construction of any restoration project

permitted under the Order if contaminated soils are found on the project site:

- The appropriate federal, state, and local agencies shall be notified if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater) is encountered during construction activities. Any contaminated areas shall be cleaned up in accordance with there commendations of the RWQCB, DTSC, or other appropriate federal, state, or local regulatory agencies.

- A site plan shall be prepared for the remediation activities appropriate for the proposed land uses, including excavation and removal of on-site contaminated soils, and needed redistributions of clean fill material on the study area. The plan shall include measures to ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the site. If ground-disturbing activities encounter contaminated groundwater, the construction contractor shall report the contamination to the appropriate agencies, dewater the area, and treat the groundwater to remove the contaminants before discharge into the sanitary sewer system. The construction contractor shall comply with the plan and applicable federal, state, and local laws. The plan shall outline specific procedures for handling and reporting of hazardous materials, and for disposing of hazardous materials removed from the site at an appropriate off-site facility.

Mitigation Measure HAZ-3: **Notify Appropriate Federal, State, and Local Agencies If Accidental Discharges of Hazardous Materials**. Following an accidental discharge of a reportable quantity of a hazardous material or an unknown material, the appropriate federal, state, and local agencies shall be notified. Any contaminated areas shall be cleaned up in accordance with the recommendations of the RWQCB, DTSC, or other appropriate federal, state, or local regulatory agencies.

Mitigation Measure HAZ-4: **Establish Airport Operation Area Buffer Zones.** Restoration projects permitted under the Order shall avoid creating hazardous wildlife attractants within a distance of 10,000 feet of a designated Airport Operations Area.

Mitigation Measure HAZ-5: **Coordinate with Applicable Federal, State, and Local Agencies and Districts.** Before construction, project proponents implementing restoration projects permitted under the Order shall coordinate with the appropriate federal, state, and local government agencies, districts, and emergency response agencies regarding the timing of

construction projects that would occur near the project sites. Specific measures to mitigate potentially significant impacts shall be determined during the interagency coordination, and shall include measures to achieve the following performance standards:

- Reduce potential traffic impacts so that no more than 30 trucks per hour will be added to any road (e.g., by scheduling construction truck trips and designating alternate haul routes to disperse truck trips).
- Reduce potential traffic safety impacts (e.g., by employing flaggers to manage traffic flow at conflict locations).
- Provide outreach and community noticing (e.g., via the web, utility bill inserts, and other methods) for locations where multiple projects will create construction traffic simultaneously.

Mitigation Measure HAZ-6: **Prepare and Implement a Vector Management Plan.** The following measures shall be implemented by restoration projects permitted under the Order to prevent public health hazards posed by vector habitat as applicable (e.g., restoration projects that result in standing water and are located near populated areas):

- Freshwater habitat management shall include management of water control structures, vegetation management, mosquito predator management, drainage improvements, and other best management practices. The agency implementing the restoration project shall coordinate with the California Department of Fish and Wildlife and local mosquito and vector control agencies regarding these strategies and specific techniques to help minimize mosquito production.
- Permanent ponds shall be maintained to increase the diversity of waterfowl yet decrease the introduction of vectors through constant circulation of water, vegetation control, and periodic draining of ponds.
- The project shall avoid ponding in tidal marsh habitat or in areas within the waterside of setback levees. Restoration projects shall be designed with methods to reduce mosquito breeding.

5.9.3 Impact Analysis

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ***(No New Impact)***

Hazardous substances include chemicals regulated under both the United States Department of Transportation[43] and the U.S. Environmental Protection Agency (USEPA)[44] "Hazardous Materials" regulations. Hazardous waste requires specific handling and disposal procedures because of potential damage to public health and the environment. The use of construction vehicles and equipment, such as trucks and excavators, could result in minor contamination releases from gasoline, oil, antifreeze, grease, or other equipment fluid drips or leaks within the project area. Construction activities would be conducted with standard construction practices and in accordance with all applicable Cal-OSHA and other safety regulations to minimize the risk to the public. Compliance with federal, State, and local hazardous materials laws and regulations would minimize the risk to the public presented by these potential hazards during construction of the project. Transportation of any hazardous materials generated by demolition or excavation is regulated by the federal Department of Transportation and the California Department of Transportation (Caltrans). As such, transportation of hazardous materials off-site must be handled by licensed hazardous waste haulers. Additionally, implementation of Mitigation Measure 3.2-1 would require proper procedures to prevent contamination from vehicle or equipment leaks during project activities, which would reduce impacts related to construction to a less-than-significant level.

Misapplication of herbicides used during project activities to reduce invasive species and weeds could result in potential human health impacts. However, implementation of Mitigation Measure 3.4-12 as detailed in Section 5.4, Biological Resources, would require the implementation of herbicide protection actions, which would reduce impacts to less-than-significant levels.

With implementation of Mitigation Measures 3.2-1 and 3.4-12, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. No new impacts or substantially more severe significant impacts would occur.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ***(No New Impact)***

There are two main ways that the public and/or the environment could be affected by the release of hazardous materials from the project site, including: (1) exposing workers and/or the public to potentially contaminated soil and groundwater during construction and/or operation of the project; or (2) exposing workers and/or the public to hazardous building materials (e.g., lead paint, asbestos) during demolition of existing structures.

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43 United States Department of Transportation. *Regulations.* Available online at: phmsa.dot.gov/regulations (accessed October 10, 2022).

44 U.S. Environmental Protection Agency, 2012. *Hazardous Waste Regulations.* Available online at: www.epa.gov/osw/lawsregs/regs-haz.htm (accessed October 10, 2022).

As described above, small quantities of common hazardous materials would be used at the project site during construction of the proposed project. Improper use, storage, or handling could result in a release of hazardous materials into the environment which could pose a risk to construction workers and the public. However, SCWA would be required to comply with existing government regulations in its use and disposal of these materials, and such materials would not be used in sufficient strength or quantity to create a substantial risk to human or environmental health. Furthermore, implementation of Mitigation Measure 3.2-1, identified in the 2016 Program EIR, would require proper procedures to prevent contamination from vehicle or equipment leaks during project activities, which would reduce impacts related to construction to a less-than-significant level.

If soil or groundwater contamination were encountered in the project area during the course of construction, project workers could be affected, and, if contaminated soil were placed in the streambed, water quality impacts may occur. This potentially significant impact would be mitigated to a less-than-significant level through implementation of Mitigation Measure 3.7-1, Mitigation Measure HAZ-1, Mitigation Measure HAZ-2 and Mitigation Measure HAZ-3, which require proper procedures to be followed if hazardous materials are discovered.

With implementation of the mitigation measures identified in the previous CEQA documents, the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. No new impacts or substantially more severe significant impacts would occur.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ***(No New Impact)***

The project site is adjacent to the UC Davis Center for Aquatic Biology and Aquaculture, Putah Creek Facility. There are no schools or other school facilities within one-quarter mile of the project site. The proposed project would not routinely emit hazardous emissions, and handling of hazardous or acutely hazardous materials, substances, or waste on the project site (if any) would be temporary and cease upon project completion. Implementation of Mitigation Measures 3.7-1 and 3.2-1 would reduce potential risks related to construction vehicle and equipment fluid drips, spills, or leaks to a less-than-significant level. In addition, implementation of Mitigation Measure HAZ-1 through HAZ-3, identified in the Statewide Order EIR, which require proper procedures be followed if hazardous materials are discovered would ensure that impacts associated with the emission or handling of hazardous materials within 0.25 mile of an existing or proposed school would be less than significant. No new impacts or substantially more severe significant impacts would occur.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? ***(No New Impact)***

The project site is not listed on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5[45] and no listed active sites are located in close proximity to the proposed project site.[46] Therefore, no significant hazard to the public or environment would be associated with a listed site. No new impacts or substantially more severe significant impacts would occur.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? ***(No New Impact)***

The project site is approximately 0.75 miles southwest of the UC Davis University Airport. The University Airport does not have an airport land use plan but is required to have an Airport Layout Plan, which has been prepared by UC Davis. The proposed project does not include any structures and would not introduce any obstructions to the necessary airport clear space, and a safety hazard for people residing or working in the project area would not occur due to implementation of the proposed project. Furthermore, implementation of Mitigation Measure HAZ-4 identified in the Statewide Order EIR would require restoration projects permitted under the Order to avoid creating hazardous wildlife attractants within a distance of 10,000 feet of a designated Airport Operations Area. This would further ensure that the proposed project would not result in a safety hazard for people residing or working in the project area. No new impacts or substantially more severe significant impacts would occur.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(No New Impact)***

The proposed project involves stream restoration activities and would not alter the roadway network or build structures or impediments on or near the roadway network or create significant roadway hazards. Furthermore, project activities would not substantially increase traffic volumes at an intensity that would interfere with the emergency access to and from the project area; therefore, the project would have no impact related to emergency access. As required by Mitigation Measure HAZ-5, SWCA would coordinate with the appropriate local government agencies and emergency response providers regarding the timing of construction activities in order to ensure that project implementation would not impair implementation of or interfere with an adopted emergency response/evacuation plan. Therefore, no new impacts or substantially more severe significant

[45] California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist (accessed October 10, 2022).

[46] State Water Resources Control Board. 2021. GeoTracker. Website: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=2100+Donald+Drive%2C+Moraga%2C+CA# (accessed October 10, 2022).

impacts related to implementation of an adopted emergency response plan or emergency evacuation plan would occur.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ***(No New Impact)***

The project site is not located within a State Responsibility Area and has not been designated as High or Very High Fire Hazard Severity Zone.[47] Nonetheless, Mitigation Measure 3.7-2 identified in the 2016 Program EIR would be implemented which require on-site fire suppression equipment and spark arrestors on all equipment with internal combustion engines and restricting activities on high fire danger days. Construction and maintenance activities associated with the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. In the long term, reduction of invasive riparian vegetation along the creek channel would reduce the risk of fire. Therefore, no new or substantially more severe significant impacts related to wildland fires would occur.

47 California Department of Forestry and Fire Protection Fire and Resource Assessment Program. *FHSZ Viewer.* Website: https://egis.fire.ca.gov/FHSZ/ (accessed October 10, 2022).

5.10 HYDROLOGY AND WATER QUALITY

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☐	☒
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☐	☒
i. Result in substantial erosion or siltation on- or off-site;	☐	☐	☐	☒
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☐	☒
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
iv. Impede or redirect flood flows?	☐	☐	☐	☒
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

5.10.1 Background

5.10.1.1 Hydrology

The Putah Creek watershed lies along the eastern flank of the California Coast Range and the western side of the Central Valley, within USGS hydrologic unit code (HUC) 18020109. In all, the 90-mile-long creek drops over 3,540 feet and drains a watershed area of approximately 660 square miles. The Putah Creek watershed is bordered by the watersheds of Cache Creek to the north and Napa River to the southwest.[48]

Putah Creek is a major stream in Northern California that is a tributary of the Yolo Bypass and, ultimately, the Sacramento River. Stretching approximately 85 miles, Putah Creek runs through Yolo and Solano counties in Northern California. Prior to human intervention, Putah Creek flowed out of the Vaca Mountains across a broad area, frequently changing its course. In the lower reaches of the watershed, a mildly sloping alluvial plain formed by accumulated sediment deposition from Putah Creek created the rich agricultural land of this region.

[48] Solano County Water Agency, 2016. Op. cit.

Flood control measures, development, and grading for agriculture have caused the present lower Putah Creek to carve out a deeper channel. The excavation of a south fork channel for additional flood control and gravel mining upstream of the Pedrick Road Bridge and the city of Winters in the 1960s and 1970s also contributed to the downcutting of the channel. After several drought years in the late 1980s, the majority of Putah Creek went dry, prompting a landmark lawsuit that resulted in the signing of the Putah Creek Accord in 2000. The Accord established releases from the Monticello Dam and Putah Diversion Dam to maintain stream flows in Putah Creek, with natural flow regimes which spike in winter/spring and ebb in summer/fall.

The lower Putah Creek corridor is one of the largest remaining tracts of high-quality wildlife habitat in Yolo and Solano counties and provides habitat for a unique assemblage of fish and wildlife species native to the Central Valley. However, the creek suffers from substantially reduced flows from flow diversions, altered channels and eroding banks, habitat loss and degradation, invasive weed infestations, and other problems. These reaches cannot "self-adjust" to more natural morphology because flow velocities are insufficient to mobilize sediment and natural gravel recharge is substantially arrested. In this condition, the creek is virtually devoid of riffles and spawning habitat, and lacks the materials and functions needed to build such features naturally.

5.10.1.2 Water Quality

According to the *Final 2018 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report*), Putah Creek is listed as impaired by mercury.[49]

5.10.1.3 Groundwater

Lower Putah Creek, including the project area, overlies the northern end of the Solano Subbasin, a 664-square-mile subbasin of the Sacramento Valley Groundwater Basin. The Solano Subbasin is the largest groundwater basin in Solano County. Groundwater within the Solano Subbasin is considered to be of generally good quality. Total dissolved solids (TDS) range from 250 parts per million (ppm) to 500 ppm in the northern portion of the basin (which includes the project area), below or approaching the 500-ppm secondary maximum contaminant level (MCL). Most of the water within the subbasin is classified as hard to very hard. Boron concentrations are less than 0.75 ppm in the project area's portion of the basin (levels above 1.0 ppm can affect sensitive tree crops). Basin arsenic concentrations are typically between 0.02 ppm and 0.05 ppm (the primary MCL for arsenic is 0.05 ppm).[50,51]

5.10.1.4 Floodplains

The Federal Emergency Management Agency (FEMA) is the lead federal agency responsible for flood hazard assessment and mitigation and is the nationwide administrator of the National Flood

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49 State Water Resources Control Board (SWRCB). 2021. *Final 2018 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report).* Website: www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html (accessed October 13, 2022).

50 Department of Water Resources, 2004. *Sacramento Valley Groundwater Basin Solano Subbasin, California's Groundwater Bulletin 118.* February 27. Website: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/5_021_66_SolanoSubbasin.pdf (accessed October 13, 2022).

51 Solano County Water Agency, 2016. Op. cit.

Insurance Act of 1968 enacted to protect lives and property, and to reduce the financial burden of providing disaster assistance. FEMA has adopted the 100-year floodplain as the base flood standard for the National Flood Insurance Program (NFIP). FEMA issues the Flood Insurance Rate Maps (FIRMs) for communities that participate in the NFIP. These FIRMs present delineations of flood hazard zones.

According to FEMA Flood Insurance Rate Map (FIRM) Map No. 06113C0593G (June 18, 2010), the project site is located within Zone A, a special flood hazard flood hazard area. Zone A is defined by FEMA as areas with a 1 percent annual chance of flooding. The 100-year floodplain is largely within the creek banks because the creek channel is deeply incised. The 100-year mapped floodplain does not appreciably extend beyond the project area.

5.10.1.5 Water Quality Regulations

Clean Water Act. The USEPA adopted the Clean Water Act (CWA) in 1977 to set a framework for establishing regulations to protect the chemical, physical, and biological integrity of the nation's waters. Section 401 of the federal CWA requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to Waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. A Section 401 Water Quality Certification is also required under the State Porter-Cologne Act which predates the CWA and regulates discharges to Waters of the State. Waters of the State include more than just Waters of the U.S., like groundwater and surface waters not considered Waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. The applicable waste discharge requirements for the proposed project are contained in the National Pollutant Discharge Elimination System (NPDES) *the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*[52] (Construction General Permit), which is described further below.

The NPDES under Section 402(p) of the CWA aims to reduce the direct discharge of pollutants into waterways and manage additional pollution runoff. The Central Valley Regional Water Quality Control Board (RWQCB) has the authority to administer permits within its jurisdiction including Yolo and Solano counties.

Section 303(d) of the CWA requires that each state identify "impaired" water bodies or segments of water bodies that do not meet at least one of the listed state water-quality standards. When the water body or segment is listed as impaired, the state institutes a Total Maximum Daily Load (TMDL) for the pollutant found to be creating the impairment. The TMDL is the maximum amount of a pollutant that a water body can receive and still meet water-quality standards and is usually calculated based on the total amount of allowable loads generated by a single pollutant deriving from all of its originating point and non-point sources. The 303(d) list identifies water bodies that will need to establish a TMDL in the future in order to abide by water-quality standards. As per

[52] State Water Resources Control Board (SWRCB). 2009. Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ.

303(d), the RWQCB has identified impaired water bodies within its authority as well as the associated pollutants causing the impairment.

Porter Cologne Water Quality Act. California adopted the Porter-Cologne Water Quality Act in 1969, giving the SWRCB and Regional Water Quality Control Boards (RWQCB) the authority over State water rights and policies in relation to managing and enforcing water quality. The RWQCBs adopt Water Quality Control Plans (Basin Plans) that outline their region's water quality conditions and standards as well as beneficial uses of the region's ground and surface water. The Project site lies within the boundaries of Region 5 governed by the Central Valley RWQCB (CVRWQCB) within the Sacramento River Basin. The most recent Basin Plan[53] for the Sacramento River Basin was updated by the RWQCB in 2019 and is revised periodically to reflect relevant ecological, technological, and political changes. The Basin Plan also includes water quality standards for groundwater.The Basin Plan lists the following narrative and numeric water quality objectives for the region's surface waters: bacteria, bio-stimulatory substances, chemical constituents, cryptosporidium and giardia, color, dissolved oxygen, floating material, mercury, methylmercury, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, taste and odors, temperature, toxicity, and turbidity.

Putah Creek beneficial uses listed in the Basin Plan include municipal and domestic supply, agricultural irrigation and stockwatering, contact and noncontact recreation, warm and cold freshwater habitat, warm spawning, and wildlife habitat. According to the *Final 2018 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report*), Putah Creek is listed as impaired by mercury.[54]

Statewide Construction General Permit. Construction projects or activities that are one acre or more must obtain a Construction General Permit (CGP) from the SWRCB. The CGP has been developed to be protective of water quality during construction activities and covers any construction or demolition activity, including, but not limited to clearing, grading, grubbing or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre. Prior to construction, the landowner or other applicable entity must submit online Permit Registration Document (PRDs) to the Stormwater Multiple Application and Report Tracking System (SMARTS) website. The PRDs include a Notice of Intent (NOI), Risk Assessment, Post-Construction Calculations, a Site Map, Stormwater Pollution Prevention Plan (SWPPP), a signed certification by the landowner or other applicable entity, and the first annual fee. Construction contractors are also required develop best management practices (BMPs) in accordance with the development of a SWPPP. The SWPPP maps the boundaries of the project site, identifying the existing and proposed structures and roads within the vicinity of the site, as well as stormwater collection and discharge points and drainage patterns. These BMPs should address strategies to prevent soil erosion and the proper treatment and discharge of other pollutants generated by construction, which could contaminate waterways on or nearby the site. A SWPPP must also include a visual chemical monitoring program of nonvisible pollutants and a sediment-monitoring program. The RWQCB

53 California Regional Water Quality Control Board Central Valley Region, 2019. Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, the Sacramento River Basin and the San Joaquin River Basin. February.

54 State Water Resources Control Board (SWRCB). 2021. Op. cit.

enforces compliance with the CGP through site inspections and fines. As the project site is larger than one acre, it is subject to these listed requirements. **Prior Environmental Analysis**

5.10.2.1 2016 Program EIR

The 2016 Program EIR evaluated the potential for short-term erosion and/or siltation to occur during construction and the potential for construction equipment to adversely affect water quality through leaks, spills, or drips of fluids including motor oils, diesel fuel, and lubricants. However, it was determined that erosion and sediment controls implemented to comply with Section 401 Water Quality Certification and the Construction General Permit would ensure that short-term construction-related erosion and siltation impacts would be less than significant. Additionally, implementation of Mitigation Measure 3.2-1, as detailed in Section 5.9, Hazards and Hazardous Materials, would require proper procedures to prevent contamination from vehicle or equipment leaks during project activities, which would reduce potential risks related to construction vehicle and equipment fluid drips, spills, or leaks to a less-than-significant level.

The 2016 Program EIR determined that channel restoration activities in the Nishikawa reach would not substantially alter the amount of water passing through the creek, channel capacity, or increase flooding risks on- or off-site above the current level. Additionally, the 2016 Program EIR determined that project activities along the Nishikawa reach would have no effect on surface runoff because project activities would not affect flows or overall channel capacity in this reach. The 2016 Program EIR concluded that project activities along the Nishikawa reach would have no impact on flood risk.

The 2016 Program EIR determined that the misapplication of herbicides used during project activities to reduce invasive species and weeds could result in potential water quality impacts. However, implementation of Mitigation Measure 3.4-12 as detailed in Section 5.4, Biological Resources, would require the implementation of herbicide protection actions, which would reduce impacts to less-than-significant levels.

The 2016 Program EIR determined that occasional small roadway or agricultural storm drains may need to be modified or replaced as a result of the channel alignment and if modifications or replacement of these drainage systems were not performed according to current standards, they could be damaged or perform less efficiently or in a substandard manner. Implementation of Mitigation Measure 3.1-2 below, which requires storm drains necessitating modification or replacement due to project construction activities to be completed consistent with current standards, would reduce impacts related to stormwater drainage systems to a less-than-significant level.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project.

Mitigation Measure 3.1-2: **Standards for Modification or Replacement of Storm Drains.** In the event roadway or agricultural storm drains need to be modified or replaced as a result of the channel alignment or other Project activities, such modification or replacement will be done in a manner to bring the drain(s) up to current standards. The Project would replace or upgrade the facility to applicable standards in

consultation with property owner. Depending on the funding source or location for a given Project activity, the improvements would be conducted be under city, county, state, or federal standards. For drains in Solano County, the Project would rely on the Solano County Public Works specifications. For portions of the Project occurring exclusively within Yolo County (Mace Road to Road 106A Reach and Road 106A to the YBWA) replacement drains would rely on the Yolo County Public Works specifications.

In the event that roadway or agricultural storm drains within flood levees need to be modified or replaced as a result of Project activities, such modification or replacement shall be performed in strict consultation with the Central Valley Flood Protection Board (CVFPB) and according to CVFPB standards and requirements.

5.10.2.2 Statewide Order EIR

The Statewide Order EIR concluded that implementing restoration projects permitted under the Statewide Order could result in the release of pollutants into surface water and/or groundwater that could violate water quality standards or waste discharge requirements, substantially degrade water quality, or obstruct implementation of a water quality control plan. Projects would be required to integrate applicable general protection measures included in the Statewide Order into project designs and plans, which would reduce impacts from construction activities on the water quality of the project area. Other impacts related to groundwater supplies, groundwater recharge, existing drainage patterns, stormwater drainage systems and flood flows were determined to be less than significant. No mitigation measures were required.

5.10.3 Impact Analysis

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? ***(No New Impact)***

Construction. Pollutants of concern during construction include sediment, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (such as solvents, and fuels), and concrete-related waste may be spilled or leaked during construction. Any of these pollutants have the potential to be transported via storm water runoff into receiving waters.

Because the project would disturb greater than 1 acre of soil, the project is subject to the requirements of the State Water Resources Control Board's NPDES General Permit for Storm Water Discharge Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002) (Construction General Permit). Under the Construction General Permit, the Construction Contractor would be required to prepare a SWPPP and implement construction BMPs detailed in the SWPPP

during construction activities. Construction BMPs would include, but not be limited to, erosion and sediment control, designed to minimize erosion and retain sediment on site, and good housekeeping practices to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

Additionally, project activities would be subject to CWA Section 401 Water Quality Certification for discharges of dredged and fill materials through the CVRWQCB. This certification would ensure that project activities are consistent with the State's water quality standards and criteria. As part of this certification, CVRWQCB would require erosion controls in all areas disturbed by project activities and the completion of monitoring. The proposed project would also be subject to Mitigation Measure 3.2-1, as detailed in Section 5.9, Hazards and Hazardous Materials, which requires proper procedures to prevent contamination from vehicle or equipment leaks during project activities. Implementation of these measures would reduce potential risks related to construction vehicle and equipment fluid drips, spills, or leaks to a less-than-significant level.

Compliance with the requirements of the Construction General Permit, CWA Section 401 Water Quality Certification, and Mitigation Measure 3.2-1 would ensure that the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. No new impacts or substantially more severe significant impacts related to water quality violations, wastewater discharges, or water quality degradation would occur.

Operation. The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Implementation of the proposed project would improve water quality, resulting in a beneficial environmental effect. Therefore, long-term operation of the project would not violate any water quality standards or waste discharge requirements. No new impacts or substantially more severe significant impacts related to water quality violations, wastewater discharges, or water quality degradation would occur.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ***(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed project would not result in an increase in impervious surfaces or require groundwater dewatering. Implementation of the proposed project would not significantly affect groundwater supplies and groundwater recharge and would not cause a net deficit in aquifer volume or a lowering of the local groundwater level. No new impacts or substantially more severe significant impacts related to groundwater supplies would occur.

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

i. Result in substantial erosion or siltation on- or off-site; ***(No New Impact)***

Construction. During construction activities, soil would be exposed and disturbed, and drainage patterns would be temporarily altered during grading and other construction activities, resulting in an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. As discussed above in Section 5.10.3.a, the Construction General Permit requires preparation of a SWPPP and implementation of construction BMPs to reduce impacts to water quality during construction, including those impacts associated with soil erosion and siltation. Additionally, a California Department of Fish and Wildlife (CDFW) Lake and Streambed Alteration Agreement would be required which would forbid leaving bare ground and would require revegetation of exposed soils, as well as soil stabilization until new vegetation becomes established. Project activities would also be subject to CWA Section 401 Water Quality Certification for discharges of dredged and fill materials through the CVRWQCB. As part of this certification, CVRWQCB would require erosion controls in all areas disturbed by project activities.

Erosion and sediment controls implemented to comply with Federal Clean Water Act Section 401 Water Quality Certification, the CDFW Lake and Streambed Alteration Agreement, and the Construction General Permit would ensure that project impacts from erosion and siltation to the environment would remain less than significant. No new impacts or substantially more severe significant impacts related to on- or off-site erosion or siltation during project construction would occur.

Operation. The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The project would include a number of measures to reduce existing erosion problems. Following implementation, downstream erosion and siltation would be reduced, resulting in a beneficial environmental effect. No new impacts or substantially more severe significant impacts related to on- or off-site erosion or siltation during project operation would occur.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; ***(No New Impact)***

Construction. Construction activities would temporarily alter on-site drainage patterns and compact soil, which can increase the volume and velocity of storm water runoff. However, construction activities would be temporary, and the increase in runoff would not be substantial. As discussed in Section 5.10.3.a above, the Construction General Permit requires the preparation of a SWPPP to identify construction BMPs to be implemented as part of the project to reduce impacts to water quality during construction, including those impacts associated with flooding. Therefore, adherence to the Construction General Permit would ensure that construction activities would result in a less

than significant impact. No new impacts or substantially more severe significant impacts related to flooding on- or off-site during project construction would occur.

Operation. The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Following implementation, the channel would have greater capacity to accommodate stormwater runoff and prevent on-site and off-site flooding, resulting in a beneficial environmental effect. No new impacts or substantially more severe significant impacts related to flooding on- or offsite during project operation would occur.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or ***(No New Impact)***

Construction. As discussed above, construction activities could alter drainage patterns during grading and other construction activities, and spill, leak, or transport construction-related pollutants such as liquid and petroleum products and concrete waste via stormwater runoff into adjacent drainages and downstream receiving waters. The proposed project would be required to comply with the requirements set forth in the Construction General Permit, which requires the preparation of a SWPPP and implementation of construction BMPs to control stormwater runoff. The proposed project would also be subject to Mitigation Measure 3.2-1, as detailed in Section 5.9, Hazards and Hazardous Materials, which requires proper procedures to prevent contamination from vehicle or equipment leaks during project activities. Compliance with these requirements would ensure that impacts related to the creation or contribution of runoff that would exceed the capacity of the storm water drainage system or provide substantial additional sources of polluted runoff would be less than significant. No new impacts or substantially more severe significant impacts related to stormwater drainage systems or polluted runoff during project construction would occur.

Operation. Implementation of proposed improvements would not result in a significant increase in impervious surface area or an associated increase in the volume and rate of runoff during a storm. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Following implementation, the channel would have greater capacity to accommodate stormwater runoff to prevent overflow of the stormwater drainage system and reduce polluted runoff, resulting in a beneficial environmental effect. Therefore, the proposed project would not create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems. No new impacts or substantially more severe significant impacts related to stormwater drainage systems or polluted runoff during project operation would occur.

iv. Impede or redirect flood flows? ***(No New Impact)***

As described above, the project site is located within a 100-year flood hazard zone as mapped by FEMA. The project involves restoring a section of active channel that is currently in an over-widened

condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed project would narrow the low-flow channel which may cause minor increases in the average water elevation and velocity, but these minor elevations (a matter of a few inches) would not lead to greater out-of-bank flooding. The proposed project would have no effect on flow volumes in the creek because flows are controlled by Monticello Dam and regulated by the Putah Creek Accord, as discussed above in Section 5.10.1, Background. Therefore, the proposed project would not increase flooding risks or areas of flooding on- or off-site and no new impacts or substantially more severe significant impacts related to on- or off-site flooding would occur.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? ***(No New Impact)***

The project site is not within an area mapped as a Tsunami Inundation Zone[55] nor is it near a river, reservoir, pond, or lake that could result in seismic seiche waves generated from an earthquake. The project site is located within a 100-year flood hazard zone as mapped by FEMA; however, construction staging areas would be placed outside of the existing 100-year floodplains and, as described in Section 5.10.3.a above, BMPs would be implemented, which would reduce the risk of pollutants released during inundation. Implementation of the proposed project would restore the meandering, natural stream channel to enhance riparian and aquatic habitat, which would reduce the long-term risk of pollutants to be released. Therefore, the proposed project would not result in pollutant discharges from flooding events. No new impacts or substantially more severe significant impacts related to flood hazard, seiche or tsunami would occur.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ***(No New Impact)***

As discussed in Section 5.10.3.a, the proposed project would be required to comply with requirements set forth by the Construction General Permit, the CDFW Lake and Streambed Alteration Agreement, and CWA Section 401 Water Quality Certification which require the implementation of construction BMPs to control stormwater runoff and discharge of pollutants. With adherence to these regulatory requirements, the project would not result in water quality impacts that would conflict with the Regional Water Quality Control Board's Water Quality Control Plan (Basin Plan) for the Central Valley Region.[56] Therefore, impacts related to conflict with a water quality control plan would be less than significant.

The proposed project would not conflict the California Sustainable Groundwater Management Act (SGMA), which took effect on January 1, 2015. SGMA established a framework of priorities and requirements to facilitate sustainable groundwater management throughout the State.[57] The intent of SGMA is for groundwater to be managed by local public agencies (e.g., water districts, irrigation

55 California, State of. Department of Conservation (DOC), 2019. *California Tsunami Maps and Data.* Website: https://www.conservation.ca.gov/cgs/tsunami/maps (accessed October 13, 2022).

56 California Regional Water Quality Control Board Central Valley Region, 2019. Op. cit.

57 California, State of. 2021. Department of Water Resources. *Sustainable Groundwater Management Act*. Website: water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management (accessed October 13, 2022).

districts, etc.) and newly formed Groundwater Sustainability Agencies (GSAs) to ensure a groundwater basin is operated within its sustainable yield (no long term overdraft) through the development and implementation of Groundwater Sustainability Plans (GSPs). As described in Section 5.10.1, Background, the project site is located within the Solano Subbasin, which has been designated as a medium priority subbasin and is therefore required to develop a Groundwater Sustainability Plan. A group of Groundwater Sustainability Agencies (GSAs) in the Solano Subbasin formed the Solano Subbasin GSA Collaborative and developed The Solano Subbasin Groundwater Sustainability Plan which was finalized in December 2021. The proposed project would not conflict with the GSP for this area, given the fact that the proposed project would not include any on-site groundwater utilization, nor would it significantly reduce groundwater recharge. Therefore, no impact related to groundwater sustainability or conflict with a GSP would occur. No new impacts or substantially more severe significant impacts related implementation of a water quality control plan or sustainable groundwater management plan would occur.

5.11 LAND USE AND PLANNING

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

5.11.1 Background

As previously discussed, the section of Putah Creek that is central to the project site is the 2,500-foot (0.47-mile) reach of Putah Creek west of the Pedrick Road Bridge. The project area encompasses 29 acres of primarily riparian habitat between the top of the northern and southern banks of the Putah Creek channel. The project site is approximately 3.75 miles west of downtown Davis and 5.7 miles north of Dixon, California.

The project area is bounded by farmland on the south (Solano County) and the UC Davis Center for Aquatic Biology and Aquaculture, Putah Creek Facility to the north. Land uses along the project reach are comprised of a 400- to 600-foot swath of open space/habitat within the project reach, surrounded on the south by field crops and on the north by a wastewater pond and treatment facility. There is public access to the north side of Putah Creek from Pedrick Road/Lincoln Highway. The north bank parcel (Yolo County Assessor's Parcel Number [APN] 037-190-009) is owned by the Davis Joint Unified School District and houses numerous institutes, labs, and field sites for UC Davis. The riparian portion of the 433-acre parcel constitutes the UC Davis Riparian Reserve, a teaching and research site along Putah Creek. A popular hiking trail traverses portions of the UC Davis Riparian Reserve, leading from a gravel parking lot down to the floodplain and along Putah Creek towards the City of Davis. The south bank parcel (Solano County APN 0110-010-010) is owned by the Nishikawa Family Trust; the entire parcel is 496 acres and is currently in agricultural production.

5.11.2 Prior Environmental Analysis

5.11.2.1 2016 Program EIR

The 2016 Program EIR concluded that the proposed stream channel restoration activities in the Nishikawa reach would not change or otherwise adversely affect long term existing or planned land uses of the site or adjacent properties. The analysis concluded that the project would be consistent with applicable Solano and Yolo General Plan land use designations and policies as it would not reduce recreational access or interfere with agricultural activities after implementation of Mitigation Measure 3.8-1, which requires coordination with adjacent landowners and implementation of access restrictions as discussed in Section 5.2, Agriculture and Forestry Resources.

5.11.2.2 Statewide Order EIR

The Statewide Order EIR determined that impacts associated with construction of restoration projects permitted under the Statewide Order would be temporary and would be required to

comply with applicable city and county general plans and other local policies and ordinances; therefore, land use impacts associated with construction of restoration projects would be less than significant. However, constructed facilities and operation associated with restoration projects permitted under the Statewide Order could result in conflicts with a land use plan, policy, or regulation adopted to avoid or mitigate an environmental effect. In these limited instances, compliance with required permits and approvals would reduce impacts associated with individual projects to a less-than-significant level. However, if there is no jurisdiction by the agency and no requirement to obtain a permit, land use policy conflicts could occur. Because there could be potential adverse changes to land use and planning due to the construction of restoration projects, this impact was determined to be significant and unavoidable. No mitigation measures were identified.

5.11.3 Impact Analysis

a. Would the project physically divide an established community? ***(No New Impact)***

The physical division of an established community typically refers to the construction of a feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The project site consists of Putah Creek and its associated riparian vegetation. The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed project would not result in the realignment or closure of any existing roads or introduce a new physical barrier that would divide an established community. Therefore, the proposed project would not result in the physical division of an established community or adversely affect the continuity of land uses in the vicinity. This impact would not result in new significant or substantially more severe significant impacts beyond those analyzed in the prior environmental document.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? ***(No New Impact)***

The northern portion of the project site within Yolo County is zoned as Public/Quasi-Public (PQP) and the southern portion of the project site within Solano County is zoned as Agricultural (A-40). The general plan land designation in the northern portion of the project site within Yolo County is Public/Quasi-Public (PQP), and the designation for the southern portion of the site within Solano County is Agriculture with Agricultural Reserve Overlay. The PQP zone and land use designation is intended for lands that are occupied or used for public and governmental offices, places of worship, schools, libraries, and civic uses. Other typical uses include airports, water and wastewater treatment plants, drainage basins, and sanitary landfills. The A-40 zone is intended for the

promotion and preservation of agriculture and allows agricultural-related support uses. The agriculture land use designation provides areas for the practice of agriculture as the primary use, including areas that contribute significantly to the local agricultural economy, and allows for secondary uses that support the economic viability of agriculture. Agricultural land use designations protect these areas from intrusion by nonagricultural uses and other uses that do not directly support the economic viability of agriculture. The agricultural reserve overlay encourages private landowners to voluntarily participate in agricultural conservation easements.

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed stream channel restoration activities would not conflict with Yolo and Solano counties' land use plan designations and zoning as discussed above. The proposed project would not reduce recreational access or interfere with agricultural activities after the implementation of Mitigation Measure 3.8-1, which requires coordination with adjacent landowners and implementation of access restrictions as discussed in Section 5.2, Agriculture and Forestry Resources. Furthermore, the proposed project would result in no changes to the existing land use. Therefore, the proposed project would not conflict with an adopted land use plan, policy, or regulation. No new impacts or substantially more severe significant impacts related to conformity with land use plans would occur.

5.12 MINERAL RESOURCES

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

5.12.1 Background

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat and oil bearing rock, but excluding geothermal resources, natural gas, and petroleum.

The California Department of Conservation, Geological Survey (CGS) and the California State Mining and Geology Board are required by the Surface Mining and Reclamation Act of 1974 (SMARA) to categorize lands into four Aggregate and Mineral Resource Zones (MRZs), described below. These MRZs classify lands that contain significant regional or Statewide mineral deposits. Lead Agencies are mandated by the State to incorporate MRZs into their General Plans.

MRZs are classified on the basis of geologic factors without regard to existing land use and land ownership. The four MRZs are categorized as follows:

- **MRZ-1:** An area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** An area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- **MRZ-3:** An area containing mineral deposits, the significance of which cannot be evaluated.
- **MRZ-4:** An area where available information is inadequate for assignment to any other MRZ zone.

Of the four categories, lands classified as MRZ-2 are of the greatest importance because such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by the State Mining and Geology Board as being "regionally significant." Such designations require that a Lead Agency make land use decisions involving designated areas in accordance with its mineral resource management policies and that it consider the importance of the mineral resource to the region or the State as a whole, not just to the Lead Agency's jurisdiction.

In a report on aggregate resources, the Department of Conservation (DOC) has mapped an MRZ-1 zone (no significant mineral deposits) in the Nishikawa reach.[58] According to the County of Yolo General Plan, there are no known mineral resources zones at the project site.[59]

5.12.2 Prior Environmental Analysis

5.12.2.1 2016 Program EIR

The 2016 Program EIR concluded that there are no known mineral resources at the Nishikawa reach and there would be no impact.

5.12.2.2 Statewide Order EIR

The Statewide Order EIR determined that construction of restoration projects, constructed facilities (natural or artificial infrastructure), and operations and maintenance of those facilities permitted under the Statewide Order could affect mineral resources designated by the California Geological Survey as resources of regional and Statewide importance (MRZ-2) and could result in the loss of availability of a locally important mineral resource recovery site, depending on the projects' locations and proximity to mineral resources. Mitigation Measures MIN-1 and MIN-2 were identified to reduce potential impacts to less-than-significant levels.

Applicable Mitigation Measures. No known mineral resources have been identified at the project site; therefore, Mitigation Measures MIN-1 and MIN-2 would not apply to the proposed project.

5.12.3 Impact Analysis

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? ***(No New Impact)***

As previously discussed, the project site is designated as an MRZ-1 zone (no significant mineral deposits). Therefore, no new or substantially more severe significant impacts related to mineral resources would occur.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ***(No New Impact)***

Please refer to Section 3.12.a. The proposed project would not result in the loss of availability of any known locally important mineral resource recovery site. Therefore, no new or substantially more severe significant impacts related to mineral resources would occur.

58 Solano County Water Agency, 2016. Op. cit.

59 Yolo, County of. 2009. *County of Yolo 2030 Countywide General Plan*. Figure CO-5 Mineral and Gas Resources. November.

5.13 NOISE

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

5.13.1 Background

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements that better represent human sensitivity to sound at night.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are within one dBA of each other and are normally

exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

A project would have a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of applicable regulatory agencies, including, as appropriate, Solano County and Yolo County.

Solano County does not have a noise ordinance nor any exclusion for construction noise. The Noise section of the Public Health and Safety Element of the Solano County General Plan contains Land Use Compatibility Guidelines as well as noise performance standards for non-transportation noise sources. The Health and Safety Element of the Yolo County General Plan contains noise compatibility guidelines that describe exterior and interior noise standards consistent with the Office of Planning and Research Noise Compatibility Guidelines and California State Noise Insulation Standards. Yolo County does not have a noise ordinance nor any exclusion for construction noise.

Certain land uses are considered more sensitive to noise than others. Examples of these land uses include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project area is bounded by farmland on the south (Solano County) and the UC Davis Center for Aquatic Biology and Aquaculture, Putah Creek Facility (formerly the Animal Science Trout Hatchery) to the north. Land uses along the project reach are comprised of a 400- to 600-foot swath of open space/habitat within the project reach, surrounded on the south by field crops and on the north by a wastewater pond and treatment facility. There are no sensitive receptors in the vicinity of the project site.

5.13.2 Prior Environmental Analysis

5.13.2.1 2016 Program EIR

The 2016 Program EIR determined that implementation of the Program would result in temporary noise impacts during construction activities that would require the use of heavy equipment such as front-end loaders, dump trucks, backhoes, bulldozers, and excavators, which generate maximum noise levels of 76 to 82 dB at a distance of 50 feet. However, the 2016 Program EIR concluded that the Nishikawa Reach has no sensitive receptors in the nearby vicinity and that the effects of temporary construction noise would be less than significant. Additionally, the 2016 Program EIR concluded that implementation of the Program would not conflict with the Solano County General Plan Noise Element or any standards within Yolo County. The 2016 Program EIR determined that no mitigation measures would be required for noise associated with construction activities within the Nishikawa Reach.

5.13.2.2 Statewide Order EIR

The Statewide Order EIR concluded that construction activities associated with the implementation of future restoration projects permitted under the Statewide Order would result in temporary increases in ambient noise levels in excess of established standards and expose sensitive receptors to excessive groundborne vibration and noise. Mitigation Measure NOISE-1 was identified to reduce potential impacts associated with construction activities; however, because the efficacy of the

mitigation measure could not be determined at the time the EIR was certified, these impacts were determined to be significant and unavoidable.

Additionally, the Statewide Order EIR concluded that routine operation and maintenance activities for restoration projects that would be permitted by the Statewide Order could result in a permanent increase in ambient noise. Mitigation Measure NOISE-2 was identified to reduce potential impacts associated with these activities. With implementation of Mitigation Measure NOISE-2, this impact would be less than significant.

Construction of restoration projects that would be permitted under the Statewide Order could be located in the vicinity of a private airstrip, an airport land use plan, or within 2 miles of a public airport or public use airport. Implementation of projects in the vicinity of an airport could expose people working in the project area to excessive noise levels. With implementation of Mitigation Measure NOISE-3, this impact would be less than significant.

As part of the State Water Board or RWQCB's issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measures NOISE-1 through NOISE-3 would be required when applicable to a given project.

Applicable Mitigation Measures. The following mitigation measures would apply to the proposed project:

Mitigation Measure NOISE-1: **Minimize Noise Conflicts.** The following measures shall be implemented during construction of any restoration project permitted under the Order:

- Noise-generating activities shall follow the applicable general plan and/or noise ordinances for the jurisdiction located within the vicinity of the project.
- Construction equipment shall be located away from sensitive receptors, to the extent feasible, to reduce noise levels below applicable local standards.
- Construction equipment shall be maintained to manufacturers' recommended specifications, and all construction vehicles and equipment shall be equipped with appropriate mufflers and other approved noise-control devices.
- Idling of construction equipment shall be limited to the extent feasible to reduce the time that noise is emitted.
- An individual traffic noise analysis of identified haul routes shall be conducted and mitigation, such as reduced speed limits, shall be provided at locations where noise standards cannot be maintained for sensitive receptors.

- The project shall incorporate the use of temporary noise barriers, such as acoustical panel systems, between construction activities and sensitive receptors if it is concluded that they would be effective in reducing noise exposure to sensitive receptors.

Mitigation Measure NOISE-2: **Minimize Operations and Maintenance Noise Conflicts.** The following measures shall be implemented during O&M activities for any restoration project permitted under the Order:

- Noise-sensitive receptors in the vicinity of project activities shall be identified and projects shall be designed to minimize exposure of sensitive receptors to long-term, operational noise sources (for example, water pumps) to reduce noise levels below applicable local standards.

- The hours of operation at noise generation sources near or adjacent to noise-sensitive areas shall be limited, wherever practicable, to reduce the level of exposure to meet applicable local standards.

Mitigation Measure NOISE-3: **Prepare Preconstruction Safety Plans.** To reduce potential impacts on people residing or working in the vicinity of a private airstrip, an airport land use plan, or where such a plan has not been adopted within 2 miles of a public airport or public use airport, construction contracts shall include requirements for the contractor to prepare a construction safety plan. The plan shall be developed before construction activities begin, in collaboration with aviation base personnel, to coordinate construction activities including a schedule, coordination of personnel with aviation radios, and notice requirements. Furthermore, the contractor shall coordinate with emergency service personnel.

5.13.3 Impact Analysis

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ***(No New Impact)***

The following section describes how the short-term construction and long-term operational noise impacts of the proposed project would be less than significant.

Construction. Restoration activities would result in short-term noise impacts on nearby land uses. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone.

The proposed project is estimated to take 4 to 5 months to complete beginning in June 2024. This analysis assumes the use of default construction equipment during Phase 1 and the use of graders, excavators, water trucks, dump trucks, dozers, scrapers, and loaders during Phase 2. As identified in the 2016 Program EIR, this equipment generates maximum noise levels of 76 to 82 dB at a distance of 50 feet.

Although construction noise would result in a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, no sensitive receptors are located within the project vicinity. As such, similar to the findings of the 2016 Program EIR, construction-related noise impacts would be less than significant. No new impacts or substantially more severe significant impacts would occur.

Operation. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Once restoration activities are complete, the project would not result in an increase in operational vehicle trips and would not be a source of operational noise. Therefore, the proposed project would not expose persons to noise levels in excess of local standards. Operational noise impacts would be considered less than significant. No new impacts or substantially more severe significant impacts would occur.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? ***(No New Impact)***

Common sources of ground borne vibration and noise include trains and construction activities such as blasting, pile driving and operating heavy earthmoving equipment. Construction of the proposed project would involve demolition, site preparation, and construction activities but would not involve the use of construction equipment that would result in substantial ground-borne vibration or ground-borne noise on properties adjacent to the project site, or other construction activity that would generate very high noise levels or ground borne vibration. Furthermore, operation of the proposed project would not generate substantial ground-borne noise and vibration. Therefore, the project would not result in the exposure of persons to, or generation of, excessive ground-borne noise and vibration impacts would be less than significant, and no mitigation is required. No new impacts or substantially more severe significant impacts would occur.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? ***(No New Impact)***

The project site is approximately 0.75 miles southwest of the UC Davis University Airport. Aircraft noise is occasionally audible at the project site; however, no portion of the project site lies within the 60 dBA CNEL noise contours of any public airport nor does any portion of the project site lie within 2 miles of any private airfield or heliport. The project would not result in any development of the site and is not within close proximity to an airport; therefore, the proposed project would not result in the exposure of people residing or working in the project area to excessive noise levels.

There would be no impact. No new impacts or substantially more severe significant impacts would occur.

5.14 POPULATION AND HOUSING

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

5.14.1 Background

The proposed project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. No residential units currently exist at the project site or in the nearby vicinity.

5.14.2 Prior Environmental Analysis

5.14.2.1 2016 Program EIR

The 2016 Program EIR concluded that the proposed stream channel restoration activities would not displace or create housing or population. Therefore, the 2016 Program EIR determined that no adverse impact to population and housing would occur.

5.14.2.2 Statewide Order EIR

The Statewide Order EIR determined that restoration projects that could be permitted under the Statewide Order would not displace or create housing or population growth that would exceed the availability of vacant housing in the project area. Therefore, the Statewide Order EIR determined that impacts related to population and housing would be less than significant.

5.14.3 Impact Analysis

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? ***(No New Impact)***

The proposed project does not include the expansion or development of additional housing units or the extension of public roads or other infrastructure. Therefore, the proposed project would not directly or indirectly induce population growth. No new or substantially more significant impacts related to population growth would occur.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? ***(No New Impact)***

The proposed project does not include the demolition of any existing structures or the removal of any existing housing units. Therefore, the proposed project would not displace any existing people or housing and there would be no impact. Therefore, the proposed project would not result in new significant or substantially more severe significant housing impacts than were analyzed in the prior environmental documents.

5.15 PUBLIC SERVICES

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

5.15.1 Background

The project site is located within Yolo and Solano counties and is served by the following existing public services.

Fire Protection. Fire protection, rescue, and emergency medical services are provided to the northern portion of the project site by Yolo County Fire Department and to the southern portion of the project site by Solano County Fire Department. The nearest fire station to the project site is the UC Davis Fire Station located at 625 Kleiber Hall Drive in Davis.

Police Protection. Police services are provided to the northern portion of the project site by Yolo County Sheriff's Office and to the southern portion of the project site by Solano County Sheriff's Office.

Schools. The northern portion of the project site is located within the Davis Joint Unified School District and the southern portion of the project site is located within the Dixon Unified School District. The Davis Joint Unified School District serves approximately 8,500 students at 16 school sites and campuses.[60] Dixon Unified School District serves approximately 3,000 students at seven school sites and campuses.[61]

Parks. The project site is located within the UC Davis Riparian Reserve. There is public access to the north side of the creek and walking path, the Putah Creek Riparian Preserve Trail, that provides recreational access within the project reach.

[60] Davis Joint Unified School District, 2022. *About Davis Joint Unified School District.* Website: https://www.djusd.net/about/overview (accessed October 12, 2022).

[61] National Center for Education Statistics, 2022. *District Directory Information (2021-2022 School Year), Dixon Unified District.* Website: https://nces.ed.gov/ccd/districtsearch/district_detail.asp?ID2=0611280&details=5 (accessed October 12, 2022).

5.15.2 Prior Environmental Analysis

5.15.2.1 2016 Program EIR

The 2016 Program EIR determined that the proposed creek restoration activities would not result in new public access or substantially increase public use of the creek. Therefore, there would not be a substantial new demand on police of fire services. Because the Nishikawa reach is located within the UC Davis Riparian Reserve and a walking path that provides recreational access is located within the project reach, the 2016 Program EIR determined that project activities could have adverse effects on recreation during the construction period. However, implementation of Mitigation Measure 3.10-2, which requires alternate access to high-use recreational sites, would reduce this impact to a less-than-significant level.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project.

Mitigation Measure 3.10-1 **Provide Alternate Access to High-Use Recreational Sites.** The following measures shall be implemented as feasible to reduce impacts of construction access:

- Where feasible, provide alternate trail and creek access where such access would be eliminated due to Project construction.
- Stage restoration work in high-use areas to permit continued access to parts of reaches that are not undergoing active construction activities.
- Minimize construction work limits.
- To the maximum extent feasible, store equipment and soil stockpiles within the active construction zone.
- If necessary, provide alternate access to picnic areas and formal trails/pathways that avoid the active construction zone.
- Provide an alternative canoe take out above the Olmo-Hammond-UCD site when boat take-out at that site is interrupted.

5.15.2.2 Statewide Order EIR

The Statewide Order EIR concluded that construction activities for future restoration projects permitted under the Statewide Order would not include new land development or occupied structures that would increase population and add new public service demands. Therefore, impacts related to public services were determined to be less than significant.

5.15.3 Impact Analysis

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

i. Fire protection? ***(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Use of the walking path that provides recreational access within the project reach could increase as a result of proposed improvements. However, the potential increase in use is not anticipated to be substantial. Because proposed improvements would be for habitat restoration and would not include housing units or other structures, the incremental increase in demand for fire protection services would not be significant and would not exceed the physical and financial capabilities of the Yolo County and Solano County Fire Departments, resulting in the need for new or expanded fire protection services. Therefore, impacts to fire service and protection would be less than significant. No new significant or substantially more severe significant impacts related to fire services would occur.

ii. Police protection? ***(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. Use of the walking path that provides recreational access within the project reach could increase as a result of proposed improvements. However, the potential increase in use is not anticipated to be substantial. Because proposed improvements would be for habitat restoration and would not include housing units or other structures, the incremental increase in demand for police protection services would not be significant and would not exceed the physical and financial capabilities of the Yolo County and Solano County Sheriff Offices, resulting in the need for new or expanded police protection services. Therefore, impacts to police protection would be less than significant. No new significant or substantially more severe significant impacts related to fire protection would occur.

iii. Schools? ***(No New Impact)***

Implementation of the proposed project would not result in any local or regional population increase. Therefore, the project would not require construction of new schools, or result in schools exceeding their capacities. Therefore, the proposed project would not result in new significant or substantially more severe significant impacts related to schools.

*v. Parks? **(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed project may temporarily affect the nearby walking path during construction due to the disturbance of facilities from construction activities and associated access restrictions. This could result in a reduction of use of the nearby trail resulting in an increase in use of other nearby trails; however, implementation of Mitigation Measure 3.10-1, identified in the 2016 Program EIR, which requires alternate access to high-use recreational sites, would reduce potential access impacts during construction to a less-than-significant level. Use of the walking path that provides recreational access within the project reach could increase as a result of proposed improvements. However, the potential increase in use is not anticipated to be substantial. The proposed project would not significantly increase employment or result in the construction of residential uses within Yolo or Solano counties. As such, implementation of the proposed project would not result in the increased the use of existing parks or other recreation uses and would not require the expansion of parks. Therefore, the proposed project would not result in new significant or substantially more severe significant impacts related to parks.

*vi. Other public facilities? **(No New Impact)***

Development of the proposed project would not increase demand for other public services including libraries, community centers, and public health care facilities. As previously discussed, the project does not include development of residential uses or an increase in employment at the project site and would, therefore, not result in increased demand for other public facilities. As such, the proposed project would not result in new significant or substantially more severe significant impacts related to other public facilities.

5.16 RECREATION

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

5.16.1 Background

The project site is located within the UC Davis Riparian Reserve. There is public access to the north side of the creek and walking path, the Putah Creek Riparian Preserve Trail, that provides recreational access within the project reach.

5.16.2 Prior Environmental Analysis

5.16.2.1 2016 Program EIR

The 2016 Program EIR concluded that recreation within the Nishikawa reach would be temporarily affected during construction and potentially for a period of time following construction due to the disturbance of existing facilities from construction and associated access restrictions. The primary impacts would be loss of access to the creek and associated recreational amenities, including trails, picnic areas, and boating access. However, implementation of Mitigation Measure 3.10-1, identified in the 2016 PEIR, which requires alternate access to high-use recreational sites, would reduce this impact to a less-than-significant level. The 2016 Program EIR concluded that in the long-term, recreational resources and access associated with this site would be improved compared to existing conditions.

5.16.2.2 Statewide Order EIR

The Statewide Order EIR concluded that restoration projects permitted under the Statewide Order could permanently impair or eliminate recreational resources, depending on the project locations and types. In addition, the Statewide Order EIR determined that construction activities and constructed facilities for restoration projects permitted under the Statewide Order could result in the construction and modification of recreational facilities with associated environmental impacts and could displace recreation users from some facilities, increasing the use of other existing recreational resources or facilities, potentially leading to substantial physical deterioration. Implementation of Mitigation Measures REC-1, REC-2, and NOI-2 (see Section 5.13 Noise), identified in the Statewide Order EIR, would reduce these impacts to a less-than-significant level.

As part of the State Water Board or RWQCB's issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measures REC-1 and REC-2 would be required when applicable to a given project.

Applicable Mitigation Measures. The following mitigation measures would apply to the proposed project:

Mitigation Measure REC-1: **Minimize Impairment, Degradation, or Elimination of Recreational Resources.** If restoration projects permitted under the Order result in the substantial impairment, degradation, or elimination of recreational facilities, replacement facilities of equal capacity and quality shall be developed and installed.

Mitigation Measure REC-2: **Minimize Impacts on Existing Recreational Resources.** If a restoration project results in substantial temporary or permanent impairment, degradation, or elimination of recreational facilities that causes users to be directed toward other existing facilities, the project proponent shall coordinate with affected public and private recreation providers to direct the displaced users to underused recreational facilities.

The project proponent shall conduct additional operations and maintenance work at existing facilities to prevent them from deteriorating. If possible, temporary replacement facilities shall be provided. If the increase in use is temporary, once use levels have decreased back to existing conditions, the degraded facilities shall be rehabilitated or restored.

Where impacts on existing facilities are unavoidable, the project proponent shall compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.

5.16.3 Impact Analysis

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ***(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed project may temporarily affect the nearby walking path during construction due to the disturbance of facilities from construction activities and associated access restrictions. This could result in a reduction of use of the nearby trail resulting in an increase in use of other nearby trails; however, as detailed in Section 5.15, Public Services, implementation of 2016 Program EIR Mitigation Measure 3.10-1 and Statewide Order EIR Mitigation Measures REC-1 and REC-2, which requires alternate access to high-use recreational sites and development of alternative recreation facilities, would reduce this impact to a less-than-significant level.

Use of the walking path that provides recreational access within the project reach could increase as a result of proposed improvements. However, the potential increase in use is not anticipated to be substantial. The proposed project would not significantly increase employment or result in the construction of residential uses within Yolo or Solano counties. As such, implementation of the proposed project would not result in the increased the use of existing parks or other recreation uses such that substantial physical deterioration would occur or be accelerated. Therefore, no new significant or substantially more severe significant impacts related to existing recreation facilities would result from the proposed project.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? ***(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed project does not include the construction of expansion of recreational facilities. Therefore, no new significant or substantially more severe significant impacts related to existing recreation facilities would result from the proposed project.

5.17 TRANSPORTATION

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

5.17.1 Background

The project site would be accessed via Pedrick Road. This road is categorized as both a collector road and as a County Route of Regional Significance by Solano County.[62] Yolo County classifies Pedrick Road as a Major Two-Lane County Road.[63]

As outlined in Section 3.0, Project Description, the north side of Putah Creek would be accessed via Pedrick Road through a privately owned agricultural parcel adjacent to the creek. Equipment would use a pre-existing ramp that leads from the top of the creek embankment to the creek terrace. Access to the floodplain would be primarily from the south side and along an existing unimproved surface road from the Nishikawa property. This existing access road would be cleared of woody debris, if necessary. No additional reinforcement, major grading, or other surface modifications are planned.

5.17.2 Prior Environmental Analysis

5.17.2.1 2016 Program EIR

The 2016 Program EIR determined that project activities along the Nishikawa reach would increase one-way passenger vehicle trips by no more than 12 daily trips during construction and operations and increase one-way truck trips by no more than 42 daily trips during construction, which would not exceed the County thresholds. Therefore, implementation of the project along the Nishikawa reach would not conflict with any county planning policies or congestion management programs. The 2016 Program EIR determined that there are no unusual conditions within the Nishikawa reach that would result in increased roadway hazards or decreased emergency access and implementation of the project would have no adverse effects on these topics. The 2016 Program EIR concluded that there are no significant transit, bicycle, or pedestrian facilities located within the Nishikawa reach and project activities would not prevent the development of future transit, bicycle, or pedestrian facilities. The 2016 Program EIR determined that all impacts related to transportation and traffic

62 Solano, County of. 2008. Op. cit.
63 Yolo, County of. 2009. Op. cit.

would be less than significant and no mitigation measures would be required for project activities within the Nishikawa reach.

5.17.2.2 Statewide Order EIR

The Statewide Order EIR concluded that construction activities for future restoration projects that would be permitted under the Statewide Order could result in temporary partial or full road closures. As a result, these projects could conflict with a plan, ordinance, or policy associated with the circulation system, or could affect the use of federal, State, and local highways and bridges and transit, roadways, bicycle, and pedestrian facilities. Mitigation Measures TRA-1 through TRA-5 were identified to reduce these impacts to less-than-significant levels.

Construction activities for future restoration projects that would be permitted under the Order could exceed the threshold of significance and conflict with State CEQA Guidelines Section 15064.3(b) related to VMT. Mitigation Measure TRA-6 was identified to reduce emissions associated with VMT; however, because the efficacy of the mitigation measure could not be determined at the time the EIR was certified, this impact was determined to be significant and unavoidable.

Construction of restoration projects, constructed facilities (natural or artificial infrastructure), and operations and maintenance of those facilities permitted under the Statewide Order could affect transportation infrastructure such as roads, bridges, railroads, and navigable waterways, which could result in design hazards. Implementation of Mitigation Measures TRA-7 and TRA-8 would reduce potential impacts related to geometric design or incompatible use hazards to less-than-significant levels.

As part of the State Water Board or RWQCB's issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measures TRA-1 through TRA-8 would be required when applicable to a given project.

Applicable Mitigation Measures. The following mitigation measures would apply to the proposed project:

Mitigation Measure TRA-1: **Prepare Construction Traffic Management Plan.** Before construction begins, the construction manager shall have a qualified professional prepare a construction traffic management plan. The plan shall provide the appropriate measures to reduce potential traffic obstructions or service level degradation at affected traffic facilities. The scope of the construction traffic management plan will depend on the type, size, and duration of the specific qualifying restoration project under the Order. The plan could include such measures as construction signage, flaggers for lane closures, and construction schedule and/or delivery schedule restrictions. The plan shall be submitted to the local public works department and implemented as appropriate throughout construction.

Mitigation Measure TRA-2: **Prepare Waterway Traffic Control Plan.** A waterway traffic control plan shall be prepared before project construction begins. The plan shall be followed throughout construction to ensure that vessels can navigate safely and efficiently during construction. The plan shall identify vessel traffic control measures to reduce congestion and navigation hazards to the extent feasible. Construction zones in waterways shall be barricaded or guarded by readily visible barriers or other effective measures to warn boaters of their presence and restricted access. Warning devices and signage shall comply with the California Uniform State Waterway Marking System and shall be operational during nighttime hours and periods of dense fog.

Mitigation Measure TRA-3: **Develop Channel Closure Plan for Affected Facilities.** Before construction begins in areas where temporary partial waterway closure is necessary, a temporary channel closure plan shall be developed. The plan shall identify alternative detour routes and procedures for notifying boaters of construction activities and partial closures including coordination with the U.S. Coast Guard, local boating organizations, and marinas. The channel closure plan shall be implemented as appropriate throughout construction.

Mitigation Measure TRA-4: **Reduce Project Effects on Boat Passage and Transit Facilities.** To the extent feasible, the following actions shall be implemented to reduce impacts of project construction on boat passage and transit facilities:

- To the extent feasible, ensure that safe boat access to public launch and docking facilities, businesses, and residencies is maintained.
- Coordinate with transit system operators, as appropriate, to establish alternative transit system routes to be rerouted during construction.
- Provide boat passage as an integral component of operable gate facilities, and design such facilities to provide uninterrupted boat passage when the gates are in the “up” position. Floating docks with mooring bits shall be provided along the shoreline on both sides of the boat passage facilities for boaters to use while waiting.
- Before construction begins in areas where bridge closure may be necessary, develop a traffic plan that identifies traffic control measures to reduce congestion and provide alternative routes.

Mitigation Measure TRA-5: **Minimize Effects on Trails and Bicycle and Pedestrian Circulation and Identify Alternatives.** To minimize potential impacts of project construction on trails and bicycle and pedestrian circulation, the following actions shall be taken when feasible**:**

- Minimize closure of paths.
- Provide for temporary or permanent relocation of the trails and bicycle pedestrian circulation locations to the extent feasible.
- Consult with the appropriate public works department to determine the most feasible alignment for facility relocation.

Mitigation Measure TRA-6: **Reduce Emissions.** To comply with State CEQA Guidelines Section 15064.3(b), the following measures shall be taken to reduce effects associated with increased VMT:

- Limit idling time for commercial vehicles, including delivery and construction activities.
- Use low- or zero-emissions vehicles, including construction vehicles.
- Institute a heavy-duty off-road vehicle plan and a construction vehicle inventory tracking system for construction projects.
- Promote ridesharing.
- Provide the necessary facilities and infrastructure to encourage the use of low- or zero-carbon emissions vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).
- Increase the cost of driving and parking private vehicles, such as by imposing tolls and parking fees.
- Provide a shuttle service to public transit and worksites.
- Provide information on all options for individuals and businesses to reduce transportation-related emissions.

Mitigation Measure TRA-7: **Conduct Routine Inspections.** An inspection and operation plan shall be developed and implemented, where applicable. The plan shall include procedures for routine inspections and facility operation to allow safe navigation should the facility become

damaged or malfunctions. This plan shall include the following specific components:

- Routine inspections and correction procedures to ensure that facility safety features are in good working order.
- Routine inspections and correction procedures for navigational hazards around facilities, including floating or submerged debris and the formation of shoals.

Mitigation Measure TRA-8: **Repair Damaged Roadways and Trails Following Construction.** If damage to roads, sidewalks, trails, and/or medians occur, the construction contractor shall coordinate with the affected project proponents to ensure that any impacts are adequately repaired in accordance with applicable agency standards. Roads and/or driveways disturbed by construction activities or construction vehicles shall be properly restored to ensure long-term protection of road surfaces. Roadside drainage structures and road drainage features (e.g., rolling dips) shall be protected by regrading and reconstructing roads to drain properly. The construction contractor shall work with the applicable agencies to document preconstruction conditions of road features before the start of construction.

5.17.3 Impact Analysis

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? ***(No New Impact)***

As described above, primary vehicle access to the site is provided from Pedrick Road. No significant transit, bicycle, or pedestrian facilities are located within the project area. The proposed project consists of restoration of a reach of Putah Creek. Following construction, the proposed project would have negligible impacts on the area's transportation system as minimal inspection or maintenance activities would be required once the restoration project is complete. No new traffic would be generated once project construction activities are completed.

A small increase in traffic would occur in the project area during the construction phase of the proposed project from construction vehicles and construction workers accessing the site. However, these impacts would be short-term, occurring only during the construction period and are not expected to exceed a level of service standard for roads or highways in Solano County.

The project would be consistent with the Solano County General Plan and the Yolo County General Plan, including policies that promote the preservation of natural resources. The proposed project would not affect local roadways or preclude the provision of trails, bikeways or other alternative transportation modes. Therefore, the proposed project would not conflict with a program plan,

ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. No new or substantially more significant impacts would occur.

b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)? ***(No New Impact)***

With the current CEQA Guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT). The California Office of Planning and Research guidelines for Vehicle Miles Traveled (VMT) analyses[64] state that projects that generate fewer than 110 trips per day may be assumed to cause less than significant VMT impacts. As described above, the 2016 Program EIR determined that project activities along the Nishikawa reach would increase one-way passenger vehicle trips by no more than 12 daily trips during construction and operations and increase one-way truck trips by no more than 42 daily trips during construction, which would not exceed the County thresholds. Therefore, the proposed project is unlikely to result in a substantial or measurable increase in VMT, and the transportation impact for the purposes of CEQA would be less than significant. No new or substantially more significant impacts related to conflicts with CEQA Guidelines §15064.3, subdivision (b) would occur.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ***(No New Impact)***

The proposed project involves restoration of the creek channel. Implementation of the proposed project would not significantly alter public roadways or access to the site from public roadways. The north side of Putah Creek would be accessed through a privately owned agricultural parcel that is adjacent to the creek and is accessible from Pedrick Road. Access to the floodplain would be primarily from the south side and along an existing unimproved surface road from the Nishikawa property. No additional reinforcement, major grading, or other surface modifications are planned. Therefore, the proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or introduce an incompatible use (e.g., farm equipment). No new or substantially more significant impacts related to design hazards or incompatible uses would occur.

d. Would the project result in inadequate emergency access? ***(No New Impact)***

Due to the nature of the proposed project, no impairment or interference with emergency response or emergency access would occur. The proposed project is not located along an identified evacuation route, nor would it affect local roadways. Because the proposed project would not substantially alter or block the adjacent roadways, the proposed project would not be expected to impair the function of nearby emergency evacuation routes. No new or substantially more significant impacts related to emergency response or evacuation would occur.

[64] California Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. Available online at: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed January 4, 2023).

5.18 TRIBAL CULTURAL RESOURCES

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

5.18.1 Background

AB 52, which became law on January 1, 2015, provides for consultation with California Native American tribes during the CEQA environmental review process, and equates significant impacts to "tribal cultural resources" with significant environmental impacts. PRC Section 21074 states that "tribal cultural resources" are:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and are one of the following:
- Included or determined to be eligible for inclusion in the California Register of Historical Resources.
- Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1.
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

A "historical resource" (PRC Section 21084.1), a "unique archaeological resource" (PRC Section 21083.2(g)), or a "nonunique archaeological resource" (PRC Section 21083.2 (h)) may also be a tribal cultural resource if it is included or determined to be eligible for inclusion in the California Register.

The consultation provisions of the law require that a public agency consult with local Native American tribes that have requested placement on that agency's notification list for CEQA projects. Within 14 days of determining that a project application is complete, or a decision by a public agency to undertake a project, the lead agency must notify tribes of the opportunity to consult on the project, should a tribe have previously requested to be on the agency's notification list. California Native American tribes must be recognized by the California Native American Heritage Commission as traditionally and culturally affiliated with the project site and must have previously requested that the lead agency notify them of projects. Tribes have 30 days following notification of a project to request consultation with the lead agency.

The purpose of consultation is to inform the lead agency in its identification and determination of the significance of tribal cultural resources. If a project is determined to result in a significant impact on an identified tribal cultural resource, the consultation process must occur and conclude prior to adoption of a Negative Declaration or Mitigated Negative Declaration, or certification of an Environmental Impact Report (PRC Sections 21080.3.1, 21080.3.2, 21082.3).

As described in Section 2.0, SCWA sent letters describing the project and maps depicting the project site in January 2023 to tribes eligible to consult with SCWA. To date, SCWA has received no request for consultation; however, tribal consultation is still ongoing.

5.18.2 Prior Environmental Analysis

5.18.2.1 2016 Program EIR

The project's potential impacts to tribal cultural resources were not specifically analyzed in the 2016 Program EIR. However, the prior environmental documents analyzed prehistoric and historic resources and included mitigation measures related to archaeological resources and human remains. These measures include Mitigation Measures 3.11-2 and 3.11-3, which require following proper protocols if unrecorded cultural resources or human remains are encountered as detailed in Section 5.5, Cultural Resources, of this Initial Study.

5.18.2.2 Statewide Order EIR

The Statewide Order EIR determined that construction activities and constructed facilities and operations and maintenance for restoration projects permitted under the Statewide Order are the types of activities that have potential to affect tribal cultural resources. Mitigation Measures TCR-1, TCR-2, and CUL-4 (see Section 5.4 Cultural Resources) were identified to reduce potential impacts to tribal cultural resources; however, because the efficacy of the mitigation measures could not be determined at the time the EIR was certified, these impacts were determined to be significant and unavoidable.

As part of the State Water Board or RWQCB's issuance of a NOA for a restoration project under the Statewide Order, compliance with Mitigation Measure TCR-1, TCR-2, and CUL-4 would be required when applicable to a given project.

Applicable Mitigation Measures. The following mitigation measures would apply to the proposed project:

Mitigation Measure TCR-1: **Conduct Inventory and Significance Evaluation of Tribal Cultural Resources with Tribes that are Culturally and Geographically Affiliated with the Project Vicinity.** Before implementation of any project permitted under the Order, the following shall be conducted: consultation with California Native American Tribes pursuant to PRC Section 21080.3; a cultural resources records search; a California Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search; and an inventory and significance evaluation of tribal cultural resources identified that could be impacted by the project. These tasks shall be conducted as follows.

- Project proponent shall submit an NAHC SLF & Native American Contacts List Request at the initial stages of project development (or as early as practicable) to determine if a project would have an impact on tribal cultural resources.

- Project proponent shall coordinate with the approving Water Board or other CEQA lead agency, if applicable, as soon as possible to identify California Native American Tribes that are traditionally and culturally affiliated to a project area. The CEQA lead agency shall then conduct Tribal consultation, pursuant to PRC Section 21080.3, and as soon as practicable during early design, with such Tribes to determine whether any tribal cultural resources could be affected by the project. Consultation will include discussion regarding project design, cultural resources surveys, identification of tribal cultural resources, protocols for construction monitoring, and any other Tribal concerns. Construction of the project will not commence until the approving Water Board or other CEQA lead agency achieves compliance with the California Environmental Protection Agency Tribal Consultation Protocol (April 2018) and consultation pursuant to PRC Section 21080.3 has been concluded. If potential tribal cultural resources that may be impacted by the project are identified through consultation with California Native American Tribes that are traditionally and culturally affiliated to a project area, the following shall be conducted:

- Documentation of any tribal cultural resources identified in the project area which may require additional tasks such as ethnographic research and interviews.

- If tribal cultural resources are identified in a project area, develop, before project implementation and in coordination California Native American Tribes that are traditionally and culturally affiliated to a project area, an approach for reducing such impacts. If any such tribal cultural resources are on or in the tide and submerged lands of California, this process shall also include coordination with the California State Lands Commission.

Mitigation Measure TCR-2: **Implement Measures to Protect Tribal Cultural Resources during Project Construction or Operation.** These measures include, but are not limited to, those outlined in PRC Section 21084.3.

If tribal cultural resources or indigenous archaeological resources that may qualify as tribal cultural resources are encountered during project construction or operation of any project permitted under the Order, all activity within 100 feet of the find shall cease and the find shall be flagged for avoidance. The lead agency, a qualified archaeologist, defined as one meeting the U.S. Secretary of the Interior's Professional Qualifications Standards for Archeology, and California Native American Tribes that are traditionally and culturally affiliated to a project area shall be immediately informed of the discovery. The qualified archaeologist and representatives from the notified Native American Tribes shall inspect the discovery and notify the lead agency of their initial assessment.

If the lead agency determines, based on recommendations from the qualified archaeologist and California Native American Tribes that are traditionally and culturally affiliated to a project area, that the resource may qualify as a tribal cultural resource (per PRC Section 21074), then the resource shall be avoided if feasible. If avoidance of the resource is not feasible, the lead agency shall consult California Native American Tribes that are traditionally and culturally affiliated to a project area to determine treatment measures to minimize or mitigate any potential impacts on the resource pursuant to PRC Section 21083.2 and State CEQA Guidelines Section 15126.4. If any such resources are on or in the tide and submerged lands of California, this process shall also include coordination with the California State Lands Commission. Once treatment measures have been determined, the lead agency shall prepare and implement a tribal cultural resources management plan that outlines the treatment measures for the

resource. Treatment measures typically consist of the following steps:

- Determine whether the resource qualifies as a tribal cultural resource (per PRC Section 21074) through analysis that could include additional ethnographic research, archaeological investigations, or laboratory analysis.

- If it qualifies as a tribal cultural resource (per PRC Section 21074) implement measures for avoiding or reducing impacts such as the following:

    - Avoid and preserve the resource in place through measures that include but are not limited to the following:

        - Plan and construct the project to avoid the resource and protect the cultural and natural context.

        - Plan greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria.

    - Treat the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, through measures that include but are not limited to the following:

        - Protect the cultural character and integrity of the resource.

        - Protect the traditional use of the resource.

        - Protect the confidentiality of the resource.

    - Implement permanent conservation easements or other interests in real property, with cultural appropriate management criteria for the purposes of preserving or using the resource or place.

5.18.3 Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. ***(No New Impact)***

As discussed in Section 5.5, Cultural Resources, the NWIC records search and the archaeological survey completed for the project did not identify evidence of Native American archaeological deposits or ancestral remains. The proposed project would not impact known tribal cultural resources that are listed or eligible for listing in the California Register of Historical Resources or a local register of historical resources, nor has SCWA identified a tribal cultural resource at the project site. As noted in Section 5.5, Cultural Resources, implementation of Mitigation Measures 3.11-1 and 3.11-2, identified in the 2016 Program EIR, and Mitigation Measures TCR-1 and TCR-2, identified in the Statewide EIR, which require following proper protocols if unrecorded cultural resources or human remains are encountered, would ensure that potential impacts related to previously undiscovered historic or archaeological resources and human remains, including tribal cultural resources, would be less than significant.

5.19 UTILITIES AND SERVICE SYSTEMS

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

5.19.1 Background

Water Supply. During construction, nominal amounts of water may be used for dust control purposes and other construction activities. Water from Putah Creek would be used or water would be trucked in from locations within Solano or Yolo counties. As discussed in Section 3.0, Project Description, the native plant field nursery would be watered using water infiltration trenches (reverse French drains) connected to Putah Creek.

Wastewater. No wastewater would be generated as a result of construction or operation of the proposed project; therefore, wastewater collection, treatment, and disposal services are not further discussed.

Solid Waste. Two privately owned landfills receive non-recyclable solid waste generated in Solano County: the Potrero Hills Landfill located near State Route (SR) 12 and Suisun City, and the Hay Road Landfill located on SR 113 east of Vacaville. The Potrero Hills Landfill has a maximum permitted daily throughput of 4,330 tons per day and has a remaining capacity of 13,872,000 cubic yards with an anticipated closure date of 2048.[65] The Hay Road Landfill has a maximum permitted daily throughput of 2,400 tons per day and has a remaining capacity of 30,433,000 cubic yards with an anticipated closure date of 2077.[66] These two landfills are the only facilities accepting solid waste in

65 CalRecycle, 2019. *SWIS Facility/Site Activity Details, Potrero Hills Landfill (48-AA-0075).* Website: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1194?siteID=3591 (accessed October 18, 2022).

66 CalRecycle, 2019. *SWIS Facility/Site Activity Details, Recology Hay Road (48-AA-0002).* Website: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1184?siteID=3582 (accessed October 18, 2022).

Solano County. Green waste is accepted at both of these facilities, as well as at recycling facilities in American Canyon, Martinez, and Benicia.[67]

Solid waste is accepted within Yolo County at the Yolo County Central Landfill located northeast of the City of Davis. This landfill has a maximum permitted daily throughput of 1,800 tons per day, a remaining capacity of 33,544,909 cubic yards and an anticipated closure date of 2124.[68] The UC Davis Landfill also provides solid waste disposal and green waste processing, but only for waste generated on the campus and Medical Facility in Sacramento. Green waste is accepted at the Yolo County Central Landfill, Grover Landscape Services Composting Facility in Zamora, and Davis Waste Removal's Green Material Facility (accepts material generated in or near the City of Davis).[69]

Stormwater. The project site is located in a rural area primarily surrounded by agricultural land uses. Small roadway or agricultural storm drains may exist within the project area.

Gas, Electricity and Telecommunications. No known electrical lines or pipelines are located within the project reach.

5.19.2 Prior Environmental Analysis

5.19.2.1 2016 Program EIR

The 2016 Program EIR determined that occasional small roadway or agricultural storm drains may need to be modified or replaced as a result of the proposed channel restoration work. However, implementation of Mitigation Measure 3.1-2, which requires storm drains necessitating modification or replacement due to project construction activities to be completed consistent with current standards as discussed in Section 5.10, Hydrology and Water Quality, would ensure that such activities are performed in a manner so that impacts related to stormwater drainage systems remain less than significant. The 2016 Program EIR determined that channel restoration activities would not generate substantial amounts of solid waste that would affect landfill capacities. Additionally, green waste generated by brush clearing and removal of invasive plant species and weeds would be disposed of either on-site after suitable treatment or at local composting/recycling facilities and would not affect landfill capacities. The 2016 Program EIR determined that construction activities would not occur at a height that could damage overhead electrical transmission lines and although no mapped pipelines are located within the Nishikawa reach, Mitigation Measure 3.14 would be necessary which requires the project applicant and excavator to contact the regional notification center for consultation prior to commencing excavation as detailed below. After the implementation of Mitigation Measures 3.14 and 3.1-2, the 2016 Program EIR determined that all impacts would be less than significant.

Applicable Mitigation Measures. The following mitigation measure identified in the 2016 Program EIR would apply to the proposed project**.**

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67 Solano County Water Agency, 2016. Op cit.

68 CalRecycle, 2019. *SWIS Facility/Site Activity Details, Yolo County Central Landfill 57-AA-0001).* Website: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/689?siteID=4033 (accessed October 18, 2022).

69 Solano County Water Agency, 2016. Op cit.

Mitigation Measure 3.14: **Locate and Avoid Buried Pipelines.** In accordance with State Government Code Section 4216 et seq. and guidance issued by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA), the Project applicant and excavator will contact the regional notification center at least two working days, but not more than 14 calendar days, prior to commencing that excavation. If practical, the excavator shall delineate the area to be excavated with white paint or other suitable markings. The regional notification center for the Project Area is Underground Service Alert of Northern/Central California and Nevada. Contact shall be made with the regional notification center either by phone by dialing 811 or 1-800-227-2600 or through the center's website at http://usanorth811.org/ (Common Ground Alliance, 2015; USA North 811, 2015).

In accordance with Government Code Section 4216.4, if consultation with the regional notification center indicates a Project excavation is near a pipeline, then the excavator shall determine the exact location of the pipeline by excavating with hand tools before using any power-operated or power-driven excavating or boring equipment. However, power-operated or power-driven equipment may be used for the removal of any existing pavement if there are no subsurface installations contained in the pavement.

If documented notice of the intent to use vacuum excavation devices, or power-operated or power-driven excavating or boring equipment has been provided to the pipeline operator, and it is mutually agreeable with the operator and the excavator, the excavator may utilize vacuum excavation devices, or power-operated or power-driven excavating or boring equipment within the approximate location of a pipeline.

If the exact location of the pipeline cannot be determined by hand excavating, the excavator shall request the pipeline operator to provide additional information, to enable the excavator to determine the exact location of the installation. (The contact phone number of the subsurface installation operator may be obtained from the regional notification center.)

In the event Project activities discover damage or cause damage to a pipeline installation, including all breaks, leaks, nicks, dents, gouges, grooves, or other damage, to lines, conduits, coatings, or cathodic protection, the Project applicant and excavator shall immediately notify the pipeline operator. If a pipeline is damaged and the operator cannot be contacted, the excavator shall call 911 emergency services.

5.19.2.2 Statewide Order EIR

The Statewide Order EIR concluded that impacts associated with the relocation of new water or expanded water facilities, wastewater facilities, solid waste, and other utilities would be less than significant. However, future restoration projects could require the relocation of stormwater outfalls or utilities (e.g., electric power, natural gas, or telecommunication facilities) that would cause significant and unavoidable impacts, as described herein. Therefore, this impact was determined to be significant and unavoidable. No mitigation measures were identified.

5.19.3 Impact Analysis

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? ***(No New Impact)***

Water Supply. During construction, nominal amounts of water may be used for dust control purposes and other construction activities. Water from Putah Creek would be used or water would be trucked in from locations within Solano or Yolo counties and would not require the relocation or construction of new expanded water facilities. As discussed in Section 3.0, Project Description, the native plant field nursery would be watered using water infiltration trenches (reverse French drains) connected to Putah Creek. These drain channels would be constructed as a perpendicular trench leading from the design channel into the newly created floodplain. Trenches would be dug to the elevation of the design channel bottom and would be sloped slightly downward from the channel to provide a flow gradient for moisture away from the channel. The drain would be filled with up to 1 foot of coarse gravel and rocks and then backfilled to grade with regular floodplain material, mixed with mulch. Trees would be planted into these drains, while shrubs and willows would fill the interstitial spaces between the drain locations. This design ensures that the entire floodplain is quickly re-populated with site-adapted trees and shrubs. Over the years, as the drains fill with sediment, trees and shrubs would have completely conquered the available rooting zone. The proposed reverse French drains would not cause significant environmental effects. No new impacts or substantially more severe significant impacts would occur.

Wastewater. No wastewater would be generated as a result of construction or operation of the proposed project. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities. No new impacts or substantially more severe significant impacts would occur.

Stormwater. The project site is located in a rural area primarily surrounded by agricultural land uses. Small roadway or agricultural storm drains may exist within the project area. However, as detailed in Section 5.10, Hydrology and Water Quality, implementation of Mitigation Measure 3.1-2, which requires storm drains necessitating modification or replacement due to project construction activities to be completed consistent with current standards, would reduce impacts related to stormwater drainage systems to a less-than-significant level. No new impacts or substantially more severe significant impacts would occur.

Gas, Electricity and Telecommunications. No known electrical lines or pipelines are located within the project reach. Nonetheless, the proposed project would be subject to Mitigation Measure 3.14, identified in the 2016 Program EIR, which requires SWCA to contact the regional notification center for consultation prior to commencing excavation. Implementation of Mitigation Measure 3.14 would ensure that the proposed project would not result in impacts to any existing pipelines. No new impacts or substantially more severe significant impacts would occur.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? ***(No New Impact)***

New or expanded water supply entitlements would not be required to serve the project. The project would require potable or reclaimed water for dust suppression during project construction. However, the amount of water required would be relatively small and would only be needed during the construction period. The native plant field nursery would be watered using water infiltration trenches (reverse French drains) connected to Putah Creek. Once complete, no water would be required for the proposed project. Therefore, a less than significant impact related to water supplies would occur as a result of implementation of the project. No new impacts or substantially more severe significant impacts would occur.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ***(No New Impact)***

Refer to Section 5.19.3.a above. Implementation of the project would not result in a change in the wastewater treatment needed. No new impacts or substantially more severe significant impacts would occur.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? ***(No New Impact)***

Waste generated during demolition and construction activities would need to be disposed of in local or regional facilities. Waste generated from construction would include: incidental trash from the construction workers and green waste removed through brush clearing and removal of invasive plant species and weeds. Incidental trash would be hauled to local disposal centers for recycling or taken to landfills and the green waste would be disposed of on-site after suitable treatment or at local composting/recycling facilities. The disposal demand would be reasonable relative to the solid waste disposal capacities of the nearby landfills including the Potrero Hills, Hay Road, or Yolo County Central Landfills discussed in Section 5.19.1, Background.

As the project would restore the creek channel, waste collected during operation of the proposed project would be limited to trash from trail users and/or visitors to the Putah Creek Riparian Reserve and nearby UC Davis Center for Aquatic Biology and Aquaculture and would be similar to existing conditions. The proposed project would not generate a substantial amount of waste during operation that would exceed the capacity of the Potrero Hills, Hay Road, or Yolo County Central Landfills. Therefore, implementation of the proposed project would result in a less than significant

impact to solid waste and landfill facilities. No new impacts or substantially more severe significant impacts would occur.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ***(No New Impact)***

The California Integrated Waste Management Act (AB 939) changed the focus of solid waste management from landfill to diversion strategies such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000, and to maintain the 50 percent diversion rate thereafter. As described above, the project would recycle/reuse as much of the construction-related debris, as possible, and would produce negligible solid waste during project operation. The proposed project would comply with existing or future statutes and regulations, including waste diversion programs mandated by federal, State, and local law. Therefore, impacts related to federal, State, and local statutes and regulations related to solid wastes would be less than significant. No new impacts or substantially more severe significant impacts would occur.

5.20 WILDFIRE

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

5.20.1 Background

The project site is located in a largely undeveloped area surrounded primarily by agricultural uses. Wildland fires occur in geographic areas that contain the types and conditions of vegetation, topography, weather, and structure density susceptible to risks associated with uncontrolled fires that can be started by lightning, improperly managed campfires, cigarettes, sparks from automobiles, and other ignition sources. According to mapping by the California Department of Forestry and Fire Protection (CAL FIRE), the project site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ) in a State Responsibility Area (SRA) or a Local Responsibility Area (LRA).[70] The hills to the west of Winters are the nearest designated SRA. This area is located approximately 11 miles from the project site and has been designated as an SRA within a moderate fire hazard severity zone.[71]

5.20.2 Prior Environmental Analysis

5.20.2.1 2016 Program EIR

The 2016 Program EIR was adopted prior to the mandatory analysis of wildfire impacts. However, wildfire risks were discussed in Section 5.9, Hazards and Hazardous Materials. The 2016 Program EIR determined that the potential exists for an accidental ignition of a wildland fire due to the use of power equipment and vehicles during construction. Implementation of Mitigation Measure 3.7-2 would reduce this impact to less-than-significant levels by requiring on-site fire suppression equipment and spark arrestors on all equipment with internal combustion engines and restricting activities on high fire danger days, as detailed in Section 5.9, Hazards and Hazardous Materials.

70 California Department of Forestry and Fire Protection Fire and Resource Assessment Program. 2021. Op. cit.
71 Ibid.

5.20.2.2 Statewide Order EIR

The Statewide Order EIR concluded that implementing restoration projects permitted under the Statewide Order could exacerbate fire risk and could result in downslope or downstream risks as a result of runoff, post-fire slope instability, or drainage changes. These impacts were determined to be less than significant with implementation of Mitigation Measure FIRE-1, which requires preparation and implementation of a Fire Prevention Plan for restoration projects in areas designated as Very High or High Fire Hazard Severity Zones. As described above, the project site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ) in a State Responsibility Area (SRA) or a Local Responsibility Area (LRA); therefore, Mitigation Measure FIRE-1 would not apply to the proposed project.

5.20.3 Impact Analysis

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? ***(No New Impact)***

As discussed above, the project site is not located within an SRA for fire hazards, as mapped by CAL FIRE, nor is it located in a LRA VHFHSZ.[72] Due to the nature of the proposed project, no impairment or interference with emergency response or emergency evacuation plans would occur. The proposed project is not located along an identified evacuation route, nor would it affect local roadways. Because the proposed project would not substantially alter or block the adjacent roadways, the proposed project would not be expected to impair the function of nearby emergency evacuation routes. No new or substantially more significant impacts related to emergency response or evacuation would occur.

b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? ***(No New Impact)***

The project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. During the construction period, the potential exists for an accidental ignition of a wildland fire due to the use of power equipment and vehicles. However, implementation of Mitigation Measure 3.7-2 would reduce this impact to less-than-significant levels by requiring on-site fire suppression equipment and spark arrestors on all equipment with internal combustion engines and restricting activities on high fire danger days, as detailed in Section 5.9, Hazards and Hazardous Materials. The proposed project does not involve construction of residential or commercial structures or any other structures for human occupation and people would use the site for a limited duration of time after the completion of construction. Therefore, the proposed project would not exacerbate wildfire risks, and this impact would be less than significant. No new or substantially more significant impacts would occur.

[72] California Department of Forestry and Fire Protection Fire and Resource Assessment Program. 2021. op. cit.

c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? ***(No New Impact)***

As noted above, the proposed project would include restoration of a creek channel that is currently in an over-widened condition. The proposed project would not require fuel breaks, emergency water sources, power lines, or other utilities to be installed that may exacerbate fire risk or result in impacts to the environment. Therefore, this impact would be less than significant. No new or substantially more significant impacts would occur.

d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? ***(No New Impact)***

The project site is generally level and is not located within an SRA for fire service or a VHFHSZ. As noted above, the project involves restoring a section of active channel that is currently in an over-widened condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The disturbed areas would be revegetated to minimize the potential for erosion/scour along the creek banks. The proposed project would result in a beneficial effect related to flood hazards and stormwater runoff. Therefore, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability or drainage changes. No new or substantially more significant impacts would occur.

5.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

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

As discussed and analyzed in this document, construction and operation of the proposed project would not substantially degrade the quality of the environment; reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of California history or prehistory. The proposed project has been designed to minimize impacts to both biological and cultural resources and implementation of the mitigation measures identified in the 2016 Program EIR, as well as site-specific mitigation measures recommended in this Initial Study that would ensure that impacts to biological and cultural resources are reduced to a less-than-significant level. Section 3.4, Biological Resources, includes mitigation measures to minimize impacts to special-status species, nesting birds, and sensitive communities (e.g., riparian habitat). Additionally, Section 3.5, Cultural Resources, includes mitigation measures to minimize impacts to known cultural resources within the project site. With implementation of these mitigation measures, the proposed project would result in less-than-significant impacts to the quality of the environment.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? ***(No New Impact)***

The CEQA Guidelines require a discussion of significant environmental impacts that would result from project-related actions in combination with "closely related past, present, and probably future projects: located in the immediate vicinity (CEQA Guidelines Section 15130[b][1][A]). Cumulative environmental impacts are those impacts that by themselves are not significant, but when considered with impacts occurring from other projects in the vicinity would result in a cumulative impact. Related projects considered to have the potential of creating cumulative impacts in association with the proposed project consist of projects that are reasonably foreseeable and that would be constructed or operated during the life of the proposed project.

The proposed project would be located in an undeveloped, rural area. No other projects have been approved or are currently under review in the project vicinity and could be under construction concurrently with the proposed project. As described in this IS/MND, impacts associated with the proposed project would be largely temporary, construction-related and would be reduced to less than significant with implementation of the mitigation measures contained herein. Therefore, the proposed project would not make a considerable contribution towards a cumulative impact related to construction impacts. The proposed project would restore the creek channel to provide increased flood protection and enhance habitat, resulting in a beneficial environmental effect. It would not result in individual operation period impacts or make a considerable contribution to permanent operation-period impacts of other projects in the vicinity or the region. Implementation of the proposed project, with mitigation, would not result in any new cumulative impacts or increase the severity of a previously identified significant cumulative impact as previously analyzed, and no other CEQA standards for supplemental review are met. No new impact would occur.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(No New Impact)***

The proposed project would not create adverse environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. The proposed project would restore an existing creek channel to improve habitat conditions. These activities would not result in any substantial adverse effects on human beings, either directly or indirectly, as discussed throughout this document. Therefore, implementation of the proposed project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed, and no other CEQA standards for supplemental review are met. No new impact would occur.

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APPENDIX A

AIR QUALITY MODELING RESULTS

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Lower Putah Creek Restoration Project, Nishikawa Reach Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Lower Putah Creek Restoration Project, Nishikawa Reach
Lead Agency	Solano County Water Agency
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	33.8
Location	38.526917501433985, -121.80423719304963
County	Solano-Sacramento
City	Unincorporated
Air District	Yolo/Solano AQMD
Air Basin	Sacramento Valley
TAZ	332
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	11.0	Acre	11.0	0.00	11.0	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.73	4.80	46.5	39.3	0.10	1.87	72.8	74.7	1.73	10.4	12.1	—	11,506	11,506	0.41	0.40	5.07	11,641
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.72	4.79	46.7	39.1	0.10	1.87	72.8	74.7	1.73	8.46	10.2	—	11,485	11,485	0.40	0.40	0.13	11,615
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.65	1.38	13.7	11.6	0.03	0.56	21.8	22.4	0.52	2.71	3.23	—	3,137	3,137	0.11	0.12	0.65	3,176
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.25	2.50	2.11	< 0.005	0.10	3.98	4.09	0.09	0.49	0.59	—	519	519	0.02	0.02	0.11	526

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2023	5.73	4.80	46.5	39.3	0.10	1.87	72.8	74.7	1.73	10.4	12.1	—	11,506	11,506	0.41	0.40	5.07	11,641
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	5.72	4.79	46.7	39.1	0.10	1.87	72.8	74.7	1.73	8.46	10.2	—	11,485	11,485	0.40	0.40	0.13	11,615
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.65	1.38	13.7	11.6	0.03	0.56	21.8	22.4	0.52	2.71	3.23	—	3,137	3,137	0.11	0.12	0.65	3,176
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.30	0.25	2.50	2.11	< 0.005	0.10	3.98	4.09	0.09	0.49	0.59	—	519	519	0.02	0.02	0.11	526

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.70	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.39	0.32	3.27	2.92	< 0.005	0.15	—	0.15	0.14	—	0.14	—	435	435	0.02	< 0.005	—	437
Dust From Material Movement	—	—	—	—	—	—	0.63	0.63	—	0.32	0.32	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.60	0.53	< 0.005	0.03	—	0.03	0.02	—	0.02	—	72.1	72.1	< 0.005	< 0.005	—	72.3
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.86	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	164	164	0.01	0.01	0.72	167
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.04	2.50	0.58	0.01	0.04	0.15	0.19	0.04	0.05	0.09	—	2,084	2,084	0.02	0.33	4.19	2,187
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	12.4	12.4	< 0.005	< 0.005	0.03	12.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.22	0.05	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	171	171	< 0.005	0.03	0.15	180
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.06	2.06	< 0.005	< 0.005	< 0.005	2.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	28.4	28.4	< 0.005	< 0.005	0.02	29.7

3.3. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.54	4.66	44.0	37.5	0.09	1.83	—	1.83	1.69	—	1.69	—	9,262	9,262	0.38	0.08	—	9,294
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.43	1.43	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.54	4.66	44.0	37.5	0.09	1.83	—	1.83	1.69	—	1.69	—	9,262	9,262	0.38	0.08	—	9,294
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.43	1.43	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.22	1.02	9.64	8.22	0.02	0.40	—	0.40	0.37	—	0.37	—	2,030	2,030	0.08	0.02	—	2,037
Dust From Material Movement	—	—	—	—	—	—	0.79	0.79	—	0.31	0.31	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.76	1.50	< 0.005	0.07	—	0.07	0.07	—	0.07	—	336	336	0.01	< 0.005	—	337
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.08	1.23	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	234	234	0.01	0.01	1.02	238
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.04	2.41	0.56	0.01	0.04	0.15	0.19	0.04	0.05	0.09	—	2,009	2,009	0.02	0.32	4.04	2,109
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	212	212	0.01	0.01	0.03	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.04	2.59	0.58	0.01	0.04	0.15	0.19	0.04	0.05	0.09	—	2,011	2,011	0.02	0.32	0.10	2,107
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	47.3	47.3	< 0.005	< 0.005	0.10	48.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.56	0.12	< 0.005	0.01	0.03	0.04	0.01	0.01	0.02	—	441	441	< 0.005	0.07	0.38	462
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	7.84	7.84	< 0.005	< 0.005	0.02	7.95
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	72.9	72.9	< 0.005	0.01	0.06	76.5

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.07	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Phase 1 - Vegetation Management	Site Preparation	6/5/2023	7/14/2023	5.00	30.0	—
Phase 2 - Construction	Grading	7/17/2023	11/3/2023	5.00	80.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Phase 1 - Vegetation Management	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Phase 1 - Vegetation Management	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Phase 2 - Construction	Graders	Diesel	Average	1.00	8.00	148	0.41
Phase 2 - Construction	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Phase 2 - Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Phase 2 - Construction	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Phase 2 - Construction	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Phase 2 - Construction	Off-Highway Trucks	Diesel	Average	2.00	8.00	376	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Phase 1 - Vegetation Management	—	—	—	—
Phase 1 - Vegetation Management	Worker	17.5	11.7	LDA,LDT1,LDT2
Phase 1 - Vegetation Management	Vendor	—	8.40	HHDT,MHDT
Phase 1 - Vegetation Management	Hauling	29.2	20.0	HHDT
Phase 1 - Vegetation Management	Onsite truck	—	—	HHDT
Phase 2 - Construction	—	—	—	—
Phase 2 - Construction	Worker	25.0	11.7	LDA,LDT1,LDT2
Phase 2 - Construction	Vendor	—	8.40	HHDT,MHDT
Phase 2 - Construction	Hauling	28.1	20.0	HHDT
Phase 2 - Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Phase 1 - Vegetation Management	—	7,000	45.0	0.00	—
Phase 2 - Construction	—	18,000	240	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	11.0	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	28,750

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	143

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.6	annual days of extreme heat
Extreme Precipitation	5.05	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	42.6
AQ-PM	30.7
AQ-DPM	36.9

Drinking Water	38.4
Lead Risk Housing	21.7
Pesticides	81.1
Toxic Releases	24.2
Traffic	56.8
Effect Indicators	—
CleanUp Sites	38.1
Groundwater	86.4
Haz Waste Facilities/Generators	69.4
Impaired Water Bodies	12.5
Solid Waste	66.7
Sensitive Population	—
Asthma	17.1
Cardio-vascular	29.2
Low Birth Weights	0.42
Socioeconomic Factor Indicators	—
Education	0.00
Housing	98.7
Linguistic	71.2
Poverty	98.7
Unemployment	88.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—

Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	0.0

Asthma ER Admissions	86.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	0.0
Cognitively Disabled	90.0
Physically Disabled	99.2
Heart Attack ER Admissions	66.7
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	0.0
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	92.2
Elderly	99.5
English Speaking	0.0

Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	49.0
Traffic Density	0.0
Traffic Access	74.5
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	49.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	The project will progress in two phases and is estimated to take 4-5 months to complete. Project construction is anticipated to begin in June 2023.
Construction: Off-Road Equipment	Default equipment for Phase 1 and graders, excavators, water trucks, dump trucks, dozers, scrapers, and loaders for Phase 2.
Construction: Dust From Material Movement	Net spoils exported from the site would equal approximately 25,000 cubic yards.

APPENDIX B

RESPONSE TO COMMENTS

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CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: May 3, 2023

TO: Max Stevenson, PhD, Solano County Water Agency

FROM: Shanna Guiler, AICP, Associate/Environmental Planner
Steve Kohlmann, Associate/Wildlife Biologist

SUBJECT: Lower Putah Creek Restoration Project, Nishikawa Reach
Supplemental Initial Study/Mitigated Negative Declaration - Response to Comments

In accordance with Section 15074 of the CEQA Guidelines, prior to approving a project, the decision-making body of the lead agency shall consider the proposed environmental document together with any comments received during the public review process. Although there is no legal requirement to formally respond to comments on a proposed Mitigated Negative Declaration (MND) as there is for an Environmental Impact Report (EIR), this memorandum provides a response to the written comments received on the Lower Putah Creek Restoration Project, Nishikawa Reach Supplemental Initial Study/Mitigated Negative Declaration (IS/MND) to aid the Solano County Water Agency (SWCA) decision-makers in their review of the project.

COMMENTS AND RESPONSES

The Draft Supplemental IS/MND was available for public review and comment from March 3, 2023, to April 13, 2023. Seven comment letters were received on the Draft Supplemental IS/MND. In the following pages, the comments and responses are enumerated to allow for cross-referencing of CEQA-related comments. The enumerated comment letters are included in this memorandum, followed by the respective responses. Individual comments within the letters are numbered consecutively. For example, comment A-1 is the first numbered comment in Letter A.

The following comment letters were submitted:

LETTER A
Erin Chappell, Regional Manager Bay Delta Region
California Department of Fish and Wildlife
April 11, 2023

LETTER B

Peter Minkel, Regional Geologist
Regional Water Quality Control Board
April 4, 2023

LETTER C
Donald B Mooney
Attorney for Friends of Putah Creek
April 14, 2023

LETTER D
Dr. Glen Holstein
Friends of Putah Creek

LETTER E
Alan Pryor
Friends of Putah Creek

LETTER F
David Springer
Friends of Putah Creek

LETTER G
Jeff Tenpas
Friends of Putah Creek

As noted above, CEQA does not require or provide guidance on responding to comments on MNDs; therefore, this memorandum follows CEQA Guidelines Section 15088, applicable to responses to comments on EIRs, which requires that agencies respond only to significant environmental issues raised in connection with the project. Therefore, this document focuses primarily on responding to comments that relate to the adequacy of the information and environmental analysis provided in the IS/MND.

Written responses to each comment letter received on the Draft Supplemental IS/MND are provided herein. All letters received during the public review period on the Draft Supplemental IS/MND are provided in their entirety. Each letter is immediately followed by responses keyed to the specific comments.

Where revisions to the Draft Supplemental IS/MND text are called for, the page is set forth followed by the appropriate revision. Added text is indicated with <u>double underlined</u> text, and deleted text is shown in ~~strikeout~~.

Comment Letter A

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

Gavin Newsom, Governor
CHARLTON H. BONHAM, Director

April 11, 2023

Gavin R. Poore, Assistant Water Resources Engineer
Solano County Water Agency
810 Vaca Valley Parkway #203
Vacaville, CA 95688
GPoore@swca2.com

Subject: Lower Putah Creek Restoration Project, Nishikawa Reach, Mitigated Negative Declaration, SCH No. 2015022022, Solano and Yolo County

Dear Mr. Poore:

The California Department of Fish and Wildlife (CDFW) received a Notice of Intent to Adopt a Supplemental Mitigated Negative Declaration (MND) from the Solano County Water Agency (SCWA) for the Lower Putah Creek Restoration Project, Nishikawa Reach (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1] The MND is tiered from a Programmatic Environmental Impact Report (PEIR); CDFW previously submitted comments in response to the Notice of Preparation of the draft PEIR on March 2, 2015.

CDFW is submitting comments on the MND to inform SCWA, as the Lead Agency, of potentially significant impacts to biological resources associated with the Project. We appreciate SCWA's efforts to restore Putah Creek and improve associated fish and wildlife habitat.

CDFW ROLE

CDFW is a **Trustee Agency** with responsibility under CEQA pursuant to CEQA Guidelines section 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a **Responsible Agency** if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA) or Native Plant Protection Act, the Lake and Streambed Alteration (LSA) Program, or other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources.

A-1

PROJECT DESCRIPTION SUMMARY

Description: The Project is an element of the Lower Putah Creek Restoration Project, Upper Reach Project (Program), the goal of which is to restore and enhance

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

geomorphic and ecological function on approximately 24.2 miles of Putah Creek between the Putah Diversion Dam and the western boundary of the Yolo Bypass Wildlife Area.

The Project's purpose is to restore a section of active channel that is currently in an entrenched, unnaturally straight, and over-widened condition. This Project aims to create a narrow design channel in a more central, meandering form to create 0.5-mile of nearly continuous salmon spawning habitat across a gravel-rich floodplain. The Project design includes grading 11 acres to floodplain elevation, and construction of 15 riffles and several rock vanes.

To create a low flow channel bordered by functional floodplain surfaces, 14,000 cubic yards of alluvial material from within the stream corridor would be excavated and placed within the over-wide channel. This activity would completely fill the existing channel to the proposed floodplain elevation of 42 feet. Work areas within the active channel would be isolated from flowing water and dewatered as needed. The total volume of cut for channel and floodplain reconfiguring would be 37,500 cubic yards and the total fill would be 12,700 cubic yards.

A new narrow channel with an average width of approximately 18 feet would be located within the recontoured floodplain. The new channel would be approximately 1.2 acres in surface dimensions (or approximately 50 percent of the original surface area). The stream length would be 2,720 feet (approximately 8 percent longer than the current stream channel). The new meandering low flow channel alignment would be excavated, and the excavated material would be used to fill the former, straightened channel alignment. The total volume of cut for the design channel would be 8,000 cubic yards.

A-1 cont.

A maximum of 37,500 cubic yards of earthwork would be repositioned within the design channel to create pools and substructure for riffle gravel. Approximately 2,000 cubic yards of clean gravel suitable as salmon spawning substrate would be placed within the channel to create riffles. Wood structures will be installed in conjunction with gravel placement activities to improve channel sinuosity and bar formation. Wood structures placed at channel margins would also provide immediate critical cover and foraging habitat for fish.

Channel bank stabilization methods that may be employed as part of the Project include installation of rock revetment, log revetment, root wads, and/or large woody debris. Priority would be given to bank stabilization methods that can provide multiple benefits such as cover, velocity refuge, shade, and foraging opportunities.

The recontoured floodplain and the design channel would be cleared of remaining vegetation and debris, and revegetated.

Location: A 0.47-mile reach of Putah Creek west of the Pederick Road Bridge identified as Nishikawa Reach in the PEIR (page 2-2); approximately 3.75 miles west of downtown Davis and 5.7 miles north of Dixon; center point approximately Latitude 38.52675 °N, Longitude -121.80779 °W.

REGULATORY REQUIREMENTS

California Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, including candidate species, either during construction or over the life of the Project. **As described in the MND, the Project has the potential to impact giant garter snake (*Thamnophis gigas*, GGS), a CESA listed as threatened species, as further described below.** Issuance of an ITP is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain an ITP.

CEQA requires a Mandatory Finding of Significance if a Project is likely to substantially restrict the range or reduce the population of a threatened or endangered species. (Pub. Resources Code, §§ 21001, subd. (c) & 21083; CEQA Guidelines, §§ 15380, 15064, & 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with CESA.

A-1 cont.

Lake and Streambed Alteration

An LSA Notification, pursuant to Fish and Game Code section 1600 et seq., is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank; or deposit or dispose of material where it may pass into a river, lake, or stream including associated riparian or wetland habitat. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to LSA Notification requirements. **As described in the MND, the Project would impact Putah Creek and the associated floodplain; therefore, an LSA Notification pursuant to Fish and Game Code section 1602 would be required, as further described below.** CDFW would consider the CEQA document for the Project and may issue an LSA Agreement. CDFW may not execute the final LSA Agreement until it has complied with CEQA as a Responsible Agency.

Comment Letter A Cont.

Raptors and Other Nesting Birds

CDFW has jurisdiction over actions that may result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections protecting birds, their eggs, and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nests or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds of prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird). Migratory birds are also protected under the federal Migratory Bird Treaty Act.

A-1 cont.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist SCWA in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments are also included to improve the document. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, including those CDFW recommends below and in **Attachment 1**, CDFW concludes that an MND is appropriate for the Project.

I. MANDATORY FINDING OF SIGNIFICANCE. Does the Project have potential to substantially reduce the number or restrict the range of an endangered, rare, or threatened species?

COMMENT 1: Giant Garter Snake, MND page 3.4-15; PEIR pages E-10, ES-18, 3.4-11, 3.4-20, Mitigation Measure Shortcoming

Issue: MND Mitigation Measure (MM) 3.4-3 would not avoid take of GGS under CESA or mitigate potentially significant impacts to the species to less-than-significant. For example, MM 3.4-3 indicates that a biologist would relocate GGS if found during construction activities, which would constitute take. The MND and PEIR identify agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands as suitable GGS habitat which may occur within the Project area (MND page 3.4-15; PEIR page E-10) and indicate that GGS has been located approximately 2.7 miles east of the Project area (PEIR pages 3.4-11 and 3.4-20). The California Natural Diversity Database (CNDDB) documents an occurrence of GGS approximately 2.7 miles east of the Project area (CNDDB 2023). Based on a review of aerial imagery, side channels and uplands adjacent to Putah Creek occur in the Project area and; therefore, GGS may occur in the Project area and be subject to impacts and 'take' under CESA.

A-2

Specific impacts, why they may occur and be potentially significant: GGS is a highly aquatic species endemic to California. GGS typically occur in slow-moving, warm aquatic environments like marshes, sloughs, and ponds. They have adapted to using

Comment Letter A Cont.

irrigation canals and rice fields as wetlands have been reduced in the Central Valley (Halstead et al. 2010). Small mammal burrows in upland habitat are generally used for cover and retreat during the active season and for refuge from flood waters during the dormant season (Halstead et al. 2015). Causes of decline are largely related to habitat loss and fragmentation of wetland habitat, and up to 98 percent of historic GGS habitat in the Central Valley has been lost to development, including agricultural lands (Ellis 1987).

The Project has the potential to impact GGS through a biologist relocating the species, mowing, earthmoving, and removing burrow refugia and vegetation, possibly injuring or crushing GGS. GGS is considered a threatened species under CEQA Guidelines section 15380. Injuring or killing a GGS would substantially reduce the number of GGS, a potentially significant impact pursuant to CEQA Guidelines section 15065, subdivision (a) Mandatory Findings of Significance.

A-2 cont.

Recommended Mitigation Measure: To reduce impacts to GGS to less-than-significant and comply with CESA, CDFW recommends including the below mitigation measure in the MND.

GGS Protection. The Project shall consult with CDFW to develop Project-specific avoidance measures for GGS. If development and implementation of avoidance measures is not feasible and take of GGS cannot be avoided by the Project, the Project shall obtain an ITP from CDFW pursuant to CESA prior to Project construction and comply with the ITP.

II. Stream Alteration

COMMENT 2: Permits for Stream and Wetland Impacts, MND page 2-2

Issue: The MND states that the Project would impact Putah Creek and therefore require an LSA Notification pursuant to Fish and Game Code section 1600 et seq. (Fish and Game Code section 1600 et seq. (MND page 2-2)). However, the MND does not include a mitigation measure requiring an LSA Notification and compliance with the LSA Agreement.

Recommended Mitigation Measure: To comply with Fish and Game Code section 1600 et seq. and the Clean Water Act, CDFW recommends including the mitigation measure below.

A-3

LSA Notification and other Resource Agency Permits. The Project shall notify CDFW pursuant to Fish and Game Code section 1600 et seq. using the Environmental Permit Information Management System (see: https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS) for Project activities affecting lakes or streams, associated riparian or otherwise hydrologically connected

habitat, and any connected wetlands, and shall comply with the LSA Agreement, if issued. Projects shall also obtain and comply with applicable permits from the Regional Water Quality Control Board (RWQCB) and U.S. Army Corps of Engineers (USACE) pursuant to the Clean Water Act and Porter-Cologne Water Quality Control Act.

A-3 cont.

III. Nesting Birds

COMMENT 3: Nesting Bird Protection, MND page 5-27, Mitigation Measure Shortcoming

Issue: The MND includes Mitigation Measure 3.4-6 for nesting bird avoidance (page 5-27), including a nesting bird survey conducted 15 days prior to the start of construction activities. However, nesting birds may occupy the Project area within 15 days of construction activities or if there is a lapse in construction activities.

Recommended Mitigation Measure: CDFW recommends modifying Mitigation Measure 3.4-6 so the nesting bird survey is conducted within 7 days prior to the start of construction activities and another survey is conducted if there is a lapse of 7 or more days in construction activities, to increase the likelihood of detecting nesting birds that could occupy the Project area.

A-4

IV. Editorial Comments

COMMENT 4: Nesting Bird Season, MND page 5-27

Issue: The MND Project description identifies August 1 as the end of nesting season (page 3-16) while mitigation measure 3.4-6, nesting bird avoidance, inconsistently identifies August 31 as the end of nesting season (page 5-27). The end of the nesting season should be revised to August 31 in the Project description.

A-5

Please be advised that an LSA Agreement, if issued, would likely include the above recommended mitigation measures, as applicable, in addition to other avoidance and minimization measures to protect fish and wildlife.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNDDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported

A-6

Comment Letter A Cont.

to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals. A-6 cont.

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying Project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089). A-7

CONCLUSION

CDFW appreciates the opportunity to comment on the MND to assist SCWA in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Alex Single, Environmental Scientist, at (707) 799-4210 or Alex.Single@wildlife.ca.gov; or Melanie Day, Senior Environmental Scientist (Supervisory), at Melanie.Day@wildlife.ca.gov or (707) 210-4415.

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

Attachment 1. Draft Mitigation and Monitoring Reporting Plan

ec: Tanya Sheya, CDFW North Central Region – Tanya.Sheya@wildlife.ca.gov
Ian Boyd, CDFW North Central Region – Ian.Boyd@wildlife.ca.gov
Alexander Funk, CDFW North Central Region – Alexander.Funk@wildlife.ca.gov
Office of Planning and Research, State Clearinghouse

REFERENCES

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Comment Letter A Cont.

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Halstead, B.J., G. D. Wylie, and M. L. Casazza. 2010. Habitat Suitability and Conservation of Giant Gartersnakes (*Thamnophis gigas*) in the Sacramento Valley of California. Copeia 4: 591-599. Website https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=72655.

Halstead, B.J. S.M. Skalos, G.D. Wylie, and M.L. Casazza. 2015. Terrestrial Ecology of semi-aquatic giant gartersnakes (*Thamnophis g*igas). Herpetological Conservation and Biology 10(2): 633-644.

Hansen, G.E. and J.M. Brode, 1980. Status of the Giant Garter Snake *Thamnophis couchi gigas* (Fitch). California Department of Fish and Game Inland Fisheries Endangered Species Program. Special Publication 80-5.

ATTACHMENT 1

Draft Mitigation and Monitoring Reporting Plan

Biological Resources			
Mitigation Measure (MM)	**Description**	**Timing**	**Responsible Party**
BIO-1	GGS Protection. The Project shall consult with CDFW to develop Project-specific avoidance measures for GGS. If development and implementation of avoidance measures is not feasible and take of GGS cannot be avoided by the Project, the Project shall obtain an ITP from CDFW pursuant to CESA prior to Project construction and comply with the ITP.	Prior to Ground Disturbance and continuing over the course of the Project	Project Applicant
BIO-2	LSA Notification and other Resource Agency Permits. The Project shall notify CDFW pursuant to Fish and Game Code section 1600 et seq. using the Environmental Permit Information Management System (see: https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS) for Project activities affecting lakes or streams, associated riparian or otherwise hydrologically connected habitat, and any connected wetlands, and shall comply with the LSA Agreement, if issued. Projects shall also obtain and comply with applicable permits from the RWQCB and USACE pursuant to the Clean Water Act and Porter-Cologne Water Quality Control Act.	Prior to Ground Disturbance and continuing over the course of the Project	Project Applicant
3.4-6	*Modify mitigation measure 3.4-6 to incorporate the following language:* Nesting bird surveys shall be conducted within 7 days prior to the start of construction activities and another survey shall be conducted if there is a lapse of 7 or more days in construction activities.	Prior to Ground Disturbance and continuing over the course of the Project	Project Applicant

LETTER A
Erin Chappell, Regional Manager Bay Delta Region
California Department of Fish and Wildlife
April 11, 2023

Response A-1: This introductory comment acknowledges receipt of the Draft Supplemental IS/MND, describes the California Department of Fish and Wildlife's (CDFW) role under CEQA, and provides an overview of the regulatory requirements applicable to the proposed project. The commenter notes that a California Endangered Species Act (CESA) Incidental Take Permit (ITP) may be required for project implementation. In addition, because the proposed project would impact Putah Creek and the associated floodplain, a Lake and Streambed Alteration Agreement would be required. The remainder of the comment summarizes the proposed project as detailed in the Draft Supplemental IS/MND and introduces the more detailed comments included in the letter, which are responded to in Responses A-2 through A-7, below.

The commenter generally provides recommendations related to the identification of and mitigation for the project's potentially significant impacts on biological resources as identified in the Draft Supplemental IS/MND. Impacts to biological resources and mitigation measures to reduce potential impacts to a less-than-significant level are identified in Section 5.4, Biological Resources of the Draft Supplemental IS/MND.

Response A-2: This comment addresses impacts to Giant garter snake (GSS) and recommends additional measures to address these impacts, beyond the measures identified in the Draft Supplement IS/MND (Mitigation Measure 3.4-3 identified in the 2016 Program EIR and referenced in Section 5.3, Biological Resources of the Draft Supplemental IS/MND). The commenter recommends that SWCA apply for an ITP for GSS, if avoidance cannot be achieved.

Section 5.4.3 (page 5-50) of the Draft Supplemental IS/MND has been revised as follows to address CDFW comments:

The **Giant Garter Snake** (GGS) is considered a threatened species in California. Injuring or killing a GGS would substantially reduce the number of GGS, a potentially significant impact pursuant to CEQA Guidelines section 15065, subdivision (a) Mandatory Findings of Significance. Although the habitat quality of the project site is marginal, GGS could potentially occur in the Project area and be subject to impacts and 'take' under CESA. GGS typically occur in slow-moving, warm irrigation canals and rice fields as wetlands have been reduced in the Central Valley.[1] Small mammal burrows

[1] Halstead et. al. 2010.

in upland habitat are generally used for cover and retreat during the active season and for refuge from flood waters during the dormant season.[2] The proposed project has the potential to impact GGS through a biologist relocating the species, mowing, earthmoving, and removing burrow refugia and vegetation, possibly injuring or crushing GGS. Implementation of Mitigation Measure 3.4-3, identified in the 2016 Program EIR and modified below, which requires consultation with CDFW, construction timing restrictions, and preconstruction surveys, would reduce impacts to GGS to a less-than-significant level:

> **Mitigation Measure 3.4-3: Giant Garter Snake Avoidance.** In areas that provide suitable habitat for giant garter snake, construction shall only occur during the active period for the snake, between May 1 and October 1. During the active period for giant garter snake direct mortality is lessened because snakes are expected to actively move and avoid danger. Preconstruction surveys for the giant garter snake shall occur within 24 hours prior to ground disturbing activities. A survey of the ~~P~~project work ~~A~~area ~~should~~shall be repeated if a lapse in construction activity of two weeks or greater has occurred.
>
> ~~If a snake is encountered during construction, work shall stop within the vicinity of the snake and the USFWS will be contacted immediately. Only following receipt of USFWS approval shall giant garter snake be collected and transferred to the nearest suitable habitat outside the work area. Work shall not re-commence until a qualified biologist has either removed the snake from the construction area or, after thorough inspection, determined that the snake has vacated the construction area. St~~
>
> ~~Any dewatering or vegetation clearing within 200 feet of potential aquatic habitat for giant garter snake shall be limited to the minimum amount necessary.~~
>
> SWCA shall consult with the California Department of Fish and Wildlife to develop project specific avoidance measures for giant garter snake. If development and implementation of avoidance measures is not feasible and take of giant garter snake cannot be avoided by the proposed project, SWCA shall obtain an Incidental Take Permit from CDFW pursuant to the California Endangered Species Act prior to construction and shall comply with the ITP.

[2] Halstead et. al. 2015.

The revision to Mitigation Measure BIO-3.4-3 does not change the significance of the environmental issue conclusions within the Draft Supplemental IS/MND and does not represent significant new information such that recirculation of the Draft Supplemental IS/MND is required.

Response A-3: The commenter requests that a mitigation measure requiring a Lake Streambed Alteration (LSA) Notification be included. As indicated in the comment and stated on page 2-2 of the Draft Supplemental IS/MND, SWCA would be required to obtain an LSA Notification as part of project approvals. This is a regulatory permitting requirement and need not be included as mitigation in the environmental document. However, Mitigation Measure 3.4-9 is revised as follows, to address CDFW requirements:

> **Mitigation Measure 3.4-9a: Lake Streambed Alteration (LSA) Notification and other Regulatory Agency Permits.** Prior to commencement of project construction, SCWA shall notify the California Department of Fish and Wildlife pursuant to Section 1600 et. seq. of the California Fish and Game Code using the Environmental Permit Information Management System for project activities affecting lakes or streams, associated riparian, or otherwise hydrologically connected habitat, and any connected wetlands, and shall comply with the LSA Agreement, if issued. SWCA shall also obtain and comply with applicable permits from the Regional Water Quality Control Board (RWQCB) and U.S. Army Corps of Engineers (USACE) pursuant to the Clean Water Act and Porter-Cologne Water Quality Control Act.
>
> **Mitigation Measure 3.4-9b: Monitor Riparian Habitat.** In advance of construction of each individual project under the Program, a Riparian Revegetation and Monitoring Plan shall be prepared ~~for riparian areas which~~ Each plan will describe the thresholds of revegetation success, monitoring and reporting requirements, and a description of the site-specific planting plan. ~~The long-term ecological monitoring program described in the Plan will provide the basis for gauging the achievement of minimum performance standards. The Plan will describe a three-year riparian monitoring program that assesses the survival and health of on-site plantings. Appropriate performance standards may include but are not limited to: an 80 percent survival rate of restoration tree and shrub plantings; absence of invasive plant species in restored areas; and self-sustaining conditions (i.e., plant viability without supplemental water) at the end of three years.~~ The Plan will be submitted to the appropriate regulatory agencies for review and approval.
>
> Monitoring Plans shall include the following, subject to modification based upon regulatory agencies review and approval.

Monitoring shall commence immediately following construction of each project implemented under the Program. Monitoring shall be performed for a period of at least five years and may be extended if contingency measures were required beyond the third year, and/or if the final success criteria are not met at the end of five years. In this event, monitoring shall continue until such time as all disturbed areas and restoration plantings are established and the long-term viability of the target replacement habitat is assured, as determined in consultation with the permitting agencies.

Monitoring Methods. Monitoring shall be performed by a qualified biologist, horticulturist, or ecologist with appropriate credentials and demonstrated experience in native habitat restoration. The project monitor shall provide oversight of maintenance operations to ensure high quality project maintenance, which conforms to standards established in the restoration plan for each individual project, and to immediately address any unanticipated problems. The monitor shall be in direct contact with SCWA/LPCCC, via regular telephone reports of maintenance activities and periodic site visits.

Recording of As-Built Conditions. Accurate plans shall be prepared depicting the finished grades, locations of any grade control or hydraulic structures, erosion control measures, and species, quantities and locations of all planted materials. Methods of construction and planting, as well as any significant problems or unexpected conditions encountered, shall also be recorded. As-built plans shall include surveyed cross-sections of the restored creek channel. Cross-section locations shall be permanently marked in the field. Permanent photo stations shall be established and depicted on the as-built plans. Baseline information shall be incorporated into a written report describing the as-built status of the restoration project and submitted with the as-built drawings to the permitting agencies within 6 weeks of completion of construction activities.

Monitoring Schedule. Monitoring visits shall be conducted monthly for the first year and at least quarterly thereafter, as determined necessary by the relative success of the project plantings in the first year.

Monitoring Protocol. During the monitoring visits, detailed records shall be made of the conditions existing at the restoration site. In order to maintain continuity and ensure comparable assessments, standardized data sheets shall be used to record monitoring data. A copy of the as-built planting plan shall be attached to the data sheets for each monitoring visit, so that monitoring data and observations may be tied to exact locations on the restoration site.

Sample channel cross-sections, quadrats, and permanent photo stations shall be permanently marked in the field using rebar stakes.

Channel cross-sections shall be surveyed in the field to record the condition of the channel and banks, and any changes occurring as a result of natural geomorphic adjustment or other causes (e.g. possible vandalism, or human activity in the channel, wildlife trails/laydown areas, etc.).

Quadrat sampling methods shall be used to record data for selected areas of the restoration site. Required monitoring data would include:

- Percent survival and average height of all trees planted (with the exception of willows and cottonwoods, which shall be evaluated based upon aerial cover);
- Overall cover, percent cover by species (dominant as well as incidental species present shall be recorded), and natural recruitment of native and invasive species;
- Mortality and other problems such as insect damage, erosion, or other soil problems shall be noted and documented with photographs; and
- General health and vigor of restoration plantings.

Photographs showing overall views of the restoration site shall be taken at established photopoints during each visit.

The following is a description of specific monitoring data to be collected for the restoration site.

Vegetation:

Riparian vegetation. Riparian vegetation planted on the restoration site shall consist of liner and one-to two-gallon materials. As-built planting plans shall identify the locations and species of each planting. During monitoring visits, the percent cover, species diversity and natural recruitment (both by native and invasive species) within these areas shall be assessed.

Existing riparian trees retained within the project site. The general conditions and health of these trees and seedlings shall be documented during monitoring visits. Any natural recruitment of native tree and shrub species in these areas shall be noted.

Success Criteria. The restoration prescribed for individual restoration projects under the Program shall be considered successful if, at the end of the 5-year monitoring period, restoration objectives are achieved, the channel morphology is stable, planted areas are self-sustaining, and plant survivorship and vigor are adequate to assure a viable, high-quality wildlife habitat.

The section below provides proposed minimum success criteria for the different vegetation types within the individual project sites. Success criteria presented below may be modified based upon site specific conditions and subject to review and approval of regulatory stakeholders and permitting agencies.

Plantings in each restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met. Non-native cover includes plant species that are non-native, but not considered invasive. To measure this success criteria, Invasive plants are defined as having a moderate or high rating by the California Invasive Plant Council (Cal-IPC). Maintenance and/or replanting shall be performed as necessary to achieve these standards. If significant numbers of replacement plantings are required after the third year, the applicant shall consult with the permitting agencies to determine whether the monitoring period should be extended.

Vegetation Success Criteria:

Plantings in the restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met:

Riparian trees and shrubs

- 80 percent cover of the planted area, as indicated on as-built plans submitted to the regulatory agencies.

All revegetated areas within the restoration site

- Percent cover by invasive plants not to exceed 5 %

Maintenance and/or replanting necessary to achieve these standards shall be performed as required. If significant numbers of replacement plantings are required after the third year, the applicant shall consult with the CDFW and other regulatory agencies, as appropriate, to determine whether the monitoring period should be extended.

Annual Reports. Annual monitoring reports shall be submitted by LPCCC/SCWA to the Corps, CDFW and other appropriate agencies and stakeholders. The first annual report for each project shall be delivered by December 31 of the year following the first growing season after planting, and by December 31 of each year thereafter.

The reports shall include analyses of all quantitative monitoring data, prints of monitoring photographs, and maps identifying monitoring transects and/or quadrats, monitoring photo points, and restoration plantings by vegetation type and height class, and provide discussion of the implications of monitoring data for site evolution, and comparison to the success criteria. The reports shall discuss problems and successes encountered, any replacement planting or other remedial measures taken, and shall recommend steps to ensure continued success (or remediation of problems encountered) of the restoration project.

The addition of Mitigation Measure 3.4-9a and revisions to Mitigation Measure 3.4-9b do not change the significance of the environmental issue conclusions within the Draft Supplemental IS/MND and does not represent significant new information such that recirculation of the Draft Supplemental IS/MND is required.

Response A-4: The comment requests that Mitigation Measure 3.4-6, which addresses impacts to nesting birds, be revised to require that pre-construction nesting bird surveys be conducted no more than 7 days prior to ground-disturbing activities. Mitigation Measure 3.4-6 is revised below, to address CDFW's recommendation, as follows:

Mitigation Measure 3.4-6: Nesting Bird Avoidance. A pre-construction survey by a qualified biologist for nesting birds shall be required for individual projects if construction activities are scheduled to occur during the breeding season (February 1 to August 31) for raptors and other migratory birds, including special-status bird species. The survey shall be conducted ~~15 days~~ within 7 days prior to ground disturbing activities and shall cover 500-foot radius surrounding the construction zone.

If active nests are found, actions typically include, but are not limited to, monitoring by agency-approved biologists, establishment or refinement of species-specific buffers, reduction or elimination of the use of loud equipment, reducing foot traffic and remaining in the vehicles, and the maintenance of visual screens. Migratory birds shall be protected from ~~Project Area~~ staging and construction operations through the use of a buffer established based on the birds' sensitivity and response to the potential activit~~y~~ies. Baseline

> behavior of the bird should be established to inform the buffer size. The qualified biologist may start with a 100-foot nest buffer, or a 250-foot nest buffer for raptors, but may adjust the buffer size based of the reaction of the bird(s) to the construction activity. If there is a potential for nest abandonment due to intrusion into the buffer zone, as established by the qualified biologist, then CDFW and the USFWS shall be consulted. If a lapse in Project-related work of ~~15~~ 7 days or longer occurs, another focused survey, and if required, consultation with CDFW and the USFWS shall be performed before Project work can resume.

The revision to Mitigation Measure 3.4-6 does not change the significance of the environmental issue conclusions within the Draft Supplemental IS/MND and does not represent significant new information such that recirculation of the Draft Supplemental IS/MND is required.

Response A-5: The comment notes that the duration of the nesting bird season is inconsistently identified in the Draft Supplemental IS/MND. Page 3-16 of the Draft Supplemental IS/MND has been revised as follows to address CDFW's comment:

> Project construction is estimated to take 4 to 5 months to complete and would begin in summer 2023 or summer 2024. Project construction would start the end of nesting season (August 31) and end at the beginning of salmon migration into Putah Creek (October 15).

This revision to the Draft Supplemental IS/MND does not change the significance of the environmental issue conclusions within the Draft Supplemental IS/MND and does not represent significant new information such that recirculation of the Draft Supplemental IS/MND is required

Response A-6: The comment, which requests that information regarding special-status species and natural communities be submitted to the California Natural Diversity Database (CNDDB), is noted. Consistent with CDFW requirements, any information related to special-status species and natural communities detected during project surveys would be reported to the CNDDB. With the exception of the reconnaissance survey conducted to confirm site conditions for special-status species, no additional site surveys have been conducted. This comment does not relate to the adequacy of the information or analysis contained in the Draft Supplemental IS/MND.

Response A-7: The commenter notes the filing fees that would be required for filing of a Notice of Determination and provides closing remarks and contact information for questions and further coordination. The comments provided

in the letter have been responded to in Responses A-1 through A-6, above. No further response is required.

Comment Letter B

3 April 2023

Gavin R. Poore
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COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, LOWER PUTAH CREEK RESTORATION PROJECT, NISHIKAWA REACH, SCH#2015022022, SOLANO COUNTY

Pursuant to the State Clearinghouse's 3 March 2023 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Lower Putah Creek Restoration Project, Nishikawa Reach, located in Solano County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore, our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

B-1

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of

Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

B-1 cont.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

B-2

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

B-2 cont.

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

Comment Letter B Cont.

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

B-2 cont.

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

Comment Letter B Cont.

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

LETTER B
Peter Minkel, Regional Geologist
Regional Water Quality Control Board
April 4, 2023

Response B-1: This comment provides an overview of the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan) and the requirements of the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. In addition, the comment notes that the environmental review document should evaluate potential impacts to both surface and groundwater quality. As described in Section 5.10, Hydrology and Water Quality, of the Draft Supplemental IS/MND, compliance with the requirements of the State Water Resources Control Board's NPDES General Permit for Storm Water Discharge Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002) (Construction General Permit), Clean Water Act (CWA) Section 401 Water Quality Certification, and Mitigation Measure 3.2-1, identified in the 2016 Program EIR, would ensure that the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. The project involves restoring a section of active channel that is currently in an over-widened condition. Implementation of the proposed project would improve water quality, resulting in a beneficial environmental effect. With implementation of Mitigation Measure 3.2-1, impacts to surface and groundwater quality were determined to be less than significant. No change to the Draft Supplemental IS/MND is required.

Response B-2: This comment provides an overview of the regulatory requirements applicable to the proposed project. As described in Section 5.10, Hydrology and Water Quality and referenced in Responses A3 and B2 above, the proposed project would be subject to the requirements of the Construction General Permit and CWA Section 401 Water Quality Certification. The proposed project would also require a permit from USACE in compliance with Section 404 of the CWA and an LSA Notification from CDFW. SWCA will obtain and comply with all applicable regulatory permits, as required. No change to the Draft Supplemental IS/MND is required.

Comment Letter C

LAW OFFICE OF DONALD B. MOONEY

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Davis, CA 95618
530-304-2424
dbmooney@dcn.org

April 14, 2023

VIA ELECTRONIC MAIL
Gpoore@scwa2.com

Attn: Gavin R. Poore
Assistant Water Resources Engineer
Solano County Water Agency
810 Vaca Valley Parkway, Suite 203
Vacaville, CA. 95688

Re: Nishikawa Project Initial Study/Mitigated Negative Declaration

Dear Mr. Poore:

This office represents Friends of Putah Creek regarding the Solano County Water Agency's ("SCWA") Nishikawa Project. Friends of Putah Creek objects to the Project and objects to the approval of the Mitigated Negative Declaration ("MND") for the Project on the grounds that the MND fails to comply with the requirements of the California Environmental Quality Act ("CEQA"), Public Resources Code section 21000 *et seq*. Friends of Putah Creek respectfully requests that the SCWA not approve the Project and that SCWA prepare an Environmental Impact Report ("EIR") prior to any further consideration of the Project.

A. THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

"CEQA is a comprehensive scheme designed to provide long-term protection to the environment. [Citation.] In enacting CEQA, the Legislature declared its intention that all public agencies responsible for regulating activities affecting the environment give prime consideration to preventing environmental damage when carrying out their duties. [Citations.] CEQA is to be interpreted 'to afford the fullest possible protection to the environment within the reasonable scope of the statutory language. [Citation.]" (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 112.)

C-1

In evaluating proposed projects, a public agency must evaluate whether a possibility exists that the project may have a significant environmental effect. (Pub. Resources Code, §§ 21100(a), 21151(a).) If so, then the agency must conduct an initial threshold study. (Pub. Resources Code, § 21080.1; Guidelines, § 15063.) If the initial study reveals that the project will not have any significant effect, then the agency may complete a negative declaration that describes the reasons supporting the determination. (Guidelines, §§ 15063; 15064(f)(3); 15070(a).) If the initial study identifies potentially significant effects but the applicant agrees to revisions in the project before the initial

study and negative declaration are released for public review and the revisions reduce the impact to less than significant, then a mitigated negative declaration may be prepared. (Guidelines, §§ 15063(f)(2); 15070(b).) If the initial study determines that any aspect of the project may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, the agency must prepare an EIR. (*Id*.; see *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 86; see also *Sundstrom v. County of Mendocino* (1982) 202 Cal.App.3d 296, 304-305.)

The EIR, with all its specificity and complexity, is the mechanism prescribed by CEQA to force informed decision-making and to expose the decision-making process to public scrutiny. (*Planning and Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892, 910; citing *No Oil, Inc., supra,* 13 Cal.3d at p. 86.) The central purpose of an EIR is to identify the significant environmental effects of the proposed project, and to identify ways of avoiding or minimizing those effects through the imposition of feasible mitigation measures or the selection of feasible alternatives. (Pub. Resources Code, § 21002, 21002.1(a), 21061.) "An EIR provides the public and responsible government agencies with detailed information on the potential environmental consequences of an agency's proposed decision." (*Mountain Lion Foundation v. Fish & Game Com., supra,* 16 Cal.4th at p.113.) The EIR is "the heart of CEQA" and "an environmental alarm bell whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological point of no return." (*Laurel Heights Improvement Ass'n v. Regents of the Univ. of California ("Laurel Heights I"*) (1988) 47 Cal.3d 376, 392.) The EIR is the "primary means" of ensuring that public agencies "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state." (*Id*., quoting Pub. Resources Code, § 21001(a).) The EIR is also a "document of accountability," intended "to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its actions." (*Laurel Heights I, supra,* 47 Cal.3d at 392 (quoting *No Oil, Inc., supra,* 13 Cal.3d at p. 86.)

C-1 cont.

B. THE FAIR ARGUMENT STANDARD

"In reviewing an agency's decision to adopt a negative declaration, a trial court applies the 'fair argument' test." (*City of Redlands v. County of San Bernardino* ("*City of Redlands*") (2002) 96 Cal.App.4th 398, 405; *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, 1399; see also *Pala Band of Mission Indians v. County of San Diego* (1998) 68 Cal.App.4th 556, 571.) The fair argument test requires that an agency "prepare an EIR whenever substantial evidence in the record supports a fair argument that a proposed project may have a significant effect on the environment." (*City of Redlands,* 96 Cal.App.4th at 405: quoting *Gentry v. City of Murrieta, supra,* 36 Cal.App.4th at 1399-1400; see *Laurel Heights Improvement Ass'n v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1123; *No Oil, Inc., supra,* 13 Cal.3d at 75, 82,118.) "If there is substantial evidence in light of the whole record before the lead agency that the project may have a significant effect on the environment, an environmental impact report shall be

prepared." (Pub. Resources Code, §§ 21080(d), 21151(a).) If such evidence exists, the court must set aside the agency's decision to adopt a negative declaration as an abuse of discretion in failing to proceed in a manner as required by law. (*City of Redlands, supra,* 36 Cal.App.4th at 406; *Pala Band of Mission Indians v. County of San Diego, supra,* 68 Cal.App.4th at 571.) Thus, an EIR must be prepared "whenever it can be fairly argued on the basis of substantial evidence that the project may have significant environmental impact" (*No Oil, Inc., supra,* 13 Cal.3d at 75) even if there is substantial evidence to the contrary. (*Arviv Enterprises, Inc. v. South Valley Area Planning Com.* (2002) 101 Cal.App.4th 1333, 1346; *Friends of "B" Street v. City of Hayward* (1980) 106 Cal.App.3d 988, 1002).

Based upon the fair argument standard of review, SCWA must prepare an EIR instead of a mitigated negative declaration if any substantial evidence in the record supports a fair argument that the Project may have a significant effect on the environment, even if other substantial evidence supports the opposite conclusion. (Pub. Resources Code § 21151(a); Guidelines §15064(f)(1)-(2); *No Oil, Inc., supra,* 13 Cal.3d at 75; *Architectural Heritage Ass'n v. County of Monterey* (2004) 122 Cal.App.4th 1095, 1109.) It is the function of an EIR, not a negative declaration, to resolve these conflicting claims. (See *No Oil, Inc., supra,* 13 Cal.3d at 85.) It is well-established that CEQA creates "a low threshold requirement" for the initial preparation of an EIR and reflects a preference for resolving doubts in favor of environmental review when the question is whether any such review is warranted. (See *No Oil, Inc., supra,* 13 Cal.3d at 84; *Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 880-881.)

C-1 cont.

CEQA and the CEQA Guidelines provide assistance in evaluating what constitutes substantial evidence to support a "fair argument". (See Guidelines § 15384(a) ("'substantial evidence' means enough relevant information and reasonable inferences…that a fair argument can be made to support a conclusion, even though other conclusions might also be reached.").) Substantial evidence consists of "fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact." (Pub. Resources Code § 21080(e)(1); see also Guidelines § 15384(b).) It does not include "argument, speculation, unsubstantial opinion or narrative, evidence that is clearly inaccurate …or evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment." (Pub. Resources Code § 21080(e)(2).) Comments that present evidence of facts and reasonable assumptions from those facts may constitute substantial evidence to support fair argument that the project may have a significant effect on the environment. (See *City of Redlands, supra,* 96 Cal.App.4th at 590; see also *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 152-153.) Relevant personal observations of area residents on nontechnical subjects, such as aesthetics, qualify as substantial evidence to support a fair argument. (*Ocean View Estates Homeowner's Assn., Inc. v. Montecito Water District* (2004) 116 Cal.App.4th 396, 402.)

Comment Letter C Cont.

C. SUBSTANTIAL EVIDENCE SUPPORTS A FAIR ARGUMENT THAT THE PROJECT MAY HAVE SIGNIFICANT ENVIRONMENTAL IMPACTS

C-1 cont.

In the present case, the record before SCWA supports a fair argument that the Project may have significant environmental impacts.

1. Comments Submitted by California Department of Fish and Game

C-2

The California Department of Fish and Wildlife ("CDFW") is the trustee agency for fish and wildlife resources. Fish and Game Code section 1802 requires that CDFW consult with lead and responsible agencies and provide, as available, the required biological expertise to review and comment on environmental documents and impacts arising from a proposed project's activities. (See *Center for Biological Diversity v. Department of Forestry & Fire Protection* (2014) 232 Cal.App.4th 931, 953.) As such, CDFW's expert comments constitute substantial evidence supporting a fair argument that the Project may have a significant environmental impact.

a. Giant Garter Snake

C-3

In a letter dated April 11, 2023, the California Department of Fish and Wildlife ("CDFW") concluded that the Project may have unmitigated impacts to the Giant Garter Snake ("GGS"). CDFW concluded the following:

> The Project has the potential to impact GGS through a biologist relocating the species, mowing, earthmoving, and removing burrow refugia and vegetation, possibly injuring or crushing GGS. GGS is considered a threatened species under CEQA Guidelines section 15380. Injuring or killing a GGS would substantially reduce the number of GGS, a potentially significant impact pursuant to CEQA Guidelines section 15065, subdivision (a) Mandatory Findings of Significance.

CDFW's comments also included a recommended mitigation measure to reduce the impacts to GSS to less-than-significant and to comply with the California Endangered Species Act.

b. Stream Alteration

C-4

CDFW's comment letter also concluded that since the Project would impact Putah Creek and require a Lake and Streambed Alternation ("LSA") Agreement under Fish and Game Code section 1600 *et seq*, the MND must include a mitigation measure requiring and LSA Notification and compliance with the LSA. The MND's failure to include such a mitigation measure supports a fair argument that the Project may have significant environmental impacts.

Comment Letter C Cont.

c. Nesting Birds

CDFW also determined that the proposed Mitigation Measure 3.4-6 fails to adequately mitigate the potentially significant impact to nesting birds. To this end, CDFW concluded that the nesting bird survey should be conducted 7 days prior to the start of construction activities and an additional nesting bird surveys if there is a lapse of 7 more days in construction activities.

Given that CDFW is the resource agency charged with protection of California's biological resources, CDFW's comments on the IS/MND constitute expert opinion supporting a fair argument that the Nishikawa Project may have significant environmental impacts that may have a significant environmental impact.

C-5

2. Comments Submitted by Dr. Glen Holstein

Dr. Glen Holstein, an expert in riparian and wetland restoration in central California provided comments that constitute substantial evidence supporting a fair argument that the Project may have significant environmental impacts to riparian habitat in the Project area.

Dr. Holstein opined and demonstrated that the IS/MND fails to disclose and discuss the failures of the Winters Putah Creek Nature Park Restoration Project ("Winters Project") upon which the IS/MND relies upon. Dr. Holstein pointed out that the Winters' reach of Putah Creek, which was once a rich native riparian forest now, is permanent non-native weed field as a result of the Winters Project. Dr. Holstein further points out that to the extent the IS/MND claims successes in the Winters Project, a lack of data supports the claim or the data and observations indicate otherwise. As the IS/MND relies upon the Winters Project as a model for the Nishikawa Project, substantial evidence supports a fair argument that the Project may have significant impacts to riparian habitat and biological resources.

C-6

Dr. Holstein also demonstrated that the Winters Project and the proposed Nishikawa Project are inconsistent with the Yolo Regional Conservation Investment Strategy/Local Conservation Plan ("RCIS/LCP") adopted by Yolo County in 2020, which is one of California's three designated regional conservation plans.

3. Comments Submitted by David Springer

David Springer, a resident of Winters for 23 years and a biologist, provided substantial comments based upon his observations of the prior three phases of the Winters Putah Creek Park that the IS/MND relies upon. Mr. Springer's comments, based upon 23 years of observing Putah Creek, demonstrate that the previous three phases upon which the IS/MND relies upon have failed to successfully restore the creek and its habitat. Again, the IS/MND relies upon the previous phases to support its conclusions

C-7

even though the data and observations indicate that the previous phase have failed to successfully restore the riparian habitat. Again, based upon the lack of data and the failure of the previous phases, substantial evidence in the record supports a fair argument that the Project may have significant environmental impacts.

C-7 cont.

4. Comments Submitted by Jeff Tenpas

Jeff Tenpas, a 27 year resident of Winters and an expert soil scientist, hydrologist and watershed restoration scientist, submitted comments that constitute substantial evidence that supports a fair argument that the Project may have significant impacts to groundwater hydrology. As opined by Mr. Tenpas, given the past impacts of the WPCP projects on groundwater hydrology and the fact that the Nishikawa Project alterations to the stream and floodplain are similar to the WPCP project, similar impacts are anticipated.

C-8

Mr. Tenpas' comments discuss the history and impacts of the previous phases on groundwater hydrology and the similarity of the Nishikawa Project to those phases. Mr. Tenpas then identifies the specific impacts from a reduction in groundwater levels in those previous projects and then, based upon that information and his expertise in the subject matter, opines as to the potential impacts associated with the Nishikawa Project.

As the IS/MND and the Programmatic Environmental Impact Report ("PEIR") are essentially silent on impacts to groundwater hydrology, the only evidence in the record regarding impacts to groundwater hydrology is that submitted by Mr. Tenpas. Thus, not only does Mr. Tenpas' comments and opinion constitute substantial evidence, it is the primary evidence in the record regarding groundwater impacts.

5. Comments Submitted by Alan Pryor

The comments submitted by Alan Pryor provide a thorough discussion of IS/MDN's failure to disclose and discuss the serious past environmental degradation that occurred after implementing a similar previous restoration project at Winters Putah Creek Park. The IS/MND also failed to disclose and discuss possible mitigation measures to eliminate or reduce these potential adverse environmental impacts such as occurred at Winters Putah Creek Park.

C-9

As discussed in Mr. Pryor's comments substantial evidence exists that the failures seen in WPCP will also likely be seen in the newly proposed Nishikawa Project due to the almost identical restoration objectives and strategies involved in both projects. These project failures include failure to decrease-stream water temperatures, failure to improve native fish populations and habitat including salmon spawning riffles, failure to improve wildlife habitat and increase wildlife populations, and failure to successfully revegetate the floodplain with a native riparian forest.

Mr. Pryor's comments also demonstrate that the Winters Putah Creek Park disconnected the stream from the underlying aquifer resulting in a substantial and measurable drop in recharge of the aquifer by infiltration from Putah Creek. Moreover, neither IS/MND nor the 2016 Lower Putah Creek PEIR, which was amended and recertified in November, 2022 and on which the IS/MND is tiered, disclosed or analyzed the impacts to groundwater hydrology and the impacts from disconnecting the stream from the aquifer.

Finally, Mr. Pryor's comments provide substantial evidence that the Nishikawa Project will fail to meet three of the Project's prime objectives which are to: i) reduce stream temperatures, ii) successfully establish a healthy new riparian forest after bulldozing the entire floodplain, and iii) improve fish habitat (including by establishing new stable salmon spawning riffles) and populations.

C-9 cont.

6. Comments Submitted by Friends of Putah Creek.

The comments submitted by Friends of Putah Creek identified the IS/MND's failure to properly assess the adverse impacts to biological resources due to the failure to incorporate the best management practices that have been incorporated into regional conservation plans.

As discussed in the comments, "[t]he Biological Resources section of the IS/MND and the PEIR on which the IS/MND is tiered does not includes an assessment of the proposed project(s) with respect to the RCIS/LCP framework including floodplain management and floodplain/riparian interactions, as well as effects on fish and other species and their habitats. Because such elements are indisputably applicable for the project(s), an assessment of the project's effect with respect to the RCIS/LCP framework should have been included in the IS/MND and the underlying PEIR, as the framework is directly relevant to the implementation of the project(s), as well as for state agencies that will participate in or review the project, including the Department of Water Resources (DWR) and the CDFW and the public. The failure to include such an assessment is a critical disclosure failure in both the IS/MND and the underlying PEIR on which the IS/MND is tiered."

C-10

Thus, the IS/MND lacks critical information and fails to disclose and discuss compliance with regional land use plans. Moreover, substantial evidence in the record demonstrates that the Nishikawa Project is not consistent with the regional conservation plans.

D. Conclusion

Whether SCWA staff and/or SCWA board members agree or disagree with the comments submitted by CDFW, Dr. Holstein, Mr. Springer, Mr. Tenpas, Mr. Pryor and/or Friends of Putah Creek is not the issue in this matter. As these comments

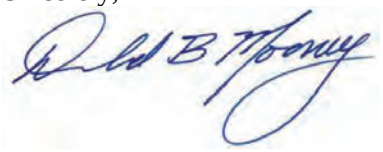
C-11

Comment Letter C Cont.

constitute substantial evidence supporting a fair argument that the Project may have significant impacts, CEQA mandates the preparation of an EIR. As discussed above, it is the function of an EIR, not a negative declaration, to resolve these conflicting claims. (See *No Oil, Inc., supra*, 13 Cal.3d at 85.) CEQA creates "a low threshold requirement" for the initial preparation of an EIR and reflects a preference for resolving doubts in favor of environmental review when the question is whether any such review is warranted. (See *No Oil, Inc., supra*, 13 Cal.3d at 84; *Oro Fino Gold Mining Corp. v. County of El Dorado, supra*, 225 Cal.App.3d at 880-881.) The comments submitted by CDFW and the public clearly meet the low-threshold set by CEQA for preparation of an administrative record. Given substantial evidence supporting a fair argument, approval of the Project based upon the IS/MND would constitute a prejudicial abuse and discretion and by contrary to law. (See Pub. Resources Code, §§ 21168.5.)

C-11 cont.

Sincerely,



Donald B. Mooney
Attorney for Friends of Putah Creek

cc: Client

LETTER C
Donald B Mooney
Attorney for Friends of Putah Creek
April 14, 2023

Response C-1: This introductory comment states the Friends of Putah Creek's opposition to the proposed project and states that an Environmental Impact Report (EIR) should be prepared. The commenter's position related to the merits of the project does not relate to the adequacy of the information or analysis provided in the IS/MND and will be considered by SCWA decision-makers prior to making a determination regarding project approval.

SCWA, as the Lead Agency for environmental review of the proposed project, first prepared a Supplemental Initial Study pursuant to the rules for supplemental environmental review under Public Resources Code (PRC) Section 21166 and *State CEQA Guidelines* Section 15163. The Supplemental Initial Study analyzes whether proposed changes to the Lower Putah Creek Restoration Project, Upper Reach Project, which comprise the Lower Putah Creek Restoration Project, Nishikawa Reach would result in any new or substantially more severe significant environmental impacts than those analyzed in the *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program*[3] (2016 Program EIR) or whether any of the other standards requiring further environmental review under CEQA are met. Based on the evaluation of all environmental issue topics in the Initial Study, SCWA determined that the proposed project would not have a significant effect on the environment. For the most part, the environmental impacts associated with the proposed project would be the same as or similar to those identified in the 2016 Program EIR. Several new impacts were identified for biological resources, but measures identified through the analysis and agreed to be implemented by SCWA would avoid or mitigate the effects to a point where no significant effect on the environment would occur (i.e., to a less-than-significant level). None of the environmental impacts would result in any significant effects that could not be mitigated to less-than- significant levels following implementation of mitigation measures identified in the 2016 Program EIR or new, project-specific mitigation measures identified in the Draft Supplemental IS/MND. Therefore, per CEQA Guidelines Section 15064(f)(2), SCWA prepared an MND.

The IS/MND includes an evaluation of all environmental issue topics outlined in the CEQA Guidelines and identifies impacts of the project relative to established significance criteria. In some cases, compliance with

[3] Solano County Water Agency. 2016. *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program.* May.

established regulations would ensure that the appropriate standards would be followed and appropriate measures would be implemented consistent with best practices to ensure that an environmental impact would not result with either construction or operation of the project. In other cases, specific mitigation measures are recommended to ensure that impacts would not exceed the established threshold. In addition, consistent with CEQA Guidelines Section 15097, SWCA has prepared a Mitigation Monitoring and Reporting Program (MMRP). The MMRP identifies each required mitigation measure, the schedule or timing for implementation, and the parties responsible for implementing and monitoring the required action. The MMRP is designed to ensure implementation of the mitigation measures identified in the Draft Supplemental IS/MND and would be adopted by the SCWA if the project is approved. The SCWA, as the project proponent, would be required to implement the MMRP as a condition of project approval.

It should be noted that the existence of public controversy over the environmental effects of a project does not in and of itself require the preparation of an EIR if there is no substantial evidence before the decision-making body that the project may have a significant effect on the environment. Substantial evidence must consist of facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts. The lead agency must be presented with a "fair argument" that the project may have a significant effect on the environment in order to require an EIR.

Specific points raised by the commenter that relate to the adequacy of the IS/MND are addressed below. Based on all of the comments received on the IS/MND, including those addressed below, SCWA has determined that, with implementation of the recommended mitigation measures, the proposed project would not have a significant effect on the environment. Furthermore, SCWA maintains that a fair argument has not been presented, showing that a significant effect would occur that has not been identified and mitigated previously. Therefore, the IS/MND satisfies the requirements of CEQA. Further, the IS/MND provides an adequate level of information to allow the decision-makers to consider the potential physical changes to the environment associated with the project and make a determination regarding project approval.

Response C-2: The comment asserts that CDFW's comments constitute substantial evidence supporting a fair argument that the Project may have a significant environmental impact. The CDFW states in their comment letter: "Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, including those CDFW recommends below and in Attachment 1, CDFW concludes that an MND is appropriate for the Project." As described in the Responses to Letter A above, CDFW's

recommended mitigation measures have been incorporated into the Draft Supplemental IS/MND. With implementation of the mitigation measures identified in the 2016 Program EIR, the project-specific mitigation measures identified in Section 5.4, Biological Resources, in the Draft Supplemental IS/MND, and the mitigation measures, as modified herein, impacts to biological resources would be reduced to less than significant. No additional revisions to the Draft Supplemental IS/MND are required.

Response C-3: This comment references the CDFW's comments regarding giant garter snake. Please see Response A-2.

Response C-4: This comment references the CDFW's comments regarding LSA Notification. Please see Response A-3.

Response C-5: This comment references the CDFW's comments regarding nesting birds. Please see Response A-4.

Response C-6: This comment references the comments provided by Dr. Glen Holstein. Please see Responses to Letter D.

Response C-7: This comment references the comments provided by David Springer. Please see Responses to Letter F.

Response C-8: This comment references the comments provided by Jeff Tenpas. Please see Responses to Letter G.

Response C-9: This comment references the comments provided by Alan Pryor. Please see Responses to Letter E.

Response C-10: The comment states that the Draft Supplemental IS/MND fails to disclose and discuss compliance with regional land use plans, specifically, the Yolo Regional Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP) adopted by Yolo County in 2020, which is one of California's three designated regional conservation plans. All RCISs are voluntary, non-regulatory, and non-binding conservation assessments that encourage regional planning to achieve biological goals and objectives at the species level. The RCIS is a companion document to the Yolo HCP/NCCP and covers additional sensitive species not covered by the HCP/NCCP. As part of the HCP/NCCP framework, the RCIS/LCP establishes conservation priorities and provides guidelines for avoidance, minimization, and mitigation measures, but it does NOT provide regulatory protection for covered species and natural communities. The primary role of an RCIS is to guide voluntary and non-regulatory avoidance, minimization and mitigation for significant effects to sensitive species and habitats but implementing measures from the RCIS/LCP is not required for project-level CEQA compliance, or compliance with the federal Endangered Species Act (ESA) or California

Endangered Species Act (CESA). RCISs do not establish a presumption under CEQA that any project's impacts are, or are not, potentially significant, and they do not create, modify, or impose regulatory requirements or standards, regulate land use, establish land use designations, or affect the land use authority of a public agency.[4] Therefore, as described in Section 5.4, Biological Resources, of the Draft Supplemental IS/MND, the proposed project would be in compliance with all local and regional laws, ordinances, plans and conservation strategies. No change to the Draft Supplemental IS/MND is required.

Response C-11: The comment re-states the argument that an EIR should be prepared. As stated above and documented in the Draft Supplemental IS/MND, none of the environmental impacts would result in any significant effects that could not be mitigated to less-than- significant levels following implementation of mitigation measures identified in the 2016 Program EIR or new, project-specific mitigation measures identified in the Draft Supplemental IS/MND. Please see Response C-1.

[4] California Fish and Game Code, Sections 1852(c)(7) and 1855 (b)).

Comment Letter D

COMMENTS ON INITIAL STUDY MITIGATED NEGATIVE DECLARATION: LOWER PUTAH CREEK RESTORATION PROJECT, NISHIKAWA REACH YOLO AND COLUSA COUNTIES, CALIFORNIA

I am Dr. Glen Holstein, a UC Davis PhD in global plant ecology with 21 years professional experience in riparian and wetland restoration in central California and author of *California Riparian Forests: deciduous islands in an evergreen sea* in the UC Press book *California Riparian Systems.* I represented the conservation groups Tuleyome and the California Native Plant Society in developing the Yolo Habitat Conservancy. Its Regional Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP) is rated one of the three best regional conservation plans in California. For this and other conservation planning work I received the Environmental Council of Sacramento's Environmentalist of the Year award in 2013 and the Sierra Club Mother Lode Chapter's Conservationist of the Year Award in 2016.

In a famous metaphor, it is said that building a haystack is the way to hide a needle. Overall, this Initial Study/Mitigated Negative Declaration (IS/MND) does exactly that as it fails to disclose some very important environmental shortcomings about the project. That fact is obfuscated amid hundreds of pages of data on things like tractor exhaust and soil outgassing. While these factors must be considered in this environmental disclosure document, they are irrelevant to the project's stated primary purpose of improving Putah Creek's biological environment. Regarding that, the IS/MND makes demonstrably false anecdotal claims about supposed environmental benefits while providing absolutely no data or substantial evidence to support those claims.

The IS/MND is a mitigated negative declaration derived from the *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program* (PEIR)*.,* a document consisting largely of similar misinformation and lack of disclosures that were thoroughly identified when it was critiqued by many, including myself, when issued in 2016. Despite this, those critiques are entirely ignored in the current IS/MND even though it is derived from the 2016 PEIR.

D-1

This new mitigated declaration document includes many more claims that are not supported by the facts. One example is its claim that the Putah Creek Nishikawa reach is "over-widened" and a goal of this project is to correct that. That claim is stated on pages 1-1, 2-1, 3-1, 3-8 and 3-12 and on 3-8 and 3-12. Additionally, it is claimed this "over-widening" results in the creek "receiving excessive solar radiation" which promotes "warm water temperatures", but it is evident in the document's pre-project aerial photograph (Figure 2) that the creek's Nishikawa reach is so narrow that it is almost completely shaded by a riparian gallery forest.

In fact, the only place water in the Nishikaw reach is even visible from above and thus exposed to solar radiation is a small area at the eastern end of the western third of the project. The dense native vegetation, superb habitat conditions, and narrow channel of the existing Nishikawa reach is ironically illustrated on the document's cover page. What the IS/MND document actually proposes for the Nishikawa project, however, will destroy this existing riparian habitat as illustrated in the IS/MND in Figure 3.

D-2

A very similar restoration project was done upstream at "Winters Putah Creek Nature Park Restoration", which the document explains on its Page 3-8 is its model for the proposed Nishikawa project. The primary reason the 2016 PEIR was such a repository of misinformation was its effort to hide the immense environmental destruction done by the Winters project. Just as is proposed for the Nishikawa project, the Winters project removed a rich riparian forest starting in 2011 and promised to provide extensive data on how it was subsequently revegetated and restored. That data has never been

Comment Letter D Cont.

provided, however, because it would demonstrate that after 12 years what was once a rich native riparian forest through the Winters reach of Putah Creek is now an apparently permanent non-native weed field.

Professor Emeritus Michael Barbour, one of the world's greatest plant ecologists and a Winters resident, reported on this to the California Native Plant Society (CNPS) despite being terminally ill in what was likely his last public appearance before his passing in 2021. His widow, Valerie Whitworth, who helped him make this verbal report to the California Native Plant Society remembers it well.

The anecdotal unverifiable claims about the successes in the Winters Project are presented on Page 3.8. In fact, these claims hid the massive failures that were seen in that project. For instance, it is reported that salmon were seen spawning following the completion of the Winters project with no supporting information about when, how many, whether it was sustainable, or even who made the observation. Such vagueness about something so important for justifying the Nishikawa project dramatically contrasts with the hundreds of pages of data about things irrelevant to it like exhaust chemistry.

D-2 cont.

Next the Nishikawa IS/MND claims "the project increased the range of sensitive aquatic invertebrates" but provides no source or reference for this doubtful claim. Lastly, the IS/MND claims the Winters project increased riparian breeding birds and native fish, both of which are demonstrably false. For instance, reports on fish populations in Putah Creek provided by Normandeau Associates, a biological consulting firm, were the only ones on wildlife status released after the Winters' project construction and they clearly show an ongoing and drastic decline in native fish ever since the Winters project was constructed.

The bird report refers to a paper on Putah Creek bird populations by a biologist paid by the Winters project referenced by the IS/MND as proof of the -rich bird diversity that can result from proposed creek restoration efforts such as in Winters, actually reported results that were recorded *before* the project was even completed. No similar results have been was published after the Winters' project completion but some Winters creekside residents have otherwise reported drastic declines in the birds once abundant around their nearby creek.

D-3

Just like its false claims about the creek's current "over-widening" condition, the IS/MND document's false claims about other issues are also obvious. For example, on page 3-15 it claims the "majority" of trees in the riparian gallery forest lining Putah Creek's Nishikawa reach it plans on removing "are non-native", but when this forest is described and its species identified on page 5-21, every one of its reported tree species is native. On Page 5-22 it says "the project site may support two natural communities that are considered rare: Elderberry Savannah and Great Valley Cottonwood Riparian Forest". Why the word "may", that indicates uncertainty, is used here is unclear since both these natural communities are clearly described as already being present and dominant on the previous page 5-21 and are clearly visible in the Figure 2 aerial photograph.

These habitats, especially Great Valley Cottonwood Riparian Forest, were also present and dominant at Winters (personal observation) before they were destroyed and replaced by weed fields by the project this document lauds. That was certainly a new negative impact as pointed out by world-famous plant ecologist Michael Barbour, but this IS/MND, despite using Winters as a model for doing the same thing at Nishikawa, claims it will cause "no new impact" on page 5-20.

D-4

Comment Letter D Cont.

On Page 5-103 the document claims the Nishikawa project would not conflict with any Solano or Yolo County land use policies, and specifically claims "the proposed project would not conflict with an adopted land use plan, policy, or regulation", but the Yolo Regional Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP) was adopted by Yolo County in 2020 and is one of California's three designated model regional conservation plans. Despite the recognized significance of that regional conservation plan, its findings are completely ignored in this IS/MND. The RCIS/LCP includes detailed discussion of how riparian zones should be treated and what makes them valuable.

It is plain from the discussion in the RCIS/LCP that the Nishikawa reach as it exists now and the Winters reach as it existed before the Winters project are/were ideal examples of what is most desirable in riparian habitats. These include shading by large old growth riparian trees and deep pools for aquatic species refuge. Such pools in the present Nishikawa reach are mentioned, although disparagingly, on Page 3-8 and shading of the creek by old growth native riparian forest trees is illustrated in Figure 2. Similar conditions existed in the Winters reach before they were completely destroyed by the Winters Project that Page 3-8 states is the model for this one. Everything done at the Winters Project and proposed for this one is the exact reverse of what is called for in the RCIS/LCP.

D-5

That is especially significant because the RCIS/LCP is also a federal and state-approved HCP/NCCP. Pages 5-33 and 5-34 of this document state how restoration projects affecting such plans must coordinate with appropriate federal, state, and local agencies, but there is no indication this has been done, is planned, or there is even awareness that the RCIS/LCP exists and is a state and federally approved HCP/NCCP. An example of insensitivity to such concerns is evident in the discussion of western pond turtle, a California Species of Special Concern, on Page 5-45. It is described as common in the Nishikawa reach, which is not surprising since the document's description of its habitat needs match its description of existing conditions in the reach.

Moving any turtles seen before construction is considered adequate mitigation in the IS/MND. Unfortunately, the planned project will leave the moved turtles with no habitat to go back to just as happened in the Winters reach, where they were common before that "model project" but have seldom been seen since. Similarly, most of the Winters' area other wildlife similarly disappeared after the project, which is why post-construction wildlife and vegetation surveys promised at the Winters project's start were never provided.

D-6

The document concludes on Page 5-142 by stating "the proposed project would not substantially degrade the quality of the environment [and] reduce the habitat, population, or range of a plant or animal species" even though the proposed Nishikawa project was modeled on the Winters project that did exactly that. In fact, the IS/MND for the Nishikawa project is tiered on the 2016 PEIR that a thorough critique demonstrated made many false and misleading statements and had significant disclosure shortcomings. This new IS/MND now adds many more as discussed herein and is thus insufficient as a disclosure document for CEQA compliance purposes.

D-7

Comments submitted by:

Dr. Glen Holstein

LETTER D
Dr. Glen Holstein
Friends of Putah Creek

Response D-1: This introductory comment asserts that the Draft Supplemental IS/MND fails to disclose environmental shortcomings of the proposed project, specifically that the Draft Supplemental IS/MND makes false claims regarding the environmental benefits of the project while providing no data or evidence to support the claims. CEQA requires SWCA to evaluate whether a proposed project may cause or potentially cause environmental impacts, and if so, to identify measures to mitigate those impacts. The Draft Supplemental IS/MND evaluates the environmental impacts of the project as proposed by SCWA. While the design for the proposed project was made with similar goals in mind as the Winters Putah Creek Nature Park Restoration Project (Winters Project), the model and methodology were developed independently, as this reach has completely different requirements and parameters regarding existing habitat, topography, and flow. The Draft Supplemental IS/MND addresses those different parameters and has evaluated the environmental impacts of the proposed project as compared to the conclusions reached in the 2016 Program EIR, which was certified by SWCA as the lead agency.

As outlined in Section 15168(a) of the CEQA Guidelines, a Program EIR reviews the environmental impacts "of a series of actions that can be characterized as one large project" and that are related geographically, as logical parts in a chain of proposed actions, in connection with general criteria to govern the conduct of a continuing program, and/or "as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways." SCWA, in its role as the CEQA lead agency, will use the 2016 Program EIR with CEQA review requirements for its approval of each of the restoration activities identified in the 2016 Program EIR. Later activities in the Program must be examined in the light of the Program EIR to determine whether an additional environmental document must be prepared. Consistent with Section 15168 of the CEQA Guidelines, the Draft Supplemental IS/MND was prepared to evaluate the proposed project to determine whether the environmental effects of the proposed project were within the scope of the 2016 Program EIR.

SWCA is not required under CEQA, as part of the Supplemental IS/MND, to evaluate whether the proposed project will meet its stated objectives, as described in Section 3.3, Project Elements, of the Draft Supplemental IS/MND. The success of the restoration project would be evaluated as part of the site-specific Adaptive Management Plan to be developed as part of the proposed project.

This comment, which addresses the merits of the proposed project and not the adequacy of the information or analysis contained in the Draft Supplemental IS/MND, is noted. This comment will be considered by SCWA decision-makers prior to making a determination regarding project approval.

Response D-2: The comment rejects the description of baseline conditions that detail that the Nishikawa reach is over-widened, as stated in Section 3.0, Project Description, of the Draft Supplemental IS/MND and asserts that the actions proposed would destroy the existing riparian habitat. The commenter references the Winters Putah Creek Nature Park Restoration Project (Winters Project) as evidence that the proposed project would result in environmental impacts not disclosed in the Draft Supplemental IS/MND.

As described in Response D-1, the Draft Supplemental IS/MND evaluates the environmental impacts of the project as proposed by SCWA. The Winters Project is a separate project that has already undergone CEQA review and comments on the Winters Project were addressed as part of the 2016 Program EIR. Specifically, the discussion on over-widened conditions contributing to warming temperatures is addressed in the Response to Comments section of the 2016 Program EIR; see Response M-26.

The proposed project, itself, would not cause the referenced impacts associated with the Winters Project; therefore, SWCA is not required under CEQA, as part of the Draft Supplemental IS/MND for this project to identify impacts or mitigation measures related to this other project, if any. No change to the Draft Supplemental IS/MND is required.

Response D-3: The comment asserts that the stated ecological benefits included in the description of the Winters Project provided in 3.2.2 of the Draft Supplemental IS/MND are false. This comment, which addresses the merits of the proposed project and not the adequacy of the information or analysis contained in the Draft Supplemental IS/MND, is noted. The comments concerning the Winters Project and the Program have been addressed in their respective CEQA documents and further discussion can be found in the Response to Comments Section of the 2016 Program EIR. See Response D-2.

Response D-4: The comment notes that the description of riparian trees is inconsistently identified in the Draft Supplemental IS/MND and asserts that the proposed project would result in new impacts to two natural communities – Elderberry Savannah and Great Valley Cottonwood Riparian. The commenter asserts that the Winters Project provides evidence that such impacts would occur.

Section 5.4, Biological Resources, of the Draft Supplemental IS/MND, addresses potential impacts to riparian woodland and other sensitive

natural communities, including Elderberry Savannah and Great Valley Cottonwood Riparian. As described in the Draft Supplemental IS/MND, short-term adverse impacts to riparian habitat would occur due to the removal, movement, and alteration of the existing channel. These short-term impacts would be temporary, until new native vegetation is planted or becomes established. Temporary loss of riparian habitat would last 1 to 3 years in the lower understory. Removal of mature eucalyptus trees would affect the canopy for 5 to 10 years until replanted trees have occupied the vacated canopy space. Although the proposed project would result in beneficial impacts to riparian habitat along the creek channel, impacts due to removal of vegetation during construction could result in a minor temporal loss of functions and values of riparian habitat. Mitigation Measure 3.4-9 (Monitor Riparian Habitat), identified in the 2016 Program EIR, requires the development of a site-specific planting plan, long-term ecological monitoring, and minimum performance standards to ensure that after completion of the revegetation and monitoring period the project site would support a functioning riparian forest consisting of a majority of native species. With Implementation of Mitigation Measure 3.4-9, identified in the 2016 Program EIR, impacts to riparian habitat would be less than significant.

Elderberry is a common shrub in Lower Putah Creek and has been found along the borders of the project area, which was completely inventoried on May 31, 2021 by LSA. A total of 50 Elderberry shrubs were found within 100 feet of the project area, and 17 of these shrubs contained exit holes presumably created by the threatened Valley Elderberry Longhorn Beetle. The project would avoid all elderberry shrubs, and construction activities would keep a minimum distance of 20 feet from the drip lines of the shrubs, as required by Mitigation Measure 3.4-4. Implementation of Mitigation Measures 3.4-4 and 3.4-9 would ensure that any potentially occurring elderberry savanna or Great Valley cottonwood riparian forest are not significantly impacted. With implementation of these mitigation measures, impacts to these rare natural communities would be less than significant. No change to the Draft supplemental IS/MND is required.

Response D-5: The comment states that the Draft Supplemental IS/MND fails to disclose and discuss compliance with regional land use plans, specifically, the Yolo Regional Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP) adopted by Yolo County in 2020, which is one of California's three designated regional conservation plans. Please refer to Response C-10.

Response D-6: The comment asserts that the mitigation identified in the Draft Supplemental IS/MND is inadequate to reduce potential impacts to western pond turtle. As described in Section 5.4.3 of the Draft Supplemental IS/MND, because western pond turtle has been documented as widespread

in Putah Creek, this species is likely to occur in the project area and could be impacted by project activities if present in the project area during habitat restoration and maintenance activities. Mitigation Measure 3.4-2 (Western Pond Turtle Avoidance), identified in the 2016 Program EIR, requires daily monitoring of the project area for the presence of this species by a qualified and CDFW-approved biologist. Potential relocation of turtles to an area of suitable habitat outside of the construction area would require consultation with CDFW. With implementation of Mitigation Measure 3.4-2, impacts to western pond turtle would be less than significant. No change to the Draft Supplemental IS/MND is required.

Response D-7: This concluding comment asserts that the Draft Supplemental IS/MND is insufficient as a disclosure document as it does not address the impacts of the Winters Project nor the inadequacies, as perceived by the commenter, of the 2016 Program EIR. Please see Responses D-1 and D-2.

Comment Letter E

Comments Submitted for the IS/MND for the Nishikawa Project and the Underlying PEIR for Lower Putah Creek

by Alan Pryor

Qualifications of Commenter

I have BS in Biology and a BA in Chemistry from the University of California, Santa Cruz and an MS in Environmental Health Sciences from the University of California, Berkeley. Growing up in Merced Co, I spent countless hours fishing along the length of the Merced River from Yosemite to the east side of the San Joaquin Valley which has given me an intimate understanding of creek and river dynamics and wildlife.

Summary of Comments

The IS/MND needs substantial revisions in terms of disclosure and discussion of serious past environmental degradation that the lead agency, the Solano County Water Agency (SCWA), experienced after implementing a very similar previous restoration project at Winters Putah Creek Park. E-1

The IS/MND is also insufficient in terms of disclosure and discussion of possible mitigations to eliminate or reduce these potential adverse environmental impacts such as occurred at Winters Putah Creek Park. E-2

Substantial evidence exists that the failures seen in that project will also likely be seen in the newly proposed Nishikawa project due to the almost identical restoration objectives and strategies involved in both projects. These project failures include failure to decrease-stream water temperatures, failure to improve native fish populations and habitat including salmon spawning riffles, failure to improve wildlife habitat and increase wildlife populations, and failure to successfully revegetate the floodplain with a native riparian forest.

A further unintended consequence at Winters Putah Creek Park is that the project disconnected the stream from the underlying aquifer resulting in a substantial and measurable drop in recharge of the aquifer by infiltration from Putah Creek.

Further, none of these problems were disclosed or addressed nor mitigation proposed in the underlying 2016 Lower Putah Creek Program EIR (PEIR) which was amended and recertified in November, 2022 and on which the IS/MND for Nishikawa is tiered

SCWA has not provided any substantial evidence that these efforts by SCWA in the Nishikawa project include proven mitigation measures that will be any more successful in achieving these objectives than the failure to achieve similar objectives in the Winters Putah Creek Park project.

In particular, these comments will focus on failure to meet three of the prime objectives of the Nishikawa project which are to I) reduce stream temperatures, ii) successfully establish a healthy new riparian forest after bulldozing the entire floodplain, and iii) improve fish habitat (including by establishing new stable salmon spawning riffles) and populations. E-3

Substantial evidence is presented that the Winters Putah Creek Park project 1) did not reduce stream temperatures as claimed, 2) failed to reestablish a healthy riparian forest, and 3) resulted in a substantial reduction in native adult fish and juvenile salmon fry compared to other immediate upstream and downstream reaches of the creek, and did not result in stable salmon spawning riffles as a result of the project. No substantial evidence is presented in the IS/MND that such problems will not reoccur in the Nishikawa project

All of these failed objectives are also claimed project objectives in the Nishikawa project yet potential failure to achieve these objectives in the failed Winters Putah Creek Park project has not been adequately disclosed and discussed nor has proper additional proven mitigation been proposed to alleviate similar failures in the Nishikawa project.

All of these failures can be traced to the fundamental problem that SCWA is planning to employ a now disproved radical stream alteration technique in the Nishikawa project known as "*geomorphic engineering*". This strategy involves massive earth-moving to completely move the existing stream bed and overlay it with a compacted soil to create a fixed, "self-maintaining" stream channel. Unfortunately, this design methodology has uniformly failed to produce the desired results in the Winters Putah Creek Park project in which the same methodologies were employed.

Substantial evidence of these failures have been extensively reported in two publications authored by Friends of Putah Creek entitled *Winters Putah Creek Park - Part 1 - Case Study of a Failed Project_June-2018* and *Winters Putah Creek Park - Part 2 - Analysis of Project Failures_August-2019*; both of which were distributed to all of the members of the Lower Putah Creek Coordinating Committee and the SCWA Board of Directors and many SCWA staff and which are attached to these comments and incorporated herein by reference. Some of that information is additionally updated and reported here.

E-3 cont.

Description of a Previous Similar Restoration Project Failure in the Winters Putah Creek Park

The methodologies used in the Winters Putah Creek Park project are almost identical to those disclosed for the Nishikawa project. Unfortunately, the Winters project did not achieve any of those stated objectives and instead resulted in serious degradation of a robust and mature creek habitat which degradation has not been adequately discussed nor even disclosed by SCWA in either the IS/MND nor the underlying PEIR on which the current IS/MND is tiered as otherwise required by CEQA disclosure guidelines.

The project was designed by the Solano County Water Agency (SCWA) to alter the stream bed and riparian floodplain in three phases along the entire 1.2 miles of Putah Creek flowing through the City of Winters using a now disproved methodology called "geomorphic engineering" which entail radical displacement of the stream channel using massive diesel-powered earth-movers.

The first of the Winters Putah Creek Park project's 3-phases was begun in 2011 and each phase involved bulldozing and/or clear-cutting nearly the entire mature riparian forest of almost all native and non-native trees from stream bank to stream bank. Then over 70,000 cubic yards of mixed fill was imported to overlay the clear-cut stream channel. The imported soil was graded flat and smooth with a slight 2 percent slope from the original floodplain banks down

Comment Letter E Cont.

toward the creek. The new floodplain and channel were then heavily compacted to prevent future erosion leaving only a new narrow channel meandering through the approximate center of the former stream bed. The final depth of the compacted fill varied from about 2 to over 12 ft. with a new channel width of from about 28 ft to 30 ft.

This process removed all previous creek and floodplain topographical features such as wetlands, ponds, swales, back-channels, undercut banks, and deep pools that create ecological diversity and complexity. The newly-formed barren floodplain was soon replanted with thousands of native plants including trees, shrubs, and herbaceous species. The intention was to quickly provide a fully functional riparian habitat complete with undercut banks and creek-side shading suitable for the entire food chain to thrive. The project was functionally completed in 2017 but many of the failures indicated above continue to this date as otherwise discussed below.

The stated objectives of the Winters Putah Creek Park project were functionally identical to those now specified for the Nishikawa project which, among others, were to enhance the overall habitat of the section of Putah Creek running through Winters by:

1) Lowering creek water temperatures in the project area and downstream to improve native fish habitat into these sections of the creek;

2) Reestablish a vibrant riparian forest of native species; and

3) Improving overall fish habitat to increase native fish populations and successful salmon spawning.

E-3 cont.

Objective Proven Previous Project Failures

Unfortunately, the Winters Putah Creek project has failed to deliver on any of these objectives.

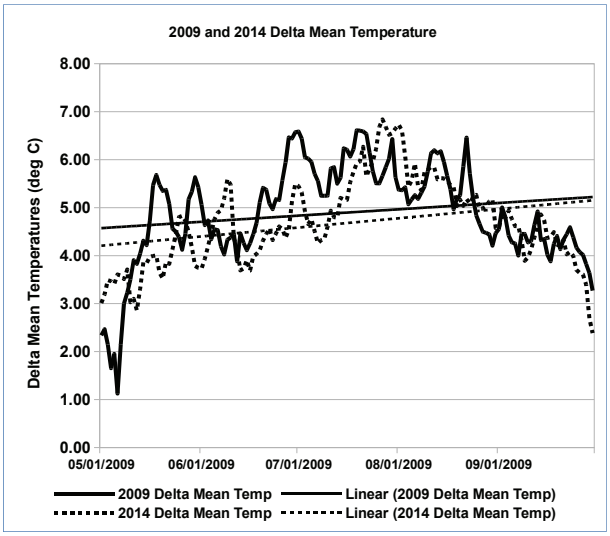
1. Failure to Reduce Creek Temperatures

Reducing creek temperatures to improve trout and other native fish habitat was to be a major benefit of the Winters Putah Creek Park project and these benefits are also claimed to result from similar rechannelization proposed in the IS/MND and underlying PEIR. The objectives are based on a flawed geomorphological engineering design. Unfortunately, SCWA has failed to provide any substantial evidence that such a beneficial effect has occurred as a result of the Winters Putah Creek Parkway project or will likely occur in the Nishikawa project or other reaches of the Creek as proposed in the underlying PEIR.

One problem in determining the success or failure in meeting this objective is that there were few temperature sensors maintained by the SCWA in locations in the Creek before the project. This limited detailed “before and after” comparisons. According to SCWA, only one pair of sensor sites located at Winters Bridge (directly upstream of the project) and downstream at the Stevenson Bridge provided sufficiently reliable temperature measurement data from May 1 through September 30 in 2014 and 2019. This period covered both a year before the project started and a year after completion of Phases 1 and 2 of the project. The following graph shows the daily mean temperature differentials between these two sites for both 2009 and 2014.

E-4

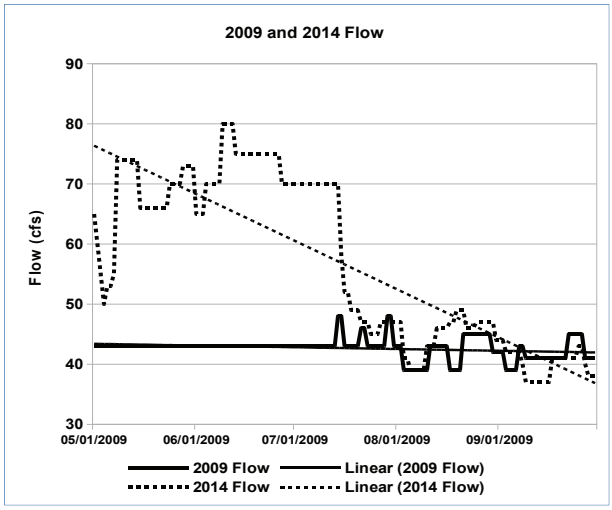
Comment Letter E Cont.



As shown, the mean daily temperature differential between Winters Bridge and Stevenson Bridge site was approximately 0.25 – 0.5 deg C lower from April 1 to July 15 in 2014 (post-project) compared to 2009 (pre-project); albeit with large daily fluctuations. Beginning in August the mean temperature differential was not statistically different between 2009 and 2014.

SCWA engineers have stated that these decreased temperature differential spreads between these two sites, at least in May - early July of 2014 compared to 2009, is "compelling" evidence supporting their thesis that the Winters Putah Creek Park rechannelization project is producing cooler downstream temperatures. *We strongly disagree with their conclusions*. We subsequently obtained and also graphed the daily stream flow data over the exact same 2009 and 2014 time periods as the temperature data (shown in the following graph).

E-4 cont.



Comment Letter E Cont.

As is apparent in this 2nd graph, the modest difference in temperature differentials shown in the first graph between 2009 and 2014 for the May to July period are directly correlated to and very likely entirely attributable to the average *75% greater in-stream flow* released from the diversion dam in 2014 compared to 2009. By comparison, in August of both years when in-stream flows were near equal, there was virtually no difference in mean temperature differentials between the pre- and post-project years.

Thus SCWA's claim that this temperature data indicates that the rechannelization project does, in fact, reduce downstream temperatures is without merit and simply failed to account for the dramatically increased in-stream flow in 2014. This information was not disclosed in the IS/MND nor in the underlying PEIR on which the IS/MND is tiered as is otherwise required by CEQA guidelines. There is no other data or substantial evidence suggesting that rechannelization in and of itself has resulted in cooler downstream Creek temperatures as otherwise claimed by SCWA.

Proponents of the rechannelization project simply claim that just moving the water downstream faster will result in cooler water temperatures and this can be accomplished by channelizing the stream and removing large deep preexisting ponds. However, additional factors affecting Creek temperature have not been quantitatively considered by the SCWA. The temperature regime of a stream like Putah Creek is the product of a complex set of variables including not just the linear velocity or speed at which water is moving downstream relative to the amount of solar radiation striking the creek.

E-4 cont.

One factor is evaporative cooling from the water surface during the day. Larger surface area of pools provide greater evaporative cooling than narrow channels. This would be even more likely if those cooling pools in question were heavily shaded to protect the water surface from solar radiation heat gain as existed pre-project.

Pools with large surface area would also provide more convective cooling and black body radiation cooling at night. Additionally, deeper pools will provide substantial buffering capabilities due to the reservoir of cooler water deeper in the pools where heat gain is minimized because the Creek water contacts with cooler groundwater sources and earth.

None of these factors were disclosed, discussed, or considered in either the IS/MND nor the underlying PEIR on which the IS/MND is tiered.

2. Failure to Establish a Healthy New Riparian Forest and Floodplain Habitat

Stream floodplains often provide ideal conditions for growing trees since sediments deposited on them are typically laid down in layers comprised of alternating fine sediments and gravel coarse enough to be well aerated as well as being rich in organic matter and mineral nutrients deposited by occasional floods. The same porosity of the gravel layers which allows good aeration also permits horizontal movement of water from streams to the roots of trees through the stratified soil layers comprised of both organic sediments and course gravel depositions.

E-5

Consequently the term "riparian forests" is increasingly used to describe such rich and productive plant communities lining streams throughout the United States. Such forests are highly ecologically significant since they are oases of wildlife plant and animal productivity such as providing habitat for nesting and migrant birds due to the forests high productivity in

additional to providing habitat for insects, mammals, amphibians, and fish; all of which were thriving in the section of Putah Creek through Winters prior to implementation and construction of the Winters Putah Creek Park project.

Such riparian forests are so ubiquitous in the United States it is often assumed trees always line streams, but that is not the case. Take away any of the factors, such as the lateral mobility of water provided by the mixed layers that make floodplains good for growing trees and the riparian forests disappear. Too much floodplain clay can also prevent trees from growing since it reduces soil porosity and thus prevents passage of air and water to their roots. Mixing of soil layers and compacting of soils such as occurred by the radical bulldozing and movement of soils in the floodplain will also reduce the lateral mobility of soils such that the only plants that can grow in such conditions are shallow-rooted herbs and weeds or if immediately adjacent to or in very close proximity to the creek or stream.

That is exactly what happened at the Winters Putah Creek Park project and there is a definite risk of such replanting failures at the Nishikawa project which failures and risks have not been properly disclosed. The Winters Putah Creek Park projects promoted by SCWA destroyed a riparian forest and then replaced a typical riparian soil that once supported abundant floodplain tree growth with clay-heavy mixed soils that when deposited and further mechanically compacted in the floodplain quickly hardened into a brick-like material impervious to air, water, and tree roots. Consequently ten years of attempts to grow native trees, shrubs, and herbaceous plants in the creek floodplain through Winters have functionally failed and the primary remaining vegetation remains herbaceous weeds and stunted, dying trees and shrubs other than in a thin band of vegetation immediately adjacent to the newly formed creek channel.

E-5 cont.

The Winters' projects thus destroyed a once rich riparian forest and replaced it with compacted soils that cannot support tree or large shrub growth to maturity. Further, SCWA inexplicably claims that all of the vegetation planting and replantingiswere done without keeping any records as to the numbers and types and locations and success/failure rates of the replants without which disclosures no substantial evidence exists that the similar restoration techniques in Nishikawa will otherwise be successful.

Literally thousands of seedlings and saplings have been replanted in the project in the years following completion of the different phases. Almost all the tree and large shrub replants that were not planted immediately adjacent to the Creek have since died for lack of water because water cannot move from the stream to the trees through the dense compacted fill. In some parts of the project, dense compact impermeable fill extends more than 12 ft deep and blocks water from reaching remaining trees on the periphery of the floodplain which have also since died or are dying due to lack of water. The impermeable fill has completely disconnected the new creek channel from the original porous, gravelly, permeable floodplain preventing both lateral migration of water from the creek and infiltration of rain or applied irrigation water necessary for replant growth.

Not only have replants failed to survive and grow, this has also caused serious stress and even death of the few uncut trees remaining on the periphery or within the bulldozed floodplain. You see this in most every cottonwood on the south bank below the railroad bridge. New plant growth is now dominated by a patchwork of invasive grasses and herbaceous plants including,

Bermuda grass, Italian rye-grass, Johnson grass, cockle-bur, and Star thistle except for a thin band of soil immediately adjacent to the creek.

Figure 1 Winters Putah Creek Park – Phase 2 – 2019. Replanting again, eight years after "restoration", and two previous failed plantings.

E-5 cont.

Figure 2. Winters Putah Creek Park – Phase 3 - Trees spared but perched on pedestals and dead or dying.

Comment Letter E Cont.

Figure 3. Winters Putah Creek Park – Phase 1 – Cottonwoods. Trees spared during construction but cutoff from groundwater and dead.

The reason that revegetation has substantially failed in the Winters Putah Creek Park Project is due to the floodplain construction techniques employed. Natural floodplains are stratified, with both coarse and fine layers, and the coarse sandy gravelly strata are highly permeable and carry groundwater laterally from the channel to the riparian forest. Earth-movers used in the Winters Putah Creek Park Project channel realignment churned up these strata, destroying the structure of the floodplain in the process, and then massively compacted the new deposited soil into monolithic blocks of impervious fill. The fills block groundwater flow, deprive the riparian forest of groundwater, and block groundwater recharge.

E-5 cont.

The visible impacts of blocking the groundwater connection between channel and floodplain include the slow death of trees that were spared during the clearing (Figures 2 and 3 above), the failure of replantings (Figure 1 above), and a green line of vegetation about four feet wide at the stream-bank that is the visible indicator of the limit of available water (Figure 4 below).

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Comment Letter E Cont.

Figure 4. The Green-line Effect – When the soil near a bank is nearly impermeable, there is only enough water penetrating the bank to water a thin green-linee of vegetation.

E-5 cont.

As noted above, a precise accounting of the number of removed, replanted, and current status of native species on the floodplain has not been provided by SCWA pursuant to repeated requests by Friends of Putah Creek under the California Freedom of Information Act (FOIA). Amazingly, SCWA claims that they had not been keeping ANY records of the replants successes or failures of the thousands of new plantings and repeated replantings of trees, shrubs and various herbaceous plantings during the entire construction and post-construction phases despite disclosures of such planting and replanting failures to SCWA on numerous occasions.

Many of the same conditions that existed in the Winters Putah Creek Park Project will also exist in the new Nishikawa project which will employ the same misguided restoration techniques. The floodplain will first be functionally bulldozed to a flat planar surface which destroys lateral layers of soil necessary for lateral water migration. New soil will be added which has been mixed thus removing all interspersed layers of course gravel and sediments. The deposited soil will then be further compacted to prevent dislocation and removal in high flow flooding events in the future.

None of these past revegetation failures following rechannelization in the Winters Putah Creek Park project have been disclosed in either the IS/MND or the underlying PEIR on which the IS/MND is tiered as otherwise required by CEQA guidelines.. Further, SCWA has not provided any new substantial evidence or analysis that such efforts will be successful in the new Nishikawa project considered in the current IS/MND.

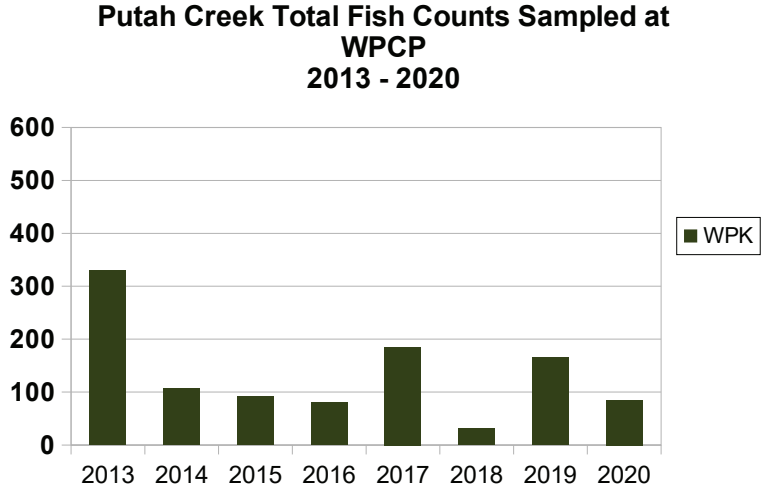
3. Failure to Increase Fish Populations and Salmon Spawning Habitat

a. Substantial Evidence Exists and was not Disclosed that Native Adult Fish Populations Decreased and Remained Depressed in Winters Putah Creek Park Following Project Completion Compared to Upstream and Downstream Reaches of the Creek

Comment Letter E Cont.

One of the primary objectives of the Winters Putah Creek Park project was to improve the Creek as fish habitat. However, this hypothesis has never been quantitatively tested with the results publicly disclosed and discussed even though the data has been available for SCWA to do so for many years.

SCWA has been collecting annual fish counts for the past several decades which results were obtained through FOIA requests by FOPC. Excerpts of this data are partially presented in the following graph (*see Appendix A for raw data*).



This shows an approximate average overall 67% decrease in total fish populations in the Winters Putah Creek Park project area over time since the first phase of the project was completed.

Indeed, fish counts have remained depressed in the Winters Putah Creek Park project every single year after establishment of baseline conditions in 2013. However, as shown below, fish counts in an nearby downstream section of the creek were either not as depressed or actually increased in the years following establishment of baseline conditions in 2013. This indicates that the decreases in fish populations in the Winters Putah Creek Park project were NOT due to conditions otherwise affecting the entire creek.

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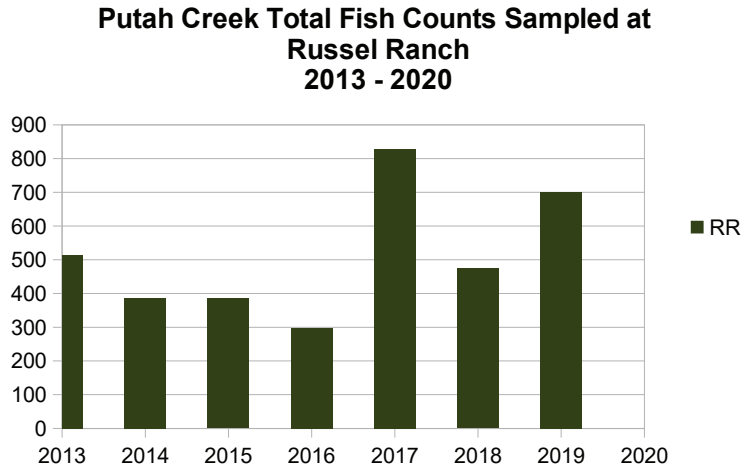
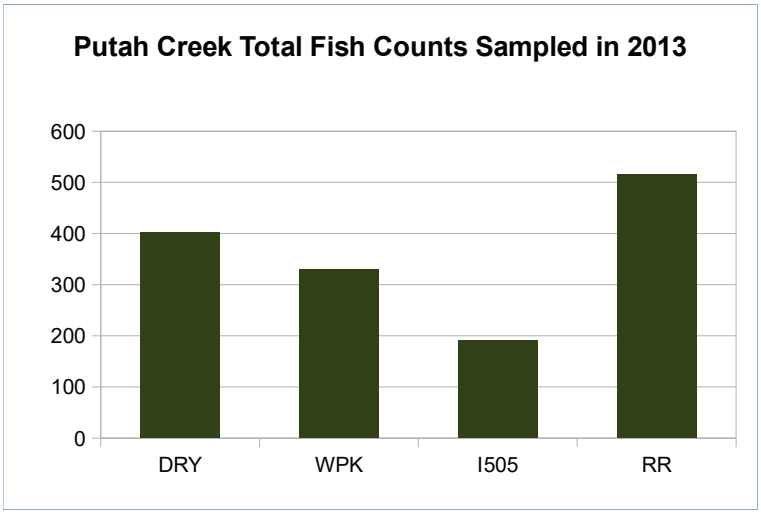
Comment Letter E Cont.



** Note: Fish Counts were not taken in the Russel Ranch reach of the creek in 2020.*

Additionally, fish populations at the Winters Putah Creek Park (WPK) were compared to those at sites immediately upstream (Dry Creek - DRY) and downstream (I505 – Interstate 5 and RR- Russel Ranch) for the years of 2013 – 2020 as shown in the following series of graphs.



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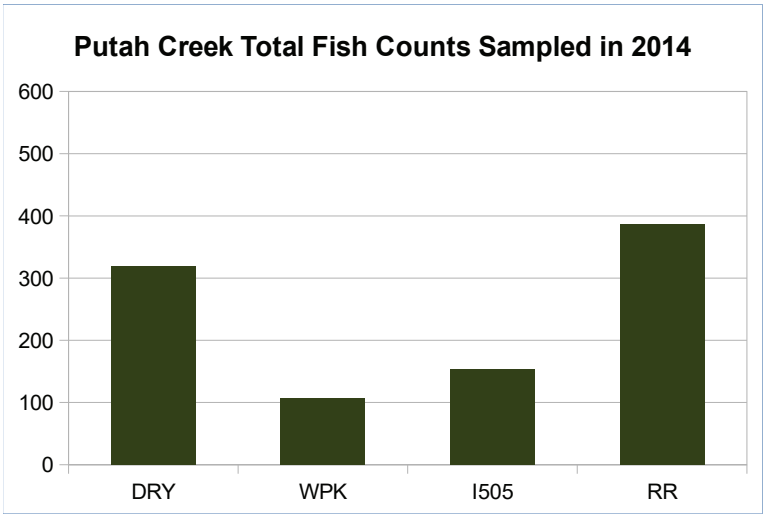
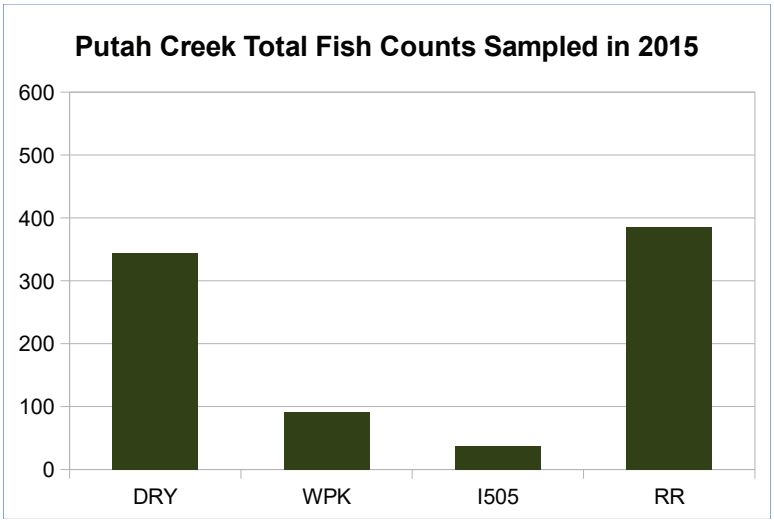
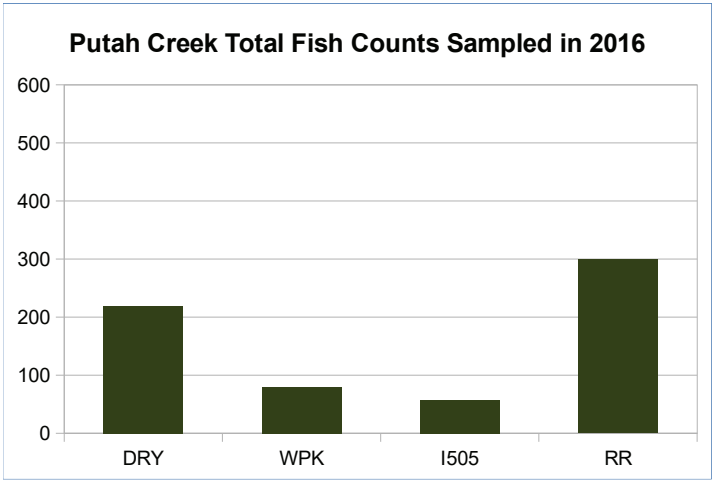
Comment Letter E Cont.

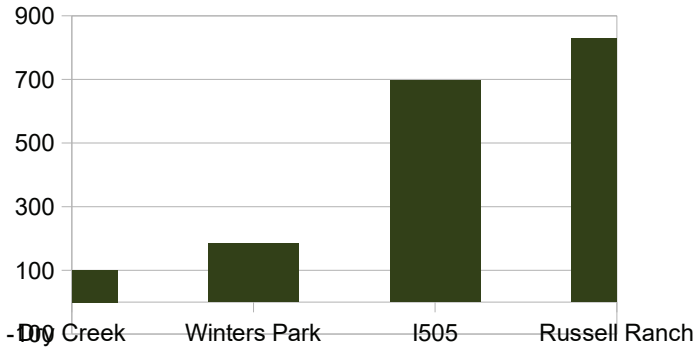




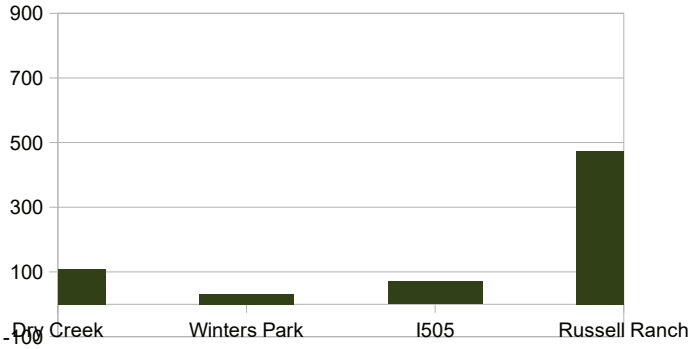


Comment Letter E Cont.

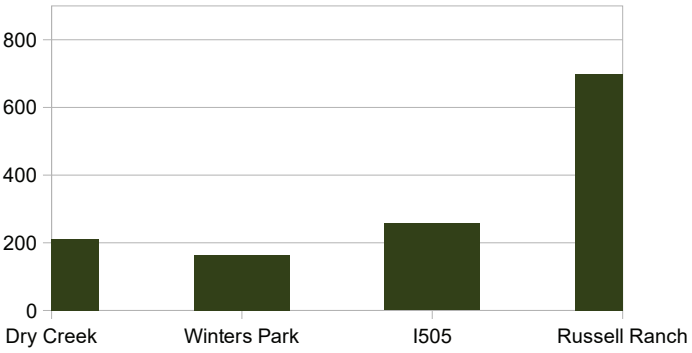
Putah Creek Total Fish Counts Sampled in 2017



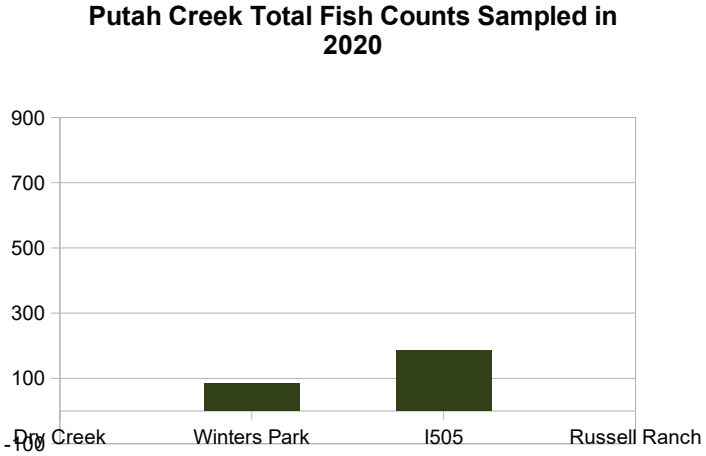
Putah Creek Total Fish Counts Sampled in 2018



Putah Creek Total Fish Counts Sampled in 2019



Comment Letter E Cont.



Note: No fish population counts were taken in Dry Creek or Russel Ranch in 2020

These graphs conclusively demonstrate that in almost every year since construction of the Winters Putah Creek Park project, total fish populations in the Winters Putah Creek Park project and immediately downstream at I505 are, on average, severally depressed compared to fish counts made immediately upstream at Dry Creek and further downstream at Russel Ranch. This substantial evidence negates the claim that drastic geomorphological engineering can beneficially impacts fish populations by narrowing the channel as claimed by project proponents.

Project proponents otherwise claimed this decrease in fish populations was due to unusual drought conditions that existed for a number of years following the completion of the project.. However, the stream flow is strictly regulated under a court order and varies little from year to year. Because even in drought years, the flow of water through the creek is comparatively constant and these flows have been constantly maintained throughout both the drought and non-drought years, decrease in fish populations in Putah Creek cannot be attributed to reduced water due to drought.

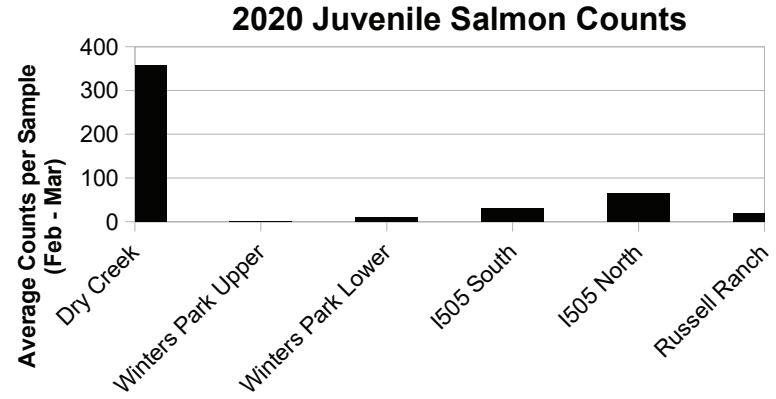
Further, trout populations were specifically projected to rise as a result of the geomorphological engineering work done in the Winters Putah Creek Park. Instead, that section of the Creek has not seen increasing trout populations over the recent years which have remained uniformly low and/or decreasing on average (See Appendix A).

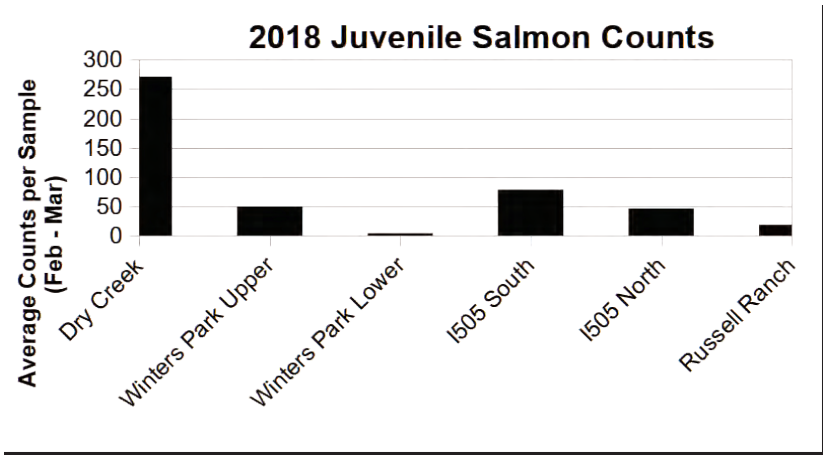
In summary, based on the fish counts in the Putah obtained by SCWA there is substantial evidence that the geomorphological engineering used in this project did NOT beneficially improve fish populations in the Winters Putah Creek Park project area. Indeed, there is substantial evidence that the project design and implementation have decreased native fish populations in the Winters reach of Putah Creek which evidence was not properly disclosed or discussed or proper mitigation proposed in either the IS/MND or the underlying PEIR as otherwise required under CEQA guidelines.

Comment Letter E Cont.

b. Substantial Evidence Exists and was not Disclosed that Juvenile Salmon Fry Populations are Depressed in Winters Putah Creek Park Following Project Completion Compared to Upstream and Downstream Reaches of the Creek

Salmon fry were measured biannually in various sections of Putah Creek by an aquatic biologist (TRPA Fish Biologists) under contract to SCWA and such measurements were disclosed to SCWA and made available upon request. The Salmon fry counts taken during overlapping time periods (i.e. February through March - to allow for year-to-year comparisons) are graphically displayed below.





In as much as a primary objective of both the Winters Putah Creek Park project and the Nishikawa project were to improve fish habitat to increase survival of young salmon fry, this information constitutes substantial evidence that such objective was not met in Winters Putah Creek Park and may not be met in the proposed Nishikawa project. Such evidence should have been disclosed and discussed in the IS/MND and the underlying PEIR as required by CEQA guidelines.

Further, mitigations should have been proposed and discussed for the Nishikawa project should that project similarly result in reduced Salmon fry counts

c. Substantial Evidence Exists and was not Disclosed that All Salmon Spawning Riffles Constructed in the Supposedly Stable, "Self-Maintained" Channel in Winters Putah Creek Park were Completely Silted over within Years of Construction and Rendered Useless as Future Salmon Spawning Habitat

Shallow gravel and cobble-covered sections in Winters Putah Creek were constructed as salmon spawning riffles. Such riffles were designed to be "self-maintaining" as a primary stated objective to increase salmon spawning habitat as a part of the stream alteration process. Unfortunately, all of these riffles have since disappeared due to extensive sand and silt deposition.

As stated in the Memorandum authored by TRPA Fish Biologists to SCWA entitled, "*Results of October 2020 Lower Putah Creek Fish Surveys*" (June, 2021),

"*...the high flows associated with Lake Berryessa spills during the late winter and early spring of 2019 resulted in sand deposition throughout the Winters Park channel restoration area that filled in many of the pools and covered many of the gravel riffles and the upper weir site*."

In fact, the most recent inspection of the riffles showed that *all* of the riffles initially constructed as part of the project had been silted and rendered useless as salmon spawning habitat. This is a function of the design of the project wherein a shallow and narrow channel was constructed with gentle sloping banks. This design resulted in dispersal of flood energy out of the channel and spread it across the floodplain at low flows. Under such conditions, there is insufficient water velocity to carry sediment further downstream during flood events through the channel reach.

This information constitutes substantial evidence speaking to the inappropriate design of the Winters Putah Creek Park project which is functionally replicated in the proposed Nishikawa project. Further, this information regarding the failure of the project design parameters to provide sustained maintenance of riffles in the claimed "self-maintaining" stream channel was not properly disclosed and discussed in either the IS/MND or the underlying PEIR on which the IS/MND is tiered as otherwise required under CEQA guidelines.

d. Substantial Evidence Exists which was Not Disclosed which Rated Channel Narrowing and Realignment in the Winters Putah Creek Park Project as a "Zero" on a Scale of 1-5 in Terms of Effectiveness in Establishing Stable Salmon Spawning Riffle Habitat

In 2021, a report was prepared by Ken Davis under contract to SCWA entitled "*Lower Putah Creek Gravel Bed Scarification, Final Report (Amended)*, April 30, 2021 (Report 6873). Mr. Davis is a consulting aquatic ecologist with extensive experience studying Putah Creek fish and insect populations. This report contained a table entitled Project Comparison (see Appendix B) which ranked different strategies and methodologies used on Putah Creek to enhance salmon spawning habitat.

According to the report, the "*Matrix lists projects and actions (2003 - present) with emphasis on developing, enhancing or facilitating spawning salmon. Considers relevance, effectiveness, and cost. Projects ranked 1 - 5. Prudent to consider score when making management decisions*.". The highest ranked strategies (5) in terms of "*Impact on Salmon Spawning Success*" included "*Gravelbed Scarification*" and "*Beaver dam monitoring and notching*". The

Winters Putah Creek Park project phases 1-3 and a very similar creek realignment project downstream all were ranked as “Zero” indicating they had no substantive value in terms of “*Impact on Salmon Spawning Success*”

This information constitutes substantial evidence speaking to the inappropriate design of the Winters Putah Creek Park project which is functionally replicated in the proposed Nishikawa project. In as much as a stated primary objective of both the Winters Putah Creek Park project and the proposed Nishikawa project were to provide “self-maintaining” Salmon spawning habitat, this information regarding the failure of the project design parameters to provide sustained maintenance of riffles in the creek channel was not properly disclosed and discussed in either the IS/MND or the underlying PEIR on which it is tiered as otherwise required under CEQA guidelines.

Conclusions

The Current Proposed Nishikawa Project has many Similar Design Characteristics and Project Objectives as the Winters Putah Creek Park Project which Objectives were NOT Met in the Earlier Project.

The following project description for the proposed Nishikawa project is contained in Section 2.8 of the current IS/MND,

“*Description of Project:*
SCWA proposes to ***complete channel restoration involving re-contouring and realignmen t*** *along a 0.5-mile section of the low-flow channel of Putah Creek, upstream of the Pedrick Roa d Bridge near Davis, California in Yolo and Solano counties. The project is part of a series of re storation activities* ***intended to restore Putah Creek to a more natural condition that is self -maintaining and supports native plant and animal species****. The project involves restoring a section of active channel that is currently in an over-widened condition. This project aims to create a* ***narrow design channel in a more central, meandering form to create 0.5-mile of nearly continuous salmon spawning habitat across a gravel-rich floodplain****. The project design includes grading of 11 acres to floodplain elevation, and construction of 15 riffles and se veral rock vanes.” (Emphasis added)*

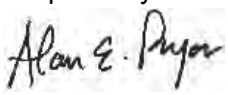
It is clear from the above description for the current project and others proposed by SCWA in the PEIR that many of the objectives are nearly identical to those claimed for the Winters Putah Creek Park project. However, as shown and discussed above in these comments, many of the same objectives were not met in the Winters Putah Creek Park project.

Geomorphological engineering has not produced the beneficial objectives claimed for the Winters Putah Creek project when it was proposed. Indeed, the Winters Putah Creek Park project has resulted in a substantial failure to increase or even maintain native fish and Salmon fry populations due to loss of favorable habitat including removal of ponds with overhanging vegetation providing refugia for fish, particularly Salmon fry, and siltation of all of the supposedly “self-maintaining” Salmon spawning areas created in that project rendering them functionally useless for salmon spawning.

Comment Letter E Cont.

None of these past failures are disclosed in the IS/MND for Nishikawa nor the underlying PEIR on which it is tiered rendering these documents unsuitable for certification under CEQA guidelines.

Respectfully submitted,



Alan Pryor

Comment Letter

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Attach.

Appendix A

Putah Creek Fish Counts

	DRY								WPK								I505								RR								
Native Fish	2013	2014	2015	2016	2017	2018	2019	2020	2013	2014	2015	2016	2017	2018	2019	2020	2013	2014	2015	2016	2017	2018	2019	2020	2013	2014	2015	2016	2017	2018	2019	2020	Total
Sacramento Pikeminnow	56	74	74	42	5	6	4		21	2	16	5	10	1	21	1	14	10	4	4	101	20	57	8	258	248	218	29	248	220	339		2116
Sacramento Sucker	196	105	134	65	36	44	103		92	10	17	8	71	5	84	8	83	36	11	3	385	14	86	15	52	25	42	97	340	97	186		2450
Rainbow Trout	19	24	28	12		4	8		8	9	11	2	9	7	1	10	4	5	8	5	1	4		12	1	2	1	1		2			198
Chinook Salmon																						4								1			5
Threespine Stickleback	1	3		1	1		13		49	2	1		1		2		19	3	1														97
Prickly Sculpin	14	15	10		34	49	48		49	31	7	9	71	19	35	59	19	2	3	3	101	26	50	137	136	32	16	2	13	3	8		1001
Riffle Sculpin	13	17	22	14	1		8		73	53	35	45	7		3	3				7	1		13	3		6	2						326
Tule Perch	103	80	75	85	20	7	24		37		5	11	16		12	4	51	91	7	30	106	2	49	9	56	67	104	152	220	139	157		1719
Pacific Lamprey		1													4																		5
																																	0
Exotic Fish																																	0
Red Shiner																																	0
Goldfish																																	0
Common Carp																																	0
Golden Shiner																																	0
Black Bullhead																																	0
White Catfish																																	0
Inland Silverside																										1							1
Western Mosquitofish															1							1											2
Bluegill															2															5			7
Redear Sunfish																																	0
Warmouth																																	0
Green Sunfish																		6	2		1				2				1				12
Unid'd Sunfish																																	0
Smallmouth Bass																										1	1				2		4
Spotted Bass																												3		1			4
Largemouth Bass			2		4		2												1	5			2		10	4	1	15	2	6	8		62
Striped Bass																													4				4
Bigscale Logperch																																	0
	DRY								WPK								I505								RR								Total
	2013	2014	2015	2016	2017	2018	2019	2020	2013	2014	2015	2016	2017	2018	2019	2020	2013	2014	2015	2016	2017	2018	2019	2020	2013	2014	2015	2016	2017	2018	2019	2020	
Total # Individuals	402	319	345	219	101	110	210		329	107	92	80	185	32	165	85	190	153	37	57	696	71	257	184	515	386	385	299	828	474	700		8013
# Native Fish	402	319	343	219	97	110	208		329	107	92	80	185	32	162	85	190	147	34	52	695	70	255	184	503	380	383	281	821	462	690		7917
# Exotic Fish	0	0	2	0	4	0	2		0	0	0	0	0	0	3	0	0	6	3	5	1	1	2	0	12	6	2	18	7	12	10		96

Comment Letter

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Attach.

Appendix B

Comparative Salmon Spawning Effectiveness Table from *Lower Putah Creek Gravel Bed Scarification, Final Report (Amended)*, April 30, 2021 (Report 6873)

Wildlife Survey & Photo Service
2443 Fair Oaks Blvd., # 209 • Sacramento, CA 95825 • (916) 747-8537

Lower Putah Creek - Project Comparison

Matrix lists projects and actions (2003 - present) with emphasis on developing, enhancing or facilitating spawning salmon. Considers relevance, effectiveness, and cost. Projects ranked 1 - 5. Prudent to consider score when making management decisions.

No.	Project	Deliverable(s)	Impact on Salmon Spawning Success	SCORE (0-5)
1.	Gravelbed Scarification	Open spawning gravel. Increase in salmon spawning success. Increase in BMI density and species.	Proven to be significant by providing numerous spawning areas.	5
2	Beaver dam monitoring and notching	Passable for salmon. Levee to levee dams can prevent salmon passage.	Major when dams are large. Possible to have 100% blockage.	5
3.	Downed / Submerged Alders & Other	Can impact water flow and enhance spawning areas. (Also habitat for juvenile salmon)	Significant impact for complex spawning areas	3
4	Gravel /Cobble size	Cobble size that matches need for quality salmon redds	Size can impact protection for eggs and juveniles	3
5.	Gravel Injection	More gravel for spawning fish (appropriate size) gravel mix	Potentially significant	3
6.	Los Rios Dam (board removal)	Salmon passage (timely)	Potential to affect salmon run reaching spawning area.	3
7.	Weirs	Wildlife habitat for aquatic and riparian species	Potentially significant	2
8.	Water Velocity Studies	Appropriate velocity aids in spawning, egg and juvenile survival, and BMI communities.	Significant when velocity is appropriate for width and depth	2
9.	Dry Creek Realignment	Increase in wildlife.	Has required Scarification adjustments	2
10.	Riparian Planting	Thriving riparian plants.	Possible positive impact by riparian plants shading the creek.	1
11.	Salmon Video Project	Video of salmon, spawning salmon, quality of redds. Other fish. Public Relations and educational materials.	Some impact in showing successful spawning, health of salmon and quality of the redds.	1

Wildlife Survey & Photo Service
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12.	Putah Creek ACCORD	Provided consistent water flows. Wildlife monitoring.	Small or negligible impact after 18+ years of flow regime.	0
13.	WPCP - Phase 1	Increase in Wildlife. Depth and cementation require scarification.	None (without scarification)	0
14.	WPCP - Phase 2	Increase in Wildlife. Depth and cementation require scarification.	None (without scarification)	0
15.	WPCP - Phase 3	Increase in Wildlife. Depth and cementation require scarification.	None (without scarification)	0
16.	Electrofish	Fish Data	None	0
17.	NAWCA 3	Wildlife Habitat and flood plain	None (without scarification)	0
18.	Otolith Study	Determination of origin of adult salmon.	None	0
19.	NAWCA 2	Flood Plain development	None (without scarification)	0
20.	Screw Trap	Data on down migrant juvenile salmon.	None	0
21.	Salmon Festival	Entertainment, education, PR.	None	0
22.	Juvenile Snorkel Project	Determine number of juvenile salmon relative to escapement	None	0
23.	Riparian soil studies	Improve success of riparian plantings.	None	0
END				

Comment Letter
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Attach.

Comments Submitted for the IS/MND for the Nishikawa Project and the Underlying PEIR for Lower Putah Creek

by Friends of Putah Creek

I. Qualifications of the Commenter

Friends of Putah Creek (FOPC) is a California non-profit corporation founded in 2017 focused on the environmental and ecological health of Putah Creek. Previously active as a citizens' group known as Winters Friends of Putah Creek, our Board of Directors is comprised of scientists and environmentalists including riparian specialists with intimate knowledge of Putah Creek. Some have lived directly adjacent to the Creek for over 25 years and have first hand expertise on its vegetation, wild animal life, and hydrology. We and our members have been submitting extensive comments on various restoration projects performed by the Solano County Water Agency for well over a decade and have authored a number of papers on the failures of the Solano County Water Agency (SCWA) in prior restoration efforts on Putah Creek.

II. Disclosure and Assessment of Shortcomings of the IS/MND and PEIR

The IS/MND is deficient in terms of disclosure and assessment of potential adverse impacts on the environmental due to:

1) Incomplete Assessment of the Adverse Impacts on Biological Resources due to Failure of the Proposed Project to incorporate Best Management Practices Incorporated into Regional Conservation Plans.

2) Failure to Properly Analyze the Least Environmentally Damaging Alternative

Each of these deficiencies are also present in the *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program (PEIR for the 22-mile stretch of Lower Putah Creek and are discussed more thoroughly below*

1) Incomplete Assessment of the Adverse Impacts on Biological Resources due to Failure of the Proposed Project to incorporate Best Management Practices Incorporated into Regional Conservation Plans - The IS/MND's of the proposal's effects on biological resources correctly describes the analytical framework for compliance such as with the federal Endangered Species Act and the California Natural Community Conservation Planning Act, including consistency with regional Habitat Conservation Plan/Natural Communities Conservation Plans (HCP/NCCP).

However, the IS/MND is silent on compliance or consistency with other environmental and conservation concerns and regulatory framework including the Yolo County Resource Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP). RCIS/LCP is a conservation framework specifically intended to encompass the entire framework of conservation policies not covered by the HCP/NCCP. The Yolo County RCIS/LCP was approved by the Yolo County Board of Supervisors in August of 2020, and approved by the

California Department of Fish & Wildlife (CDFW) in October of 2020. The RCIS/LCP is part of a conservation framework that must also be considered by SCWA with respect to its approval processes, including CEQA reviews.

The RCIS is a framework for developing advanced mitigation planning approaches by interested parties (which may include state agencies, non-governmental organizations, or other private entities) that are consistent with the requirements of existing California law, as identified by AB 2087. The RCIS process is mandated to incorporate the substance of other California regulations and plans, including the adopted State Wildlife Action Plan (SWAP). The LCP is a conservation framework developed for the county and surrounding areas by the Yolo Habitat Conservancy, intended specifically (among other purposes) to encompass the policy framework not reflected in the HCP/NCCP.

Under the requirements of AB 2087, the RCIS/LCP is also fully consistent with, and does not adversely affect, the content or implementation of the HCP/NCCP. The RCIS/LCP, in conjunction with the HCP/NCCP, therefore represents a fusion of local, regional, and national conservation concerns in a single planning framework and essentially form a joint conservation planning framework for environmental resources that reflects all of the conservation priorities affecting different landscapes.

The Biological Resources section of the IS/MND and the PEIR on which the IS/MND is tiered does not includes an assessment of the proposed project(s) with respect to the RCIS/LCP framework including floodplain management and floodplain/riparian interactions, as well as effects on fish and other species and their habitats. Because such elements are indisputably applicable for the project(s), an assessment of the project's effect with respect to the RCIS/LCP framework should have been included in the IS/MND and the underlying PEIR, as the framework is directly relevant to the implementation of the project(s), as well as for state agencies that will participate in or review the project, including the Department of Water Resources (DWR) and the CDFW and the public. The failure to include such an assessment is a critical disclosure failure in both the IS/MND and the underlying PEIR on which the IS/MND is tiered.

For instance, in the introduction to Section 5.4 BIOLOGICAL RESOURCES (p.5-20) in the IS/MND, the following questions and responses were included.

> *"Would the project:*
>
> *b)Have a substantial adverse effect on any riparian habitat or other sensitive natural co mmunity identified in local or regional plans, policies, regulations or by the California De partment of Fish and Game or U.S. Fish and Wildlife Service? => **No New Impacts***
>
> *d)Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Commu nity Conservation Plan, or other approved local, regional, or state habitat conservation p lan? => **No New Impacts**"*

Both of the above statements are demonstrably false because the proposed project will certainly have material adverse impacts on the riparian habitat and conflict with best management practices for restoration of such similar riparian habitats as contained in the Yolo

Co RCIS/LCP and recognized expert authorities such as in *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* (Utah State University Restoration Consortium, 2019). The potential adverse impacts would be similar to those found in the most recent SCWA ”restoration” project utilizing very similar geomorphological engineering practices in the Winters Putah Creek Park project.

Previous work on the Winters Putah Creek Park project has produced less than acceptable results as quantitatively documented in a previous report entitled *Winters Putah Creek Park – Part 1 – Case Study of a Failed Project* by Friends of Putah Creek (FOPC). This report was submitted to the SCWA Staff and Board of Directors and the Lower Putah Creek Coordinating Committee in 2018; a copy of which is attached and made part of these comments.

The noted failures included 1) a reduction in native fish populations in the “restored” section of the creek compared to upstream and downstream reaches of the creek, 2) a failure to reestablish a riparian forest in the floodplain, and 3) failure to lower stream temperatures in the affected project and downstream of the project.

Additionally FOPC has since submitted quantitative flow data showing that the placement of the impervious compacted layer of indurated soil over the entire floodplain substantially reduced inflow into the underground aquifer from the creek thus disconnecting the creek from underlying groundwater.

The many causes of these documented failures were additionally analyzed in a second report prepared Friends of Putah Creek entitled *Winters Putah Creek Park – Part 2 – Analysis of Project Failures* which report was also submitted to he SCWA Staff and Board of Directors and the Lower Putah Creek Coordinating Committee in 2019; a copy of which is attached and made part of these comments by reference.

That report reviews the project practices and poor outcomes and provides context through the lenses of conservation strategies and best management practices recommended by the Yolo County RCIS/LCP and other proper riparian restoration principles such as recommended in *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* (Utah State University Restoration Consortium, 2019).

a. Conflicts with Restoration Principles in the Yolo County Resource Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP) - In particular, some of the restoration methods proposed by the Solano County Water Agency (SCWA) for Putah Creek in the PEIR and which are intended to be implemented in the Nishikawa project are compared to the best management practices in the RCIS/LCP as summarized in the following discussion

> i) To meet the goal of “*...maintaining the integrity of natural communities in restoration projects”*, the RCIS-LCP specifically advises against soil compaction.
>
> This recommendation was not discussed in either the PEIR or IS/MND which tiers off of the PEIR. These recommendations were ignored by SCWA in executing the Winters Putah Creek Park project wherein two to twelve feet of imported soil was deposited on the creek floodplain and then intentionally compacted to prevent washing away by future high water, high velocity flood events. SCWA similarly intends to compact the top-level

soil in the Nishikawa project to prevent removal in high water, high velocity events but does not mention any mitigation or other means to avoid the problems associated with such compaction in the PEIR or IS/MND.

iii) Under the goal of "...*improving dynamic hydrology and geomorphic processes in watercourses and floodplains in a way that avoids or minimizes impacts on terrestrial species habitat and increases structural diversity"*, the RCIS/LCP conservation strategy recommendations include:

- *Creating riparian management corridors that permit lateral channel migration;*
- *Creating secondary channels and overflow swales that add riverine and floodplain habitat values (e.g., resting or rearing areas for fish migrating downstream), allowing channels to meander naturally through the floodplain;*
- *Providing greater topographic and hydrologic diversity, recognizing that depressional features such as ponds and back channels that provide important refugia for species such as western pond turtle and that higher ground in floodplains that can serve as wildlife refugia from floodwaters.*

None of the recommendation in the RCIS/LCP are discussed in the PEIR or IS/MND. Instead, the new stream channel as engineered by SCWA is designed to be stable and self-maintaining. The floodplain as designed and constructed will be a functionally planar surface sloping at a uniform grade across the entire floodplain with little topographical diversity including ponds and high ground. Further, as discussed above, imported fill to be deposited on the top of the floodplain to form the new channel must be compacted so it does not all wash away during the first high velocity water event. This compaction will severally limit future lateral migration of the meandering form of the stream bed. SCWA has not proposed a proven mitigation measure to allow for such lateral mobility of the stream bed.

iii) Under the goal of "...*maintaining fluvial equilibrium and protecting lacustrine/riverine systems supporting American beavers"*, the conservation strategy recommendations include avoiding stream channelization, avoiding unnecessary vegetation removal, and targeting portions of streams that support American beavers for protection including protection of existing beaver dams.

None of the recommendation in the RCIS/LCP are discussed or analyzed in the PEIR or IS/MND. Instead, the proposed new channel will incorporate the same design considerations as in the Winters Putah Creek Park which provided for a highly channelized stream bed utilizing compacted soil. Just as in the failed Winters Putah Creek Park project, the majority of the vegetation in the existing Nishikawa floodplain will be removed by bulldozers, ponds that supported beaver colonies will be drained and filled, and high banks that can support beaver dens will be leveled. The once thriving beaver population in Winters was completely eliminated and the same processes are proposed for the Nishikawa project but are not adequately disclosed with proper mitigation proposed in either the PEIR or IS/MND.

iv) Under the goal of "...*maintaining and/or restoring and protecting stream processes and conditions"*, best conservation strategy recommendations in the RCIS/LCP include

maintaining subsurface flow, connecting groundwater hydrologically to streamflow in each watershed, and expanding and protecting riparian vegetation.

Instead, at Winters Putah Creek Park earth-moving and deposition of compacted fill imported by SCWA disconnected the stream from groundwater. Efforts by SCWA to remediate the loss of subsurface flows by testing "French Drain" type channels were unsuccessful in reestablishing native growth in much of that reach of the Creek. Similar processes are proposed to be be employed at the Nishikawa project but the associated risks and past failures of implementing such restoration techniques are not disclosed and discussed nor mitigations proposed in either the PEIR or IS/MND.

v) Under the goal of "...*increasing the area of shaded riverine aquatic habitat for focal fish species and increasing the amount of large wood material in the stream"*, recommended conservation strategies include enhancing the biomass of overhanging or fallen branches and in-stream plant material to support the aquatic food web, restoring vegetation along stream-banks, increasing input of large woody material to streams, and installing large woody material directly into streams and along stream banks as a component of restoration or enhancement projects.

At Winters Putah Creek Park, all overhanging vegetation was removed when the floodplain was bulldozed and the stream channel was moved, and the majority of woody biomass was eliminated. The compacted earth fill created a dense, root-restricting soil strata that permanently retarded or prevented growth of woody riparian plants. Similar processes are proposed in the Nishikawa project and the adverse impacts of such processes are not adequately disclosed and discussed nor mitigations proposed and discussed in either the IS/MND or the underlying PEIR.

b. Conflicts with Restoration Principles in *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* (Utah State University Restoration Consortium, 2019)

The *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* is specifically intended to assist restoration professionals to achieve successful restoration of stream and riparian ecological health in ecosystems degraded by man-made structures and impacts. It provides the underlying design philosophy and tools enabling restoration scientists and practitioners to produce remarkable results in restoring salmon habitat, as referenced in a recent *Science* article (*Science*, June 8, 2018, Vol 360 - Issue 6393), by the use of low cost beaver dam analogs and other natural structures costing approximately $10,000 per mile of restored stream. This compares with the equivalent costs of almost $6,000,000 per mile spent on the Winters Putah Creek Park project which has yet to produce evidence that any salmon spawned in the creek are returning as a result of the project. It is apparent that there are substantial differences between the low tech and low-cost methods used by experienced professional restoration ecologists versus the unproven practices employed by SCWA on Putah Creek yet these differences are not disclosed or discussed in the IS/MND and underlying PEIR.

The Winters Putah Creek Park project engineering philosophy conflicts with the proven and cost-effective restoration strategies discussed in this design manual, which uses low-cost structures of natural materials and beavers themselves to add complexity and diversity to

floodplains. This is inherently less expensive (by at least 2 orders of magnitude) than floodplain-damaging techniques that rely on massive earth moving machinery to create a constrained stream bed as was done at Winters Putah Creek Park and which techniques are planned to be employed in the Nishikawa project.

For instance, great effort was expended in the Winters Putah Creek Park project to obtain a "stable" and "self-maintaining" Creek form. Such a stable Creek form is also advocated for the Nishikawa project. But, as explained by the *Low-Tech Process-Based Restoration of Riverscapes: Design Manual*, these attempts are self-defeating. Quoting the manual, "*Stability is not a hallmark of healthy riverscapes. The desire to reduce uncertainty and precisely predict restoration outcomes has led to practices that tend to emphasize the stability of channels and in-stream structures. In the context of stream restoration, stability has often meant static. Constructed features and attributes such as plan-form, channel width, location of pools and riffles are designed in such a way that they do not change through time.* ***The emphasis on stability requires detailed engineering designs, modeling, and heavy equipment, all of which contribute to the high cost of restoration….However, population level response of target species [e.g., salmon and steelhead] to these restoration actions is equivocal***." (Emphasis added)

Certainly, the desired outcome of the work in Winters Putah Creek Park has been questionable. Despite a cost of over $7,000,000 to alter only 1 1/4 mile of Creek, there have been no quantifiable benefits to wildlife. After eight years some areas are still devoid of native vegetation despite extensive planting and replanting efforts and hundreds of replanted trees and shrubs have not survived. The loss of pools, undercut banks, and overhanging vegetation caused by the bulldozing of the original Creek channel and floodplain has compromised the kind of habitat that allows native fish populations to thrive.

Fish populations have consequently plummeted in the affected areas according to SCWA's own data and salmon fry are noticeably lower in the Winters Putah Creek Park because all refugia such as provided by pools with over-hanging vegetation were removed without suitable replacement of other habitat. There have also been noticeable drops in mammal, bird, and amphibian populations in this Winters Putah Creek Park project.

The target species that was supposed to benefit the most from the Winters Putah Creek Park project was fall-run salmon. Despite 2,000 tons of imported spawning gravel and carefully timed supplemental flow releases, after ten years following completion of the first two phases of the project there is still no evidence that salmon from eggs hatched in the creek have returned to spawn.

Indeed, a recent survey of all gravel-filed riffles installed during the construction of the Winters Putah Creek Park project showed that *all those riffles were filled with silt and unusable by salmon for spawning purposes*. As stated in the Memorandum authored by TRPA Fish Biologists to SCWA entitled, "*Results of October 2020 Lower Putah Creek Fish Surveys*" (June, 2021),

"*...the high flows associated with Lake Berryessa spills during the late winter and early spring of 2019 resulted in sand deposition throughout the Winters Park channel restoration area that filled in many of the pools and covered many of the gravel riffles and the upper weir site*."

In fact, the most recent inspection of the riffles by a representative of FOPC and reported to the LPCCC and SCWA Staff showed that ***all*** of the riffles constructed as part of the Winters Putah Creek Park project had been silted and rendered useless as salmon spawning habitat. Additional gravel actually had to be brought in and placed in new areas of the Creek that were naturally developed as suitable for spawning purposes by fluvial geomorphology rather than in riffle areas created by the diesel-powered morphology utilized in the Winters Putah Creek Park project.

According to the above design manual, "*A central premise of process-based restoration is that restoration of natural systems (e.g., rivers streams, their floodplains and watersheds) is best achieved by 'letting the system do the work'. Process-based restoration recognizes that to restore ecologically functional riverscapes, we need to restore the physical and ecological processes responsible for creating and maintaining those conditions.*"

Friends of Putah Creek fully agrees with the basic premise of this gentle restoration approach in which the return of natural systems is facilitated by invasive plant removal and native plantings rather than by employing brute diesel force to reshape the ecosystem, as has been the hallmark of SCWA's methods. As Jared McKee, an environmental engineer with the US Fish and Wildlife Service and expert in riparian systems and habitat restoration appropriately asked:

"What if restoration was about stream power doing the work, not diesel power?"

Unfortunately, these considerations were not taken into account in the design of the Nishikawa project which instead will rely on wholesale reformation of the floodplain by massive earth-movers without adequate discussion of the potential adverse environmental impacts nor mitigations proposed in either the IS/MND nor the underlying PEIR. Nor is this reflected in the discussion of possible alternatives to the projects(s) in either the PEIR or draft IS/MND.

Further, one of SCWA's primary aquatic consultants for the past decade, Ken Davis, issued a report to SCWA in 2020 in which he rated the long-term effectiveness of different strategies in terms of providing suitable salmon-spawning habitat on Putah Creek. In that report he rated the usefulness of fixed stream bed channelization by SCWA, such as employed at the Winters Putah Creek Park project and planned to be employed at the Nishikawa project as a 0 (zero) on a scale of 1-5 in terms of relative effectiveness n creating salmon spawning habitat on Putah Creek while noting that such efforts only lasted a few years (as we reported to the LPCCC – see above). None of this information was reported or discussed in the IS/MND or in the PEIR when it was updated and recertified in November, 2022 as is otherwise required for disclosure under CEQA regulations.

Indeed, the advantages of using fluvial, stream-based geomorphology to create a dynamic adaptive stream channel structure and features compared to the fixed profile wrought by diesel-powered geomorphology actually had been recently recognized by the Lower Putah Creek Coordinating Committee as a future planned restoration philosophy and design consideration when they stated the following in the December 2022 minutes of the LPCCC, *"The concept of Process Based Restoration (PBR) was also discussed. PBR projects used less diesel and allow the power of water itself to do the work of changing channel geometries*

in a more natural approach that also turn out to be less expensive.". None of this information was reported or discussed in the draft IS/MND or in the underlying PEIR as a project design alternative as is otherwise required for disclosure under CEQA regulations.

Finally, we note that the current Nishikawa Project Manager himself has questioned the effectiveness of the restoration strategies employed in the past in the Winters Putah Creek Park when he stated in a cover memo announcing the release of the IS/MND on March 8, 2023, "*Previously, specifically in The Winter's Putah Creek Park project, a big concern that Friends of Putah Creek have in regards for the environmental impact concerning these restoration projects was in the over-compaction of floodplain fill material. While this CEQA document doesn't cover specific details of construction, we are taking precautions not to create an impervious ground layer that impairs planting regrowth with plans to implement periodic trenches filled with a drainage friendly mulch/gravel mix and possible ground ripping/soil mixing where clay is present at the designed floodplain level. Additionally, the majority of earth-moving activities will be cutting material from high floodplains and minimal fill volume deposition with that fill material being primarily a sandy gravel mix taken from deposits on the floodplain as opposed to a more fine/clayey soil sourced externally. I hope this alleviates some concerns with the project, as we hope to continue improving riparian habitat on Putah Creek* ***while learning from mistakes made in the past***". (Emphasis added)

While we are certainly hopeful that past mistakes will not be repeated in future projects and the apparent mindfulness of such past mistakes on the part of the new Staff at SCWA is encouraging, none of this information regarding the past deficiencies and "mistakes" in the Winters Putah Creek Park project was reported or discussed in the PEIR when it was updated and recertified in November, 2022 nor is it disclosed in the current IS/MND for the Nishikawa project as is otherwise required for full and proper disclosure as a mitigation or project alternative under CEQA regulations.

2. <u>Failure to Properly Analyze the Least Environmentally Damaging Alternative</u>

The Draft IS/MND correctly states that the project will require review by the US Army Corps of Engineers (ACE) pursuant to section 404 of the Clean Water Act (CWA), which by law invokes a review by the California Water Boards under CWA section 401. The ACE requires that a proposed project be the least environmentally damaging alternative [CWA section 404(B)(1)] under a rebuttable presumption that a less-damaging alternative exists; it's the applicant's responsibility to rebut the presumption with a suitable analysis. The 'wetland procedures' adopted as policy by the State Water Resources Control Board (SWRCB) in 2020 have established a similar requirement for CWA section 401 reviews pursuant to the state's Porter-Cologne Act.

While these are separate permit approval processes from the CEQA review, subject to their own environmental documentation requirements, the identification and consideration of alternatives that avoid or minimize environmental effects is a subject for which local (such as SCWA) and state agency proponents (such as the DWR) are responsible pursuant to CEQA (e.g., PRC §21002; CCR §15002; many others). This is a basic substantive requirement of CEQA, and applies without respect to the use of a Negative Declaration or an Environmental Impact Report (EIR) to meet CEQA's procedural requirements.

Given the fact that the possible adverse environmental outcomes of the diesel geomorphology methodology employed by SCWA in the Nishikawa project are a viable concern based on the lack of prior success of SCWA in performing such radical stream alterations in the Winters Putah Creek Project, we believe it is imperative that a range of alternatives be considered to the radical stream realignment proposed for the Nishikawa project We also note that there is no substantial evidence that such a stream alteration methodology is successful without adverse environmental consequences and we have otherwise presented substantial evidence that the current approach selected by SCWA is likely to have substantial adverse environmental impacts as discussed earlier in this comment letter.

Unfortunately, there has not been an adequate analysis of alternative designs other than the proposed “fixed” meandering stream form using diesel-powered geomorphology which does not account for the dynamics and natural consequences of fluvial geomorphology. Alternative project approaches that address the hydraulic issues at the site might be a more cost-effective and less environmentally damaging long-term solution. That kind of consideration is, in fact, the specific reason that the Legislature directed lead agencies to consider alternatives in the CEQA process, and the reason that the CWA and the Porter-Cologne Act require alternatives assessments.

Specifically, it's not clear why SCWA is not considering an alternative design (or more than one) that could include, for example, using fluvial geomorphology to obtain a dynamic stream bed channel instead of the fixed bed channel design formed by diesel-powered geomorphology. The current proposal already includes all of the area that would be affected by such an alternative in the project footprint and the difference between the proposed project and such an alternative is primarily in the project design and the construction and mitigation installation processes. Such alternative design and construction considerations should have clearly been addressed in both the PEIR and the IS/MND as is required by CEQA guidelines.

Finally we note a rather large discrepancy between the fixed and immutable design stream bed channel width of 28-30 ft employed in the entirety of the Winters Putah Creek Park project and which was claimed to be derived from an analysis of the flow characteristics of the Creek. It was claimed this width was required to maintain its structure and function during future normal and high flow events in the Creek. However, the current maximum stream channel width in the Nishikawa project is only 18 ft wide along the entirety of the length of the project.

This channel width discrepancy and design ambiguity is not explained anywhere in the IS/MND and seemingly conflicts with the supposedly fixed and immutable design principles espoused in the earlier Winters Putah Creek Park project and the PEIR. In as much as the supposedly stable “proper form and function” of the stream bed channel is an integral part of the Nishikawa project, these discrepancies should have been disclosed and discussed In the IS/MND. and should have been discussed and analyzed in the IS/MND.

Conclusions

The IS/MND and the PEIR critically suffer from 1) significant and critical lapses in terms of the disclosure and discussion of potential inadequacies of the proposed stream channel design and construction and its compliance with regional conservation land use plans and 2) in terms of analysis of possible project alternatives. As such, the documents are deficient with respect

to required public disclosure and analysis under CEQA guidelines and should be remedied before certification and filing of a Notice of Determination.

Comment Letter

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Attach.

Winters Putah Creek Park - Part 1 - Case Study of a Failed Project

Description of the Project

The Winters Putah Creek Park project is a perfect example of good restoration intentions going awry and resulting in serious degradation of creek habitat by massive alteration of the natural form of the stream bed. This is being called “geomorphological engineering”.

The project was designed by the Solano County Water Agency (SCWA) to alter the streambed and riparian floodplain in three phases along the entire 1.2 miles of Putah Creek flowing through the City of Winters. The first phase was begun on the upper 1/3 end of the creek in 2011 by nearly clearcutting a mature riparian forest of native and non-native trees alike, from stream bank to stream bank, and importing over 70,000 cubic yards of alien, clayey fill. The soil was graded flat and smooth with a slight 2 percent slope toward stream. The floodplain and channel were heavily compacted and stream was left with only a narrow channel through the center of the former streambed. The final depth of the compacted fill varied from about 2 to over 12 ft.

Stream and floodplain features such as wetlands, ponds, swales, back-channels, undercut banks, and deep pools that create ecological diversity and complexity were completely eliminated in this process. The newly-formed barren floodplain was soon replanted with thousands of native plants. The intention was to quickly provide a fully functional riparian habitat complete with undercut banks and creek-side shading suitable for the entire food chain to thrive.

Phase 2 of the project on the lower 1/3 end of the creek was constructed using functionally the same process with grading also completed in 2011. Replanting also commenced almost immediately.

Phase 3 (the middle 1/3) of the project was prematurely started in 2014 but was stopped when it was discovered that SCWA had not applied for the appropriate permits from the Army Corp of Engineers and Central Valley Flood Control Board for any of the phases of the project.

The stated objectives of the project were to enhance the overall habitat of the section of Putah Creek running through Winters by:

1) Removing invasive species (such as Arundo, Himalayan blackberry, and Eucalyptus) and replace with native species to provide a natural riparian forest and shading alongside Putah Creek. This would benefit all creek-dependent animal life forms including insects, birds, fish and mammals.

2) Lowering water temperatures in Winters and downstream to entice more trout migration into these lower sections of the creek.

3) Improving overall fish habitat to increase fish populations.

It was also proposed that stream temperatures would be lowered by simply increasing stream velocity through the newly narrowed Creek channel along with more shading provided by the anticipated replanted native riparian forest.

Proven Objective Project Failures

Unfortunately, the Winters Putah Creek project has failed to deliver on any of these main objectives. It has also produced some serious unintended adverse side effects.

1. Failure to Reestablish a Riparian Floodplain Habitat

Literally thousandss of seedlings and saplings have been replanted in Phases 1 and 2 of the project in the years following completion of these phases. Almost all the replants have since died for lack of water because water cannot move from the stream to the trees through the dense compacted fill. In some parts of the project, dense compact impermeable fill extends more than 12 ft deep and blocks water from reaching the trees. The impermeable fill has completely disconnected the new creek channel from the original porous, gravelly, permeable floodplain .

Comment Letter
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Attach.

This has also caused serious stress and even death of the few remaining trees on the periphery of the bulldozed floodplain. You see this in most every cottonwood on the south bank below the railroad bridge. New plant growth is now dominated by a patchwork of invasive grasses and herbaceous plants including, bermuda grass, Italian rye-grass, Johnson grass, cockle-bur, and star thistle.

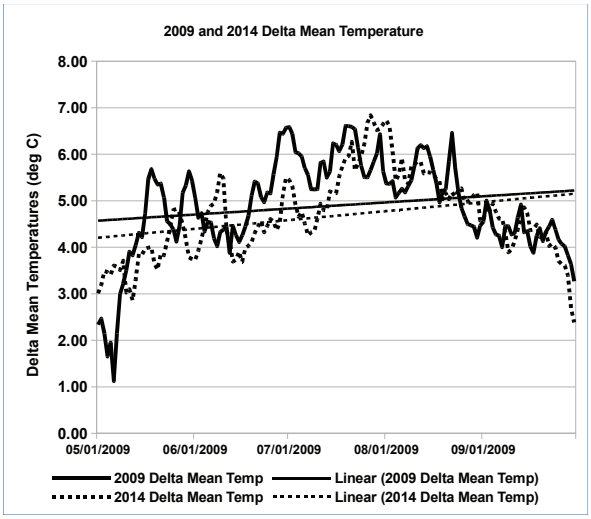
Although requested, a precise analysis of the number of removed, replanted, and current status of native species on the floodplain has either not been provided by SCWA.

2. Failure to Reduce Creek Temperatures

Reducing creek temperatures to improve trout habitat was to be a major benefit of rechannelization based on geomorphological engineering principles. Unfortunately, the Solano County Water Agency has failed to provide any evidence that such a beneficial effect has occurred as a result of the Winters Putah Creek Parkway project

One problem in determining the success or failure in meeting this objective is that there were few temperature sensors maintained by the SCWA in locations in the Creek before the project. This limited "before and after" comparisons. According to SCWA, only one pair of sensor sites located at Winters Bridge (directly upstream of the project) and downstream the Stevenson Bridge provided sufficiently reliable temperature measurement data from May 1 through September 30 in both 2009 and 2014. This represents data from both a year before and a year after completion of Phases 1 and 2 of the project. The following graph shows the daily mean temperature differentials between these two sites for both 2009 and 2014.

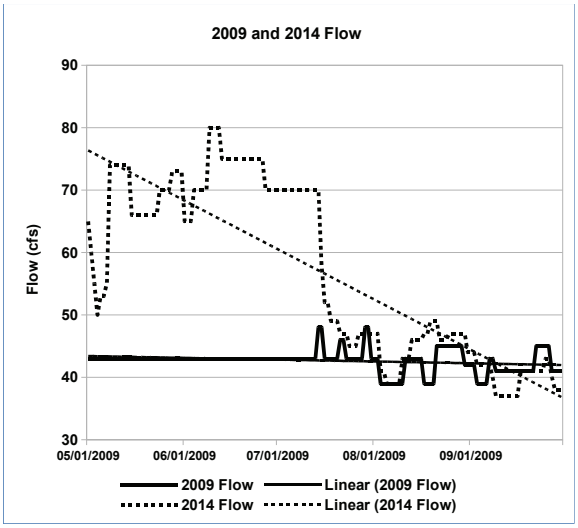
As shown, the mean daily temperature differential between Winters Bridge and Stevenson Bridge site was approximately 0.25 – 0.5 deg C lower from April 1 to July 15 in 2014 (post-project) compared to 2009 (pre-project); albeit with large daily fluctuations. Beginning in August the mean temperature differential was not statistically different between 2009 and 2014.



SCWA engineers have stated that these decreased temperature differential spreads between these two sites, at least in May - early July of 2014 compared to 2009, is "compelling" evidence supporting their thesis that the Winters Putah Creek Park rechannelization project is producing cooler downstream temperatures.

We strongly disagree with their conclusions.

We subsequently obtained and also graphed the daily stream flow data over the exact same 2009 and 2014 time periods as the temperature data (shown in the following graph).



As is apparent in this 2nd graph, the modest difference in temperature differentials between 2009 and 2014 for the May to July period (in the first graph) are directly correlated to and likely entirely attributable to the average *75% greater instream flow* released from the diversion dam in 2014 compared to 2009. By comparison, in August of both years when instream flows were near equal, there was virtually no difference in mean temperature differentials between the pre- and post-project years.

The SCWA's claim that this data indicates that the rechannelization project does, in fact, reduce downstream temperatures is without merit and simply failed to account for the dramatically increased instream flow in 2014. There is no other data suggesting that rechannelization has resulted in cooler downstream Creek temperatures. Proponents of the rechannelization project simply claim that just moving the water downstream faster will result in cooler water temperatures and this can be accomplished by channelizing the stream and removing large deep preexisting ponds. However, additional factors affecting Creek temperature have not been quantitatively considered by the SCWA.

The temperature regime of a stream like Putah Creek is the product of a complex set of variables including not just the linear velocity or speed at which water is moving downstream relative to the amount of solar radiation striking the creek.

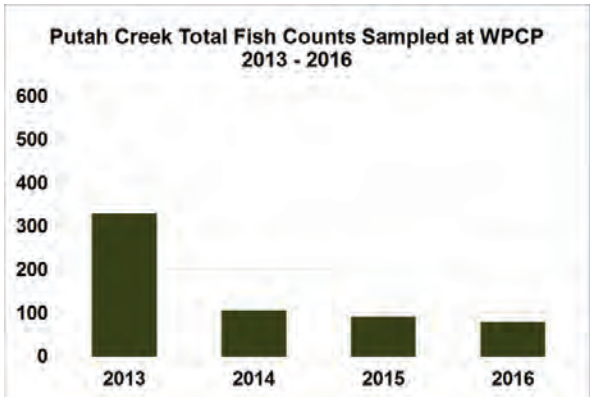
One factor is evaporative cooling from the water surface during the day. Larger surface area of pools provide greater evaporative cooling than narrow channels. This would be even more likely if those cooling pools in question were heavily shaded to protect the water surface from solar radiation heat gain as existed pre-project.

Pools with large surface area would also provide more convective cooling and black body radiation cooling at night. Additionally, deeper pools will provide substantial buffering capabilities due to the reservoir of cooler water deeper in the pools where heat gain is minimized because the Creek water contacts with cooler groundwater sources and earth.

3. Failure to Increase Fish Populations

One of the cornerstone objectives of the Winters Putah Creek Park project has been to improve the Creek as fish habitat. However, this hypothesis has never been quantitatively tested with the results publicly disclosed even though the data has been available to the SCWA to do so for many years.

Although the SCWA has been collecting annual fish counts for the past several decades, they only recently publicly released fish count data for the years 2013 through 2016. Excerpts of this data are partially presented in the following graph.



This shows an unmistakable 67% decrease in total fish populations in the Winters Putah Creek Park project area over time since the project was completed.

Additionally, the fish populations at the Winters Putah Creek Park (WPK) were compared to those at sites immediately upstream (Dry Creek - DRY) and downstream (I505 & RR- Russel Ranch) for the post project years of 2013 – 2016 as shown in the following series of graphs.

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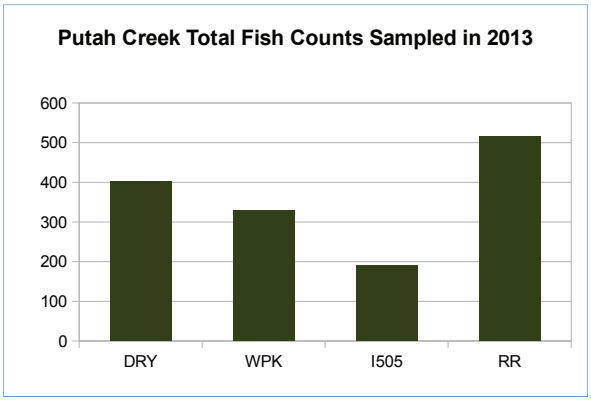

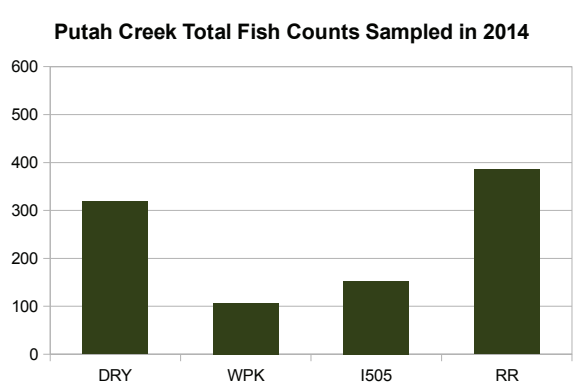

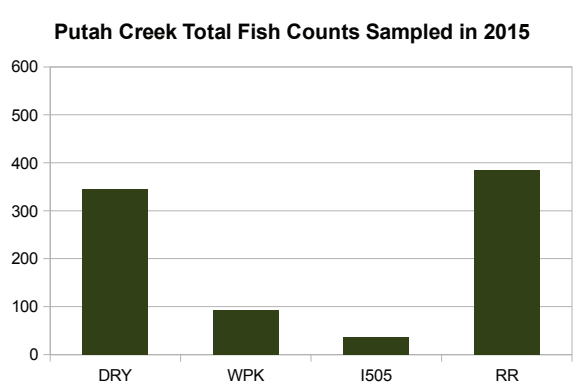

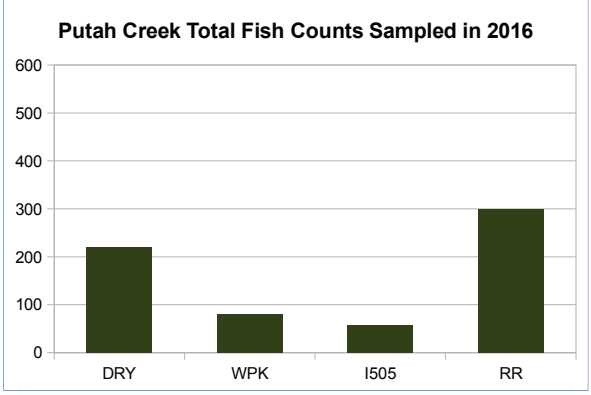

These graphs conclusively shows that the total fish populations in the Winters Putah Creek Park project and immediately downstream at I505 are severally depressed compared to fish counts made immediately upstream and further downstream. It further casts doubt on the entire premise that drastic geomorphological engineering can beneficially impacts fish populations by narrowing the channel as claimed by project proponents.

Project proponents otherwise claim this decrease in fish populations was due to unusual drought conditions that existed for a number of years following the completion of the project. . However, because the stream is protected by regulated flows as a result of the Accord and these flows have been minimally maintained throughout the drought years, this statement is factually incorrect.

Further, trout populations were specifically projected to rise as a result of the geomorphological engineering work done in the Winters Putah Creek Park. Instead, that section of the Creek has not seen increasing trout populations over the recent years which have remained uniformly low and decreasing on average.

In summary, the claim that the geomorphological engineering used in this project beneficially improved fish habitat in the Winters Putah Creek Park project area is not substantiated by the available evidence which is the actual fish counts themselves

4. Significant Reduction in Annual Groundwater Recharge due to the Impermeable Compacted Soils

This project also has an unseen but very serious side-effect which has not been recognized nor evaluated by the SCWA. It is decreasing groundwater recharge.

In historical times (i.e. before Monticelllo Dam was constructed and water flow was only regulated by rainfall), Putah Creek would frequently run dry in the hottest summer months as the low flow of water sank into the porous streambed as it passed through

Winters. The Creek reemerged miles downstream when impermeable layers of soil forced the Creek back up to the surface.

Thus, due to the high porosity of the sandy, gravelly original bed of Putah Creek through Winters. Putah Creek water was a very significant source of groundwater recharge. This is the groundwater relied upon by the City of Winters for municipal needs and by surrounding farmers for irrigation needs.

As a result of the importation of unsuitable fill and compaction by heavy equipment, the stream bed and banks are now sufficiently nearly impermeable to the extent that it probably meets specifications for a landfill lining or a canal lining.

The potential maximum reduction in groundwater recharge water is easily calculated based on Solano County Water Agency's own data. SCWA has continuous data on flows upstream at the diversion dam and downstream at I-505. The lower flow at I-505 represents the water loss to groundwater and evapotranspiration.

According to SCWA data and as shown in Appendix A, there was an average loss of 15.5 cubic feet per second (cfs) of flow in the 4.2 mile reach from the Diversion Dam to I-505 during the months of August and September in the pre-project years of 2008 – 2010.

The months of August and September were chosen for investigation because they would presumably be unaffected by irrigation diversions from the Creek (which are not allowed after July 15) nor influenced by rain and/or surface runoff. During the post project years of 2013 – 2017, the average difference in flow during August and September decreased to 9.8 cfs. This represents a reduction in the difference of average flows from the pre-project period to the post-projects period of 5.6 cfs.

The volume of water potentially lost for aquifer recharge on an annual basis can thus be calculated in different units as follows:

5.6 cfs x 86,400 sec/day x 365 days = 176,600,000 cf/yr.

176,6000,000 cf/yr x 7.48 gal/cf = 1.32 billion gallons/yr.

176,000,000 cf / 43,560 cf/ac-ft = 4,054 ac-ft/yr.

These lower differences in flow between the pre-project and post-project years represents water that is not percolating into the ground as a result of the impermeable floodplain laid down by the project.

1.32 billion gallons of water not recharging the local aquifer is equal to about 2.7 times the annual water usage of Winters (497 million gallons/year). In other units of volume, 4,054 acre-ft of water is enough to irrigate about 1,350 acres at 3 ac-ft per year.

Winters municipal water supply is entirely groundwater sourced as is irrigation water for many nearby ranches. This loss of groundwater will have a severe affect on the municipal water supply of the City of Winters and the availability of groundwater to local farmers that will only become more evident over time

In Conclusion

Geomorphological engineering is not the solution it was claimed to be when used for restoration on creeks similar to Putah Creek. The Winters Putah Creek Park project has resulted in a almost complete failure to establish the riparian forest cut down to allow for creek channel alteration. Fish populations have plummeted in the Creek as it passes through the restored portion of the Park due to loss of favorable habitat. And the project has resulted in severe loss of groundwater recharge.

Heavy, massive earth-movers, bulldozers, and dump trucks are crude instruments to use to restore or create a complex, fine-grained, diverse stream or floodplain environment. What is needed is a lighter touch, more appreciation of the creek's complex floodplain, its wildlife, and the natural processes at work.

Written by Friends of Putah Creek for public distribution. June, 2018.

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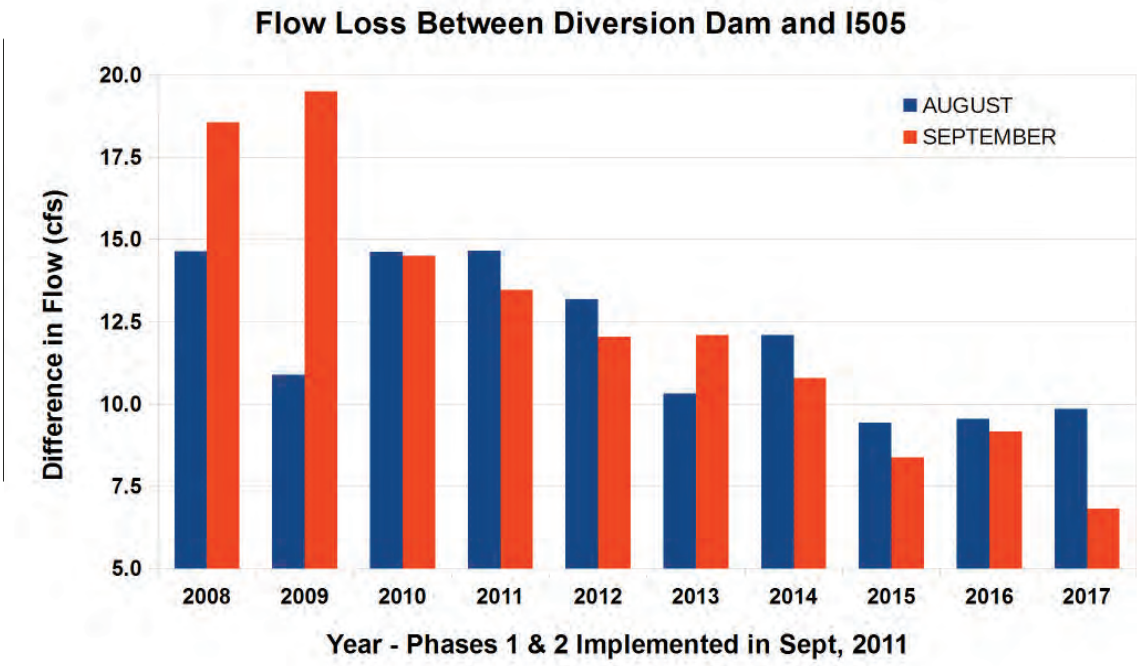
Appendix A



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Winters Putah Creek Park – Part 2 – Analysis of Project Failures

by Friends of Putah Creek - August, 2019

EXECUTIVE SUMMARY

This document examines shortcomings in planning, engineering, and monitoring methods used by the Solano County Water Agency (SCWA) to alter a one mile+ reach of Putah Creek in the Winters Putah Creek Park project and which are proposed for application to additional reaches of the Creek as it flows over 22 miles to the Yolo Bypass.

Previous work on the Winters Putah Creek Park project has produced less than acceptable results as quantitatively documented in a previous report entitled *Winters Putah Creek Park – Part 1 – Case Study of a Failed Project* by Friends of Putah Creek. Friends of Putah Creek (FOPC) is a non-profit advocacy group devoted to protecting Putah Creek's natural heritage and ecological functions.

This report reviews project practices and outcomes and provides context through the lenses of conservation strategies and best management practices recommended by the following authoritative guides to proper restoration:

1) The recently adopted ***Yolo Resource Conservation Investment Strategy - Local Conservation Plan***,

2) The ***California Riparian Restoration Handbook*** (2nd ed, 2009) by Restoration Ecologist F. Thomas Griggs, Ph.D., and

3)The ***Low-Tech Process-Based Restoration of Riverscapes: Design Manual*** by Utah State University Restoration Consortium.

Putah Creek restoration methods that have been implemented by the Solano County Water Agency (SCWA) are compared to these best management practices as summarized below.

1. Winters Putah Creek Park Violates Many Conservation Strategies and Best Management Practices in the *Yolo Resource Conservation Investment Strategy - Local Conservation Plan* (RCIS-LCP)

The *Yolo Resource Conservation Investment Strategy - Local Conservation Plan (RCIS-LCP)* is a landmark document prepared under the guidance of the Yolo Habitat Conservancy which specifies Conservation Strategies for enhancing the habitat of lands and waterways within Yolo County. These mandated strategies should be viewed as Best Management Practices to be applied to all projects. The Winters Putah Creek Park project violated numerous principles of the RCIS-LCP as identified in sections (a) through (f) below.

a) To meet the goal of maintaining the integrity of natural communities in restoration projects, the RCIS-LCP recommends using only native soils and specifically advises against the use of imported fill and soil compaction.

These recommendations were ignored by SCWA in executing the Winters Putah Creek Park project wherein two to twelve feet of imported heavy, clayey soil was deposited on the creek floodplain and then intentionally compacted.

b) Under the goal of *improving dynamic hydrologic and geomorphic processes in watercourses and floodplains in a way that avoids or minimizes impacts on terrestrial species habitat and increases structural diversity*, the conservation strategy recommendations include:

- Creating riparian management corridors that permit lateral channel migration;
- Creating secondary channels and overflow swales that add riverine and floodplain habitat values (e.g., resting or rearing areas for fish migrating downstream), allowing channels to meander naturally through the floodplain;
- Providing greater topographic and hydrologic diversity, recognizing that depressional features such as ponds and back channels that provide important refugia for species such as western pond turtle and that higher ground in floodplains that can serve as wildlife refugia from floodwaters.

Instead, the new stream channel as engineered by SCWA is designed to be "*stable and self-sustaining*". The floodplain as designed and constructed is a planar surface sloping at a uniform 2% uniform grade across the entire floodplain, eliminating almost all topographical diversity including ponds and high ground. Further, imported and compacted fill is so indurated that potential lateral migration and future meandering is extremely restricted.

c) Under the goal of *maintaining fluvial equilibrium and protecting lacustrine/riverine systems supporting American beavers*, the conservation strategy recommendations include avoiding stream channelization, avoiding unnecessary vegetation removal, and targeting portions of streams that support American beavers for protection including protection of existing beaver dams.

Instead, the relocated stream was highly channelized, utilizing compaction, log revetments, and boulders. Over 90% of the vegetation in the floodplain was removed by bulldozers, ponds that supported beaver colonies were drained and filled, and high banks with occupied beaver dens were leveled. The once thriving beaver population is reduced to one or two animals that occupy a single very small section of creek that, in an eleventh-hour move, was fortunately preserved as a backwater.

d) Under the goal of *maintaining and/or restoring and protecting stream processes and conditions*, conservation strategy recommendations include maintaining subsurface flow, connecting groundwater hydrologically to streamflow in each watershed, and expanding and protecting riparian vegetation.

Instead, earth-moving and deposition of compacted fill imported by SCWA has disconnected the stream from groundwater. Efforts by SCWA to remediate the loss of subsurface flows by testing "French Drain" type channels have been largely unsuccessful. Most riparian vegetation was removed from the flood plain during rechannelization, deposition of fill, and other heavy equipment earth-moving activity.

e) Under the goal of *increasing the area of shaded riverine aquatic habitat for focal fish species and increasing the amount of large wood material in the stream*, recommended conservation strategies include enhancing the biomass of overhanging or fallen branches and in-stream plant material to support the aquatic food web, restoring vegetation along stream-banks, increasing input of large woody material to streams, and installing large woody material directly into streams and along stream banks as a component of restoration or enhancement projects.

Instead all overhanging vegetation was removed when the floodplain was bulldozed and the stream channel was moved, and the majority of woody biomass was eliminated. The compacted earth fill created a dense, root-restricting soil strata that will permanently retard or prevent growth of woody riparian plants.

f) Under the goal of *increasing Western Pond Turtle habitat*, conservation strategy recommendations include protecting occupied areas and adding rocks and logs to aquatic habitat to provide basking sites and cover.

Instead, except for the very short backwater that was not in the engineering plans and was added as an afterthought, slow moving sections and ponds favored by Western Pond Turtles were eliminated, existing basking sites were removed, and known nest sites were bull-dozed.

The actions by SCWA disregard established best practices and violate the fundamental and critical conservation strategies mandated by the *Yolo Resource Conservation Investment Strategy - Local Conservation Plan.*

2. Winters Putah Creek Park Does Not Meet Pre-Project Engineering Analysis and Post-Project Monitoring Recommendations in *California Riparian Habitat Restoration Handbook, Second Edition*, July 2009 by F. Thomas Griggs, Ph.D., Senior Restoration Ecologist

The *California Riparian Habitat Restoration Handbook* is specifically recognized in the *Yolo Resource Conservation Investment Strategy - Local Conservation Plan* (RCIS-LCP) as an authoritative source that is widely accepted among restoration scientists for conservation actions to restore riparian natural community habitats.

The Winters Putah Creek Park project does not meet pre-project engineering analysis and post-project monitoring recommendations in the *California Riparian Habitat Restoration Handbook*.

It is abundantly clear from this restoration manual that one of the most, if not THE most important criterion when considering the likelihood of success of any restoration project is to have a complete and thorough understanding of pre-existing soils and underlying strata in both the stream bed and the adjacent floodplain. Information and analysis of multiple soil samples from different depths of numerous bores throughout the entire project area are key factors in determining the appropriate replanting strategy for the riparian forest.

Friends of Putah Creek (FOPC) requested any applicable soil or fill analyses information from SCWA on numerous occasions. When nothing was received FOPC issued a Public Record Act Request that included a request for information on pre-existing soil conditions. Almost a year later SCWA has yet to provide the information, suggesting that such an analysis was not completed. With information from such an analysis, SCWA should have chosen to modify plans to deposit and compact the massive volume of foreign clayey fill material in the stream-bed and floodplain.

Subsequent to the completion of the first two phases of the project, FOPC members took surface samples from the new floodplain. It was necessary to use a pick-ax to remove a one-foot square sample, which resembled an adobe brick in density and hardness. In some areas extensive remediation will be required to facilitate the return of a viable riparian forest. Such measures as removal of existing indurated soil, replacement of gravel layers, and back-filling with uncompacted, amended soil will likely be required.

It is also evident from the *California Riparian Habitat Restoration Handbook* that a rigorous and quantitative wildlife monitoring regime is critical to determining success of restoration projects as well as for adaptively managing mitigation efforts and revising future restoration plans. Wildlife monitoring to determine restoration success should include plants, fish, insects, birds, amphibians, and mammals. SCWA is required to complete wildlife monitoring under the 2002 Putah Creek Accord. Wildlife moni-

toring reports are required to be posted annually within 15 days of receipt by SCWA, but this requirement has been ignored for years.

Friends of Putah Creek requests for all pre-project and post-project wildlife monitoring data for the Winters Putah Creek Park project have been ignored by SCWA even when they were formally required to produce the reports through a Public Records Act Request. It is very telling that SCWA either has not performed the required monitoring or refuses to release the results as required by both the court and standard restoration practices.

3. Winters Putah Creek Park Design Philosophy Conflicts with Proven and Cost-Effective Restoration Strategies Discussed in ***Low-Tech Process-Based Restoration of Riverscapes: Design Manual*** (Utah State University Restoration Consortium, 2019)

The *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* is specifically intended to assist restoration professionals to achieve successful restoration of stream and riparian ecological health in ecosystems degraded by man-made structures and impacts. It provides the underlying design philosophy and tools enabling restoration scientists and practitioners to produce remarkable results in restoring salmon habitat, as referenced in a recent Science article (Science, June 8, 2018, Vol 360 - Issue 6393), by the use of low cost beaver dam analogs and other natural structures costing approximately $10,000 per mile of restored stream. This compares with the equivalent costs of almost $6,000,000 per mile spent on the Winters Putah Creek Park project which has yet to produce evidence that any salmon spawned in the creek are returning as a result of the project. It is apparent that there are substantial differences between the low tech and low-cost methods used by experienced professional restoration ecologists versus the practices employed by SCWA on Putah Creek.

The Winters Putah Creek Park project engineering philosophy conflicts with the proven and cost-effective restoration strategies discussed in this design manual, which uses low-cost structures of natural materials and beavers themselves to add complexity and diversity to floodplains. This is inherently less expensive (by at least 2 orders of magnitude) than floodplain-damaging techniques that rely on massive earth moving machinery to create a constrained stream bed as was done at Winters Putah Creek Park.

For instance, great effort was expended in the Winters Putah Creek Park project to obtain a “stable” and “self-sustaining” Creek form but, as explained by the *Low-Tech Process-Based Restoration of Riverscapes: Design Manual*, these attempts are self-defeating. Quoting the manual, “*Stability is not a hallmark of healthy riverscapes...The desire to reduce uncertainty and precisely predict restoration outcomes has led to practices that tend to emphasize the stability of channels and in-stream structures. In the context of stream restoration, stability has often meant static. Constructed features and attributes such as plan-form, channel width, location of pools and riffles are designed in such a way that they do not change through time. The emphasis on stability requires detailed engineering designs, modeling, and heavy equipment, all of which contribute to the high cost of restoration….**However, population level response of target species*** [e.g., salmon and steelhead] ***to these restoration actions is equivocal***.” (Emphasis added)

Certainly, the desired outcome of the work in Winters Putah Creek Park has been questionable. Despite a cost of about $6,000,000 to alter only one mile of Creek, there have been no quantifiable benefits to wildlife. After eight years some areas are still devoid of native vegetation despite extensive planting efforts and hundreds of replanted trees and shrubs have not survived. The loss of pools, undercut banks, and overhanging vegetation caused by the bulldozing of the original Creek channel and floodplain has compromised the kind of habitat that allows native fish populations to thrive. Fish populations have consequently plummeted in the affected areas according to SCWA’s own data. There have also been noticeable drops in mammal, bird, and amphibian populations in these areas.

The target species that was supposed to benefit the most from the Winters Putah Creek Park project was fall-run salmon. Despite 2,000 tons of imported spawning gravel and carefully timed supplemental flow releases, after eight years following completion of the first two phases of the project there is still no evidence that salmon from eggs hatched in the creek have returned to spawn.

According to the above design manual, "*A central premise of process-based restoration is that restoration of natural systems (e.g., rivers streams, their floodplains and watersheds) is best achieved by 'letting the system do the work'. Process-based restoration recognizes that to restore ecologically functional riverscapes, we need to restore the physical and ecological processes responsible for creating and maintaining those conditions*."

Friends of Putah Creek fully agrees with the basic premise of this gentle restoration approach in which the return of natural systems is facilitated by invasive plant removal and native plantings rather than by employing brute diesel force to reshape the ecosystem, as has been the hallmark of SCWA's methods. As Jared McKee, an environmental engineer with the US Fish and Wildlife Service and expert in riparian systems and habitat restoration appropriately asked:

"What if restoration was about stream power doing the work, not diesel power?"

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BACKGROUND

In June, 2018, Friends of Putah Creek published a document entitled, *Winters Putah Creek Park – Part 1 - Case Study of a Failed Project*. The following discussion draws from that document.

The stated objectives of the SCWA Winters Putah Creek Park project were to enhance the overall habitat of the section of Putah Creek running through Winters by:

- Removing invasive species such as Arundo, Himalayan blackberry, and Eucalyptus and replacing them with native species
- Lowering water temperatures in Winters and downstream to attract more salmonid migration into these lower sections of the creek and improve salmon spawning success, and
- Improving overall fish habitat to increase fish populations.

The project as implemented by the Solano County Water Agency (SCWA), first used bulldozers and earth-movers to clear and strip most of the mature and mostly native riparian forest from Putah Creek's floodplain in Winters. Over 90% of the mature trees and other shrubs and ground vegetation in the floodplain were removed in this process.

The floodplain was then flattened and, in the first two phases of the project, covered with 70,000 cubic yards of a heavy, clayey imported fill brought in from a distant canal excavation site. This fill was spread with bulldozers into a 2 - 12 ft. deep layer. The entire floodplain was then graded bank-to-bank to a 2% slope and compacted to a density functionally equivalent to a canal or landfill lining. This layer of hard fill is several or more feet thick in most sections of the floodplain.

A new creek channel was then formed in the newly compacted floodplain. The man-made channel was significantly narrower (varying between 26-30 ft width) in most sections than the former one and virtually all pre-existing elements of habitat diversity in the floodplain (including ponds, back channels and swales) were eliminated in its construction.

Unfortunately this process resulted in a project that has failed to deliver on any of the main objectives above and, in fact, has produced some serious unintended adverse side effects, as follows:

1. **Failure to Reestablish a Riparian Floodplain Habitat**

Literally hundreds of seedlings and saplings have been planted in the eight years following completion of the first two phases of the project. Almost all the replants have since died for lack of water, because water cannot move laterally through the soil from the stream to the trees through the dense compacted fill. Nor can precipitation, air, or roots vertically penetrate the hardened surface of the floodplain. In most all parts of the project, the dense compact impermeable fill has completely disconnected the new creek channel from the original porous, gravelly, permeable floodplain. The compacted, hardened fill also blocked creek water from reaching residual mature trees in the floodplain which are now dead or slowly dying due to lack of water transport through the floodplain to their root zones. Apparently, no investigation of soil types, particle size differentiation, or subsurface stratigraphy was performed prior to the project, and during planning no consideration was given to soil conditions, subsurface stratigraphy, or groundwater movement.

2. **Failure to Reduce Creek Temperatures**

Reducing creek temperatures to improve trout habitat was to be a major benefit of rechannelization. It was supposed that stream temperatures would be lowered by increasing stream velocity through the

newly narrowed creek channel along with more shading provided by the riparian forest that never developed. Unfortunately, as Solano County Water Agency's own stream temperature and flow data show, there has been no reduction in water temperature as a result of the Winters Putah Creek Park project. A temperature difference that SCWA tried to attribute to the project instead proved to be due to an increase in flow. SCWA can provide no quantitative modeling or engineering studies performed to test or validate the assumption of a desired temperature effect.

3. **Reductions in Fish Population**s

A main objective of the Winters Putah Creek Park project was to improve the creek as native fish habitat. There is no evidence this goal has been achieved based on recently disclosed data. Indeed, SCWA's data show fish populations in the reach of Putah Creek through Winters instead declined by about 67% in the first 4 years after completion of the first two of three phases of the project.

4. **Significant Reduction in Annual Groundwater Recharge due to Impermeable Compacted Soils**

The Winters Putah Creek Park project also had the unseen but very serious consequence of decreasing groundwater recharge. This effect has been neither recognized nor evaluated by SCWA. Due to the high porosity of the original sandy, gravelly bed and floodplain of Putah Creek, Putah Creek water historically was a very significant source of groundwater recharge as it passed through Winters. This is the groundwater relied upon by the City of Winters for municipal needs and by surrounding farmers for irrigation needs. Based on stream flow data recorded by SCWA itself, this recharge has fallen by over 4,000 ac-ft per year – about twice Winters' annual municipal water use for all residential and commercial customers and approximately equal to the amount of water needed to annually irrigate about 1,300 acres of almonds. Apparently, SCWA gave no consideration to the below-ground impacts of the projects, did no quantitative modeling, engineering, or testing of the imported fill that should have been done, and that would have predicted the adverse groundwater impact of so tightly sealing the floodplain that water cannot penetrate it.

EVAULATION OF THE CAUSES OF THE PROJECT FAILURE

In evaluating the root cause of why the project has had so many poor performance results, the following external documents by recognized experts and authoritative sources are referenced. The full documents can be downloaded by clicking on the document name or inserting the following links into a browser.

1. ***Yolo Resource Conservation Investment Strategy - Local Conservation Plan*** (https:// nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=157451&inline),
2. ***California Riparian Restoration Handbook*** (2nd ed, 2009) by Restoration Ecologist F. Thomas Griggs, Ph.D. (https://water.ca.gov/LegacyFiles/urbanstreams/docs/ca_riparian_handbook.pdf), and
3. ***Low-Tech Process-Based Restoration of Riverscapes: Design Manual*** by Utah State University Restoration Consortium (https://www.researchgate.net/publication/ 332304757_Low-Tech_Process-Based_Restoration_of_Riverscapes_Design_Manual_Ver- sion_10).

Design standards, methods, and best practices from these manuals, documents, and reports are sequentially presented below followed by a discussion and application to the engineering, implementation, and post-project monitoring of the Winters Putah Creek Park project.

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1. Winters Putah Creek Park Violates Many Conservation Strategies and Best Management Practices in the Yolo Resource Conservation Investment Strategy - Local Conservation Plan (RCIS-LCP)

The Yolo Resource Conservation Investment Strategy - Local Conservation Plan (RCIS-LCP) was recently prepared for the Yolo Habitat Conservancy. The RCIS-LCP is meant to serve as a broad road map for conservation of all Yolo County ecosystems and species not specifically addressed in the Habitat Conservation Plan / Natural Community Conservation Plan (HCP/NCCP). In many respects the *Conservation Strategies* in the RCIS-LCP may be considered best management practices for ensuring protection of Yolo County's ecosystems and species.

The *Conservation Strategies* contained in the RCIS-LCP are listed in an extensive table identified as **Table 3-3. Conservation Goals and Objectives and Applicable Conservation Actions**. The table divides *Conservation Strategies* into 1) Landscape-Level Goals and Objectives, 2) Natural Community-Level Goals and Objectives, or 3) Species-Level Goals and Objectives.

Within each of these categories, different specific Biological Goals and Objectives are identified followed by Applicable Conservation Actions recommended to ensure the stated Biological Goals and Objectives are met.

Only those important *Conservation Strategies* which are directly applicable *and* which are functionally *NOT* met by the Winters Putah Creek Park project are discussed in this report.

For each applicable *Biological Goals and Objectives* and associated *Applicable Conservation Actions* discussed below, the exact text in the RCIS-LCP is used. Bold, blue high-lighted emphasis is placed on selected text by Friends of Putah Creek to highlight important points where the projects do not follow the excerpted *Biological Goals and Objectives* and associated *Applicable Conservation Actions.*

Table 3-3. Conservation Goals and Objectives and Applicable Conservation Actions

LANDSCAPE LEVEL GOALS AND OBJECTIVES

Goal L1: Large Interconnected Landscapes. Maintain interconnected landscapes in Yolo County with the range of physical and biological attributes (e.g. slope, soils, hydrology, climate, and plant associations) that support the distribution and abundance of focal and conservation species and their habitats, provide for the movement and genetic interchange among populations of focal and conservation species, support adaptive adjustments in species distributions in response to climate change, and sustain native biodiversity	
Biological Goal and Objective	**Applicable Conservation Actions**
Objective L1-4: Natural Community Restoration. Increase the extent of natural communities through restoration, in a manner that maximizes the likelihood of their long-term functioning, taking into consideration of both historic conditions and potential future conditions with climate change.	**L14.1.** Restore species composition and ecological processes in natural communities in areas **with the appropriate soils, hydrology**, and other physical conditions that support the community.
	L1-4.2. Implement initial restoration actions according to **recommendations in a restoration handbook such as Griggs (2009)** that is widely accepted among restoration scientists.

	L1-4.5. Adaptively adjust restoration approaches on the basis of additional knowledge gained from monitoring or observing previously implemented restoration actions. Incorporate knowledge gained from restoration science generally to the extent that it addresses conditions in Yolo County.
	L1-4.7. Use native local soils.
	L1-4.8. Do not import fill.
	L1-4.9. Do not compact soil.

Discussion Added by Friends of Putah Creek

L1-4.1 and L1-4.2 *– One of the key recommendations in Griggs (2009) is that extensive soil analysis of the floodplain be performed to ensure that soils used in remediation support the natural ecosystem and ecological processes of the floodplain. Particle size and mineral content analysis should be analyzed and the results used to determine the soil stratification throughout the entire project area. This is extremely important, as pointed out in Griggs, because it is the nature of the floodplain stratification that primarily determines the lateral transport of water and nutrients in the floodplain.*

Friends of Putah Creek has repeatedly requested that SCWA release information on their analysis of soil samples from the original floodplain and the imported fill and on their stratification analysis of the floodplain. SCWA has provided no such records in response to an official Public Records Act Request. It seems that SCWA failed to perform these necessary preliminary soil and stratification analysis as otherwise recommended by Griggs in the California Riparian Habitat Restoration Handbook (also see below).

L1-4.5*. - Phases 1 and 2 of the Winters Putah Creek Park project were completed in 2009 – 2011. Almost immediately, the project was challenged because the work on the project went well beyond the scope of the original Mitigated Negative Declaration (MND) environmental assessment of the project. That MND clearly specified that minimal vegetation was to be removed and that no foreign sols were to be brought into the project area. Unfortunately both these MND specifications were violated. Consequently problems with riparian replanting arose immediately that were identified as resulting from the imported fill placed on the floodplain and then compacted. Nevertheless construction of Phase 3 of the project commenced seven years later in October 2018 using identical methods to those known to have failed in Phases 1 and 2 including the removal of almost all vegetation in the floodplain and substantial addition and compaction of imported fill.*

Meanwhile quantitative evidence showed there were serious adverse impacts on groundwater recharge caused by lack of infiltration of water from the creek through the compacted fill into the underlying aquifer. This information was made available to SCWA between completion of Phases 1 and 2 and commencement of Phase 3. Unfortunately, SCWA ignored this new information and failed to adaptively use it in the design and implementation of Phase 3. The same imported fill was again deposited on a riparian floodplain from which all natural features had been removed by heavy equipment. In addition to again violating the provisions of the original MND, SCWA clearly did not "Adaptively adjust restoration approaches on the basis of additional knowledge gained from monitoring or observing previously implemented restoration actions". This directly conflicts with the Conservation Strategy calling for such adaptive management.

L1-4.7, L1-4.8, and L1-4.9 *– The 70,000 cubic yards of fill imported and used in the first two phases of the project and the over 15,000 cubic yards of fill imported and used in the third phase of the project were provided by SCWA from fill left over from decades-old excavation of the South Putah canal. The fill was excavated from an ancient geologic formation depleted of organic matter and containing a high percentage clay. At the project site it was spread and compacted to a depth of from 2 to 12 feet. In no way, form, or fashion can that fill be considered similar or equivalent to "locally native soils" which are primarily sandy loams interspersed in layers with sandy gravel and cobble layers and organically rich silt deposits. As discussed above, SCWA also has not provided any analyses of this imported fill material despite repeated formal requests.*

Use of this imported and compacted fill to create a new floodplain in the project area violates three critical identified Conservation Strategies. The project 1) ***did not use locally native soils*** *which 2)* ***was otherwise imported****. Further, 3)* ***it was compacted to an extraordinary level by the earth-moving contractor*** *per the contract specifications by SCWA itself! These actions violate some of the most basic tenets of restoration science and were done without explanation by SCWA engineers and management personnel. They also violate provisions and declarations in the Mitigated Negative Declaration under which the Winters Putah Creek Park project was installed pursuant to the California Environmental Quality Act (CEQA).*

Goal L2: Ecological Processes and Conditions. Maintain or restore ecological processes and conditions in Strategy Area landscapes that sustain natural communities, native species, and landscape connectivity	
Biological Goal and Objective	**Applicable Conservation Actions**
Objective L2-1: Hydrologic and Geomorphic Processes. Improve dynamic hydrologic and geomorphic processes in watercourses and floodplains in a way that avoids or minimizes impacts on terrestrial species habitat (including the HCP/NCCP) and agricultural land. Allow floods to promote fluvial processes, such that bare mineral soils are available for natural recolonization of vegetation, desirable natural community vegetation is regenerated, **and structural diversity is promoted; or implement management actions that mimic those natural disturbances**.	**L2-1.1.** Restore riverine geomorphic process on the Sacramento River, Putah Creek, Cache Creek, Tule Canal, and other watercourses in the Strategy Area. **Create riparian management corridors that can accommodate natural lateral channel migration**. Relocate levees away from watercourses to reduce the physical forces acting on them, and to allow natural lateral channel migration. • **Create or improve secondary channels and overflow swales that add riverine and floodplain habitat values** (e.g., resting or rearing areas for fish migrating downstream) and provide escape routes for fish during receding flows. • Minimize new bank protection actions, or remove non-critical bank protection features, to **allow channels to meander naturally within the floodplain.**
	L2-1.3. Modify the floodplain to improve function and support focal species. • Modify floodplains in locations where higher ground impedes flow connectivity or capacity, to increase the hydrologic connectivity and capacity of the active floodplain, im-

	prove fish migration, reduce stranding potential, and allow additional riparian vegetation to establish without significantly impeding flows. • **Modify floodplains to provide greater topographic and hydrologic diversity.** Eliminate depressional features (such as isolated gravel pits or deep borrow pits) that strand fish when water recedes, but **recognize that depressional features such as ponds can be important refugia for species such as western pond turtle and giant garter snake.** • **Create higher ground in floodplains that can serve as refugia from floodwaters for wildlife species,** including giant garter snake and California black rail.

Discussion Added by Friends of Putah Creek:

L2-1.1*. - The uniform 2% slope of the entire floodplain produced by the bulldozers and earth-movers destroyed rather than acted to "create or improve secondary channels and overflow swales that add riverine and floodplain habitat values". In fact, virtually all of the lateral and secondary features of the floodplain have been intentionally and completely eliminated by design. Thus, secondary features for "resting or rearing areas for fish migrating downstream" do not now exist in most of Winters Putah Creek Park. Further, because of the hard-pan surface and uniform slope of the floodplain, the fixed channel design does not "create riparian management corridors that can accommodate natural lateral channel migration".*

In fact, the uniform width of the constructed channel was expressly designed to be "self-sustaining" and "to show long-term tendencies to remain in stable condition without accelerated vertical or lateral erosion". The only basis SCWA could provide for this channel design specification was two letters from the design consultants to SCWA which are attached as Appendix A. Unfortunately, these specified static channel design objectives by which the project was constructed clearly conflict with the stated best management practices and goals of the Conservation Strategies, which specify that "structural diversity is promoted; or implement management actions that mimic those natural disturbances".

L2-1.3. - *Project engineers repeatedly claimed the creek and floodplain modifications in the Winter Putah Creek Park would restore the "natural form and function" of the Creek without ever objectively specifying what the "natural form and function" of the Creek should be. In fact, the static monolithic and highly compacted 2% slope of the floodplain after construction is extremely unnatural and dramatically reduces rather than "provide greater topographic and hydrologic diversity".*

All depressional features in Phases 1 and 2 of the floodplain landscape were eliminated including all ponds without "recognizing that depressional features such as ponds can be important refugia for species". Rather than "Create higher ground in floodplains that can serve as refugia from floodwaters for wildlife species", all such high ground was functionally eliminated when the floodplain was flattened and graded to a uniform slope.

Comment Letter
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Fig. 1 - Recent "Before and After" photos following bulldozing and leveling of a rich riparian floodplain habitat.

Friends of Putah Creek have repeatedly requested that the design criteria and engineering analysis used by SCWA in design of the Creek channel be provided in order to determine consistency with accepted riparian restoration practices. These have not been made available. There is otherwise no evidence that any engineering analysis or modeling of the Creek's "form and function" was utilized by project engineers.

Rather, SCWA relied on subjective judgments instead of quantitative criteria to establish the Creek project topography. Indeed, the channel designer specifically stated that he "relied on these field observations for project design, and prefers the use of field indicators over other more technical methods of channel design and flow modeling. Modeling is a valuable tool and can be used to support design criteria, but should be verified with field data that documents the natural tendencies of the stream channel form and function."

In this case, however, it appears that subjective "field observations" were the only criteria by which the channel "form and function" were determined. Even the subjective "field observations" cited by the engineers to guide their design criteria have not been provided or disclosed for independent review despite a Public Records Act request.

NATURAL COMMUNITY-LEVEL GOALS AND OBJECTIVES

Lacustrine

Goal LR1: Stream conservation. Conserve and enhance stream systems in Yolo County.	
Biological Goal and Objective	**Applicable Conservation Action**
Objective LR1.1. Fluvial equilibrium. Maintain and/or restore fluvial equilibrium between erosion and deposition in Strategy Area streams.	**LR1.1-1. Avoid stream channelization.**
	LR1.1-2. Avoid unnecessary vegetation removal.
Objective LR1.2. American beavers. Protect lacustrine/riverine systems supporting American beavers.	**LR1.2-1. Target portions of streams that support American beavers for protection.**
	LR1.2-2. Incorporate beaver management practices into management plans for lands protected by a con-

	servation easement or other instrument providing for perpetual protection of land supporting or potentially supporting this species (where consistent with existing laws and regulations related to flood easement areas). **Such management may include protection of existing beaver dams where possible**, and installation of deceiver or bypass devices where necessary, rather than dam removal. Management may also include wrapping trees identified for retention with wire cylinder tree wraps or cages.
Objective LR1.4: Stream processes and conditions. **Maintain and/or restore and protect stream processes and conditions** in Yolo County streams.	**LR1.4-1.** Encourage maintenance of appropriate minimum stream flows throughout the annual cycle to maintain aquatic life in Strategy Area streams. Flows may not be perennial in many streams, although subsurface (hyporheic) flows often continue to maintain riparian processes even when no surface flow occurs. **Conservation of stream processes is related to maintaining subsurface flow and groundwater that are hydrologically part of the stream-flow in each watershed** (Winter et al. 1998).
	LR1.4-4. **Expand and protect riparian vegetation along Strategy Area streams** where possible in accordance with flood management and operation laws and requirements.

Discussion Added by Friends of Putah Creek:

LR1.1-1 – *Plans for channel modifications of the Creek specified that the Creek channel be uniformly between 26 and 30 ft wide. That channel was lined with compacted fill. The result constitutes "stream channelization" in direct conflict with this Conservation Strategy.*

LR1.1-2 *– Over 90% of the floodplain vegetation was removed in all phases of the Winters Putah Creek Park project in direct conflict with the Conservation Strategy advice to "Avoid unnecessary removal of vegetation". The extensive removal of native vegetation was also in direct conflict with the environmental assessment and the Mitigated Negative Declaration for the project which specified that minimal native vegetation be removed during construction.*

LR1.2-1 and LR1.2-2 *- The Conservation Strategy recognizes the importance of beaver in improving diversity of the floodplain. However, instead of acting to "Target portions of streams that support American beavers for protection" and to "Protect lacustrine/ riverine systems supporting American beavers", the bulldozing and radical alteration of the floodplain and creek channel intentionally removed deep ponds and beaver dens throughout the Winters Putah Creek Park project. Clearly, SCWA plans did not "include protection of existing beaver."*

LR1.4.1 *– As discussed above, clayey imported compacted fill now covers almost the entire flattened floodplain and lines the stream channel of Putah Creek in the Winters Putah Creek Park project. This fill is nearly impermeable to water. The project fill has disconnected the stream from its floodplain and groundwater aquifer. This is reflected in the revegetation failures, death of mature cottonwoods on the floodplain, a drop in groundwater elevations in a monitoring well, and a reduction in groundwater recharge measured by upstream and downstream gauges. Groundwater recharge, once substantial through this loosing reach of Putah Creek, was re-*

duced by up to 4,000 ac-ft per year. Hyporheic flows could not be persisting along a channel lined with compacted clayey fill.

This conflicts with the objective of this Conservation Strategy to "Maintain and/or restore and protect stream processes and conditions" which further notes that "Conservation of stream processes is related to maintaining subsurface flow and groundwater that are hydrologically part of the stream-flow in each watershed". No quantitative modeling, hydraulic testing, or engineering were apparently performed so this adverse hydrologic impact could be predicted before the Imported fill was deposited in the Creek floodplain.

***LR1.4-4**. By removing almost all vegetation in the project area, SCWA clearly violated the Conservation Strategy to "Expand and protect riparian vegetation along Strategy Area streams".*

Fig. 2 - Recent "Before and After" photos of a once vibrant beaver pool habitat in Winters

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SPECIES-LEVEL GOALS AND OBJECTIVES

Focal Fish Species

Goal FISH1: Protected and enhanced focal fish species habitat. Protect and enhance focal fish species spawning, rearing, and migration habitat in Yolo County.	
Biological Goal and Objective	**Applicable Conservation Action**
Objective FISH1.1: **Shaded riverine aquatic habitat.** Increase the area of shaded riverine aquatic habitat in Yolo County that supports focal fish species.	**FISH1.1-1. Maintain, restore, or enhance shade that moderates water temperatures and reduces visibility to predators.**
	FISH 1.1-3. Enhance the biomass of overhanging or fallen branches and in-stream plant material to support the aquatic food web, including terrestrial and aquatic invertebrates that provide food for fish, and to provide habitat complexity that supports a high diversity and abundance of fish species.
Objective FISH1.4: Large Woody Material in streams in Yolo County.	**FISH1.4-1. Restore vegetation along stream-banks, to increase input of large woody material to streams**

	FISH1.4-2. Install large woody material directly into streams and along stream banks as a component of restoration or enhancement projects.
Objective FISH1.6: Restore Fish Habitat in Putah Creek. Support existing efforts to restore Putah Creek habitat in Yolo County to enhance spawning, rearing, and migration of focal fish species.	**FISH1.6-1. Restore in-stream spawning, rearing, and migration habitat for focal fish species in Putah Creek.**
	FISH1.6-2. Restore shaded riverine aquatic habitat along Putah Creek.
	FISH1.6-3. Restore geomorphic and fluvial properties along Putah Creek.

Discussion Added by Friends of Putah Creek:

FISH1.1-1 and Fish 1.1-3 *– Long stretches of the Creek were previously almost fully shaded by the lush and mature riparian forest. Rather than "Maintain, restore, or enhance shade that moderates water temperatures and reduces visibility to predators" and "Enhance the biomass of overhanging or fallen branches and in-stream plant material to support the aquatic food web", the project stripped the floodplain of almost all vegetation. This was followed by extensive and repeated failure of plantings. Now most of the creek is exposed to direct sunlight through most of the project length and there is severely diminished overhead canopy to shed leaf litter into the creek to prime the food chain.*

FISH1.4-1 and FISH 1.4-2 *– Putah Creek through Winters once contained substantial amounts of large woody material directly in its channel, consistent with this Conservation Strategy. Rather than implement a project design to "Restore vegetation along stream-banks, to increase input of large woody material to streams", the project cleared much of the 65 year old floodplain forest that had established after the construction of Monticello Dam, then exported or buried much of the large wood, and covered the floodplain with compacted fill so that normal regrowth of large woody plants is not even possible. So both the existing inventory of large wood and the future supply were severely reduced.*

FISH1.6-1 *– SCWA has claimed the radical alteration of the entire Creek channel was necessary to improve the Creek to "Restore in-stream spawning, rearing, and migration habitat for focal fish species".*

Substantial improvement to existing riffles to improve spawning by salmon could have been more easily and inexpensively accomplished with the addition of gravel and cobble to existing reaches of suitable streambed without destruction of the floodplain and rechannelization. What the rechannelization has done instead is remove deep pool rearing habitat and eliminate overhanging trees which provided shade and leaf litter to the aquatic ecosystem. Further, undercut banks were replaced by sloping banks of compacted fill. Suitable habitat for the rearing and migration of salmon smolts and fry through the Winters Putah Creek Park was destroyed in the construction of the new detoured channel.

SCWA claims the floodplain will regenerate through natural processes that will eventually restore suitable habitat, but the failure of vegetation efforts and native species regrowth in the floodplain over 8 years post-project makes this claim highly dubious and speculative at best.

FISH1.6-2 *- "Restore shaded riverine aquatic habitat along Putah Creek". See* ***FISH1.4-1 and FISH 1.4-2*** *above*

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FISH1.6-3. *"Restore geomorphic and fluvial properties along Putah Creek." Unfortunately, SCWA's efforts at geomorphic restoration of the Creek with the intention to restore "natural form and function" have done just the opposite. The project has ultimately opposed natural fluvial geomorphology and processes with diesel geomorphology.*

Long before the Winters Putah Creek Park project began, after Putah Creek was dammed in 1955, the creek went through a period of channel and floodplain evolution. There was an abrupt change in flow and flood regime and in sediment regime. And there was a blank slate where the active channel and bare sediments stretched bank to bank across the floodplain.

In 2000 the Putah Creek Accord was signed mandating minimum flows into the Creek from the dam. Over the course of the next decade under the new flow regime, vegetation established, sediments became locked in place, and a new channel evolved in equilibrium with the new flow and sediment regime. A mature native riparian forest grew and the Creek habitat and its wildlife flourished. There were some prior anthropogenic disturbances including some floodplain clearing, some gravel extraction, and wastewater ponds on the floodplain but the stream adapted, a mature forest grew, and channel and banks were in equilibrium.

Then a new period of anthropogenic stream alteration ensued when SCWA embarked on a grant-driven process to "restore" the Creek. As part of this restoration, SCWA alleged the Creek needed to be returned to its "natural form and function". SCWA maintains that the proper channel width in Winters should be uniformly between 27 and 30 ft wide and about 1.5 feet deep and that pools should be filled because they were mostly too deep and wide. This is a claim without scientific basis but served as the foundation justification for the radical floodplain clearing and streambed alteration projects over the past decade..

Instead of relying on established engineering principles, however, the geomorphological justification of the proposed channel changes claimed it "relies on field observations for project design, and prefers the use of field indicators over other more technical methods of channel design and flow modeling. Modeling is a valuable tool and can be used to support design criteria, but should be verified with field data that documents the natural tendencies of the stream channel form and function".

Unfortunately, the geomorphological designers provide no field data or engineering or modeling to support their "observations". Instead they simply claimed that with their design "the Putah Creek channel tends to show long-term tendencies to remain in stable condition, without accelerated vertical or lateral erosion". They add, "We have looked closely at the full range of channel dimensions, patterns, and entrenchment ratios to determine what combination of factors tend to provide the most likely conditions for a self-maintaining channel morphology." (See Appendix A). None of this information has been made available to Friends of Putah Creek when seeking to confirm the design of the altered Creek even when formally requested by a Public Records Act Request. It would therefore appear that the consideration of these "full range of channel dimensions, patterns, and entrenchment ratios" do not exist.

SCWA projects in the Winters Putah Creek Park are drastically altering the stream channel, clearing vegetation, and flattening floodplain. However, SCWA claims that natural processes in the future will restore topographical variation in the creek topography where their projects have erased it, and this will provide requisite "secondary channels and overflow swales that add riverine and floodplain habitat values" that are the hallmarks of a vibrant stream ecosystem. However, the geomorphological designers are otherwise claiming their design would provide a "stable condition, without accelerated vertical or lateral erosion" which is in direct conflict with the natural processes creating topographical variation demanded by a healthy Creek ecosystem.

During fall of 2018, SCWA implemented addition al work in the Winters Putah Creek Park which again involved forest clearing and earth moving, stream alteration, construction of a new channel, and filling old channels. This was followed by an extended period of high flood flows in late winter and spring of 2019. During the floods, natural fluvial processes dramatically altered the precise engineered project including filling much of the man-made channel, reshaping the floodplains, and beginning to reestablish the old channel the project had filled. Rather than allowing these natural processes to occur, SCWA returned this summer with a bulldozer and restored their man-made design, undoing the work of the flowing waters, and opposing the natural fluvial geomorphology with diesel geomorphology. That is not restoring "geomorphic and fluvial properties along Putah Creek"

Western pond turtle

Goal WPT1: Maintenance or Increase of Western Pond Turtle Distribution and Abundance. Maintain or increase the distribution and abundance of western pond turtle within its range in Yolo County.	
Biological Goal and Objective	**Applicable Conservation Action**
Objective WPT1.1: Protect and enhance habitat. Increase protection and enhancement or restoration of western pond turtle habitat in riverine and lacustrine and associated upland areas.	**WPT1.1-1.** Place perpetual conservation easements over western pond turtle habitat, **prioritizing occupied areas**.
	WPT1.1-2. Add rocks and logs to aquatic habitat to provide basking sites and cover, as needed.

Discussion Added by Friends of Putah Creek:

WPT1.1-1 *– Western Pond turtle is a listed sensitive species. It was abundant in Putah Creek through Winters prior to rechannelization because it prefers the fresh, slow-moving water for habitat which was provided by numerous ponds and back-channels. Rather than "prioritizing occupied area" for conservation and "to increase protection and enhancement or restoration of Western Pond Turtle habitat", the project destroyed these areas through the use of heavy equipment without regard for protection of this habitat as required by the Conservation Strategies and best management practices.*

WPT1.1-2 *– Although SCWA embedded logs and rocks in the banks of the creek to "provide basking sites" in the Winters Putah Creek Park, they were in fast moving sections of the Creek and are not used by Western Pond Turtles.*

As a result of the loss of favorable habitat, once abundant Western Pond Turtles are now seen much less frequently in the Winters Putah Creek Park project area and then mostly in the unaltered segments and remnant pools. We have requested, without success, pre-project and post-project annual wildlife monitoring reports from SCWA to quantitatively assess the extent of population decline.

Winters Putah Creek Park Does Not Meet Many Pre-Project Engineering Analysis and Post-Project Monitoring Recommendations in California Riparian Habitat Restoration Handbook, Second Edition, July 2009 by F. Thomas Griggs, Ph.D., Senior Restoration Ecologist

The *California Riparian Habitat Restoration Handbook* is cited in the *Yolo Resource Conservation Investment Strategy - Local Conservation Plan* (RCIS-LCP) as an authoritative expert source of initial conservation actions in restoring riparian natural community habitats (see above Applicable Conservation Actions - *"L1-4.2. Implement initial restoration actions according to recommendations in a restoration handbook such as Griggs (2009) that is widely accepted among restoration scientists"*).

Applicable recommendations from *California Riparian Habitat Restoration Handbook* are excerpted and reprinted below for comparison with actual practices employed in the initial design and engineering and follow-up monitoring of the Winters Putah Creek Park project.

The full manual is available to readers and covers many different aspects of restoration that are not directly applicable to the Winters Putah Creek Park project or which are not pertinent or applicable to the riparian eco-systems present in the Winters Putah Creek Park project. As a result, only those important sections of the manual that are directly applicable to the Winters Putah Creek Park project are excerpted and further discussed in this report.

For these applicable sections, the exact text in the *California Riparian Habitat Restoration Handbook* are excerpted and discussed below. Bold, blue color-highlighted emphasis is placed on selected text by Friends of Putah Creek to highlight important points we wish to make to facilitate the discussion of the project shortcomings we offer following each of the excerpted sections.

VI. Design Objectives

B. Objective 2: The Horticultural Potential

Horticultural restoration requires knowledge of local site conditions in order for a planting to successfully establish. It is common for restoration projects to include a three year maintenance regime, during which the plants are irrigated, weeds are controlled and mortality is kept under a specified level by re-planting. Beyond this period of maintenance, species will only survive if they are well matched to the site conditions. Species of plants must be matched to soil types and hydrologic conditions under which they will grow and prosper. Consequently, the first step in developing a plan and a list of species for any riparian restoration project is a detailed site evaluation that describes soils and local hydrology. Ecological preferences of select riparian plants are provided in Appendix 3.

1. Soils

Soil conditions are the most important factors that determine the survival and growth of any species. (If any species cannot grow in the soil on a site, then the restoration planting will fail). Examination of the NRCS web soil surveys for the project site will help determine how many soil cores are needed to ground truth the soil maps. **Soil cores will also provide information about the soil texture and stratification across the site.**

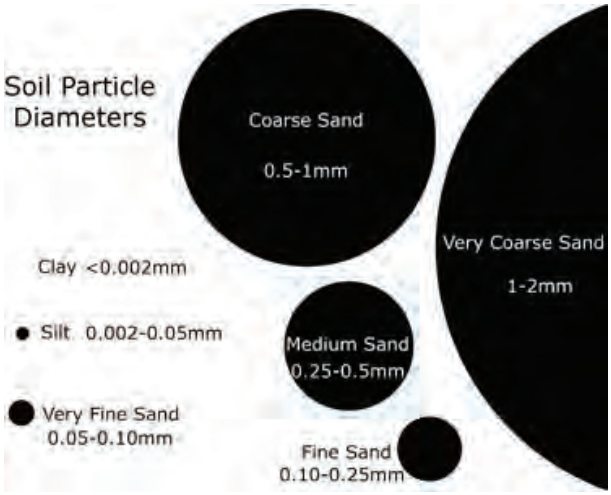
Depth to the water table must also be determined at multiple locations throughout the site. The number of soil cores and measurements to water table will vary by site but soil surveys, river atlases, and aerial photos can help.

Comment Letter E *Attach.*

a. Texture and Stratification

Soil texture, the proportion of gravel, sand, silt, and clay (Figure 6), usually varies greatly across the entire site. Often this variation is because riparian floodplains receive coarse sediments — sand and gravel over-bank flows which deposit on top of finer sediments. Likewise, soil **texture can dramatically vary with depth, resulting in stratification of the soil profile. This layering of different textures can result in coarse sediments — sand and gravel — lying above or below much finer silts and clays. Plant root growth will be greatly affected by these discontinuities in the soil profile. The movement of irrigation water through the soil profile also will be affected by these discontinuities, which in turn will affect root growth** .

Figure 4: Soil Particle Size



To a large extent, soil texture, determines the survival and growth rate of each species (see Section XIII for a comparison of ecological tolerances among selected riparian species). For example, species such as cottonwood and sycamore grow rapidly in soils that have a high proportion of sand, while valley oak grow best in heavier soils composed mostly of silt and clay. **Soil texture is critical to plant survival and growth because the soil particle sizes determine the water holding capability.** Large particles such as sand allow water to drain quickly and cannot hold water for extended periods. Smaller particles such as silt do not allow water to drain quickly and as a result water is available to plant roots for a longer duration.

Lenses of course soil in the soil profile will affect the growth of plants; lenses of gravel may prevent species that require access to the water table from surviving.

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Comment Letter E *Attach.*

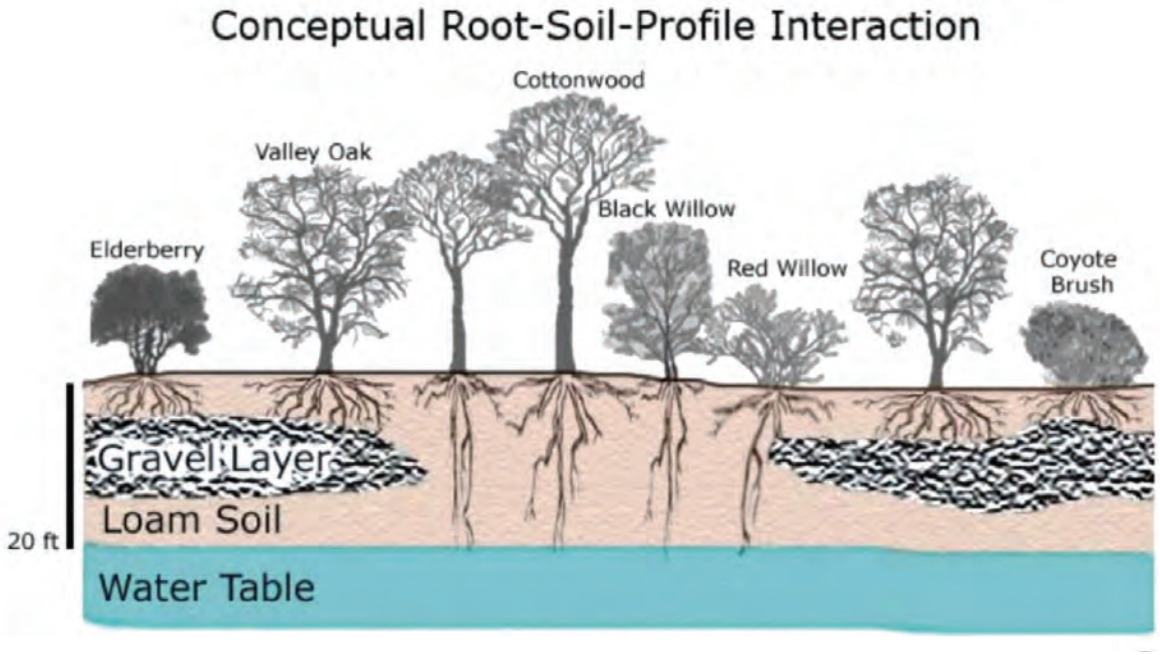

Figure 5: Root-Soil Profile Interaction

b. Depth to Water Table

Depth to water table is second in ecological importance behind soils for determining species survival, growth and the community structure of the vegetation. **Depth to water table must be known for several points across a site, as it may vary by several feet. Deep soil-augur cores and soil pit samples taken on the site will al- low the depth to water table to be measured if water is reached, or estimated if soil be- comes moist at the bottom of the pit. Depth to the water table can also be measured with multiple piezometers placed into the ground that reach the ground water table.** Cottonwood and willows absolutely must grow their roots into the upper portion of the water table within the three-year maintenance period, or they will die when irrigation is stopped. Other species of trees and shrubs will prosper by growing their roots into the water table, however, this is not a requirement for survival. Soil profile and depth to water table interact and can be a problem for root growth if the top of the water table is within a layer of cobbles or gravel where roots cannot grow well, making the water table functionally out-of-reach of the roots.

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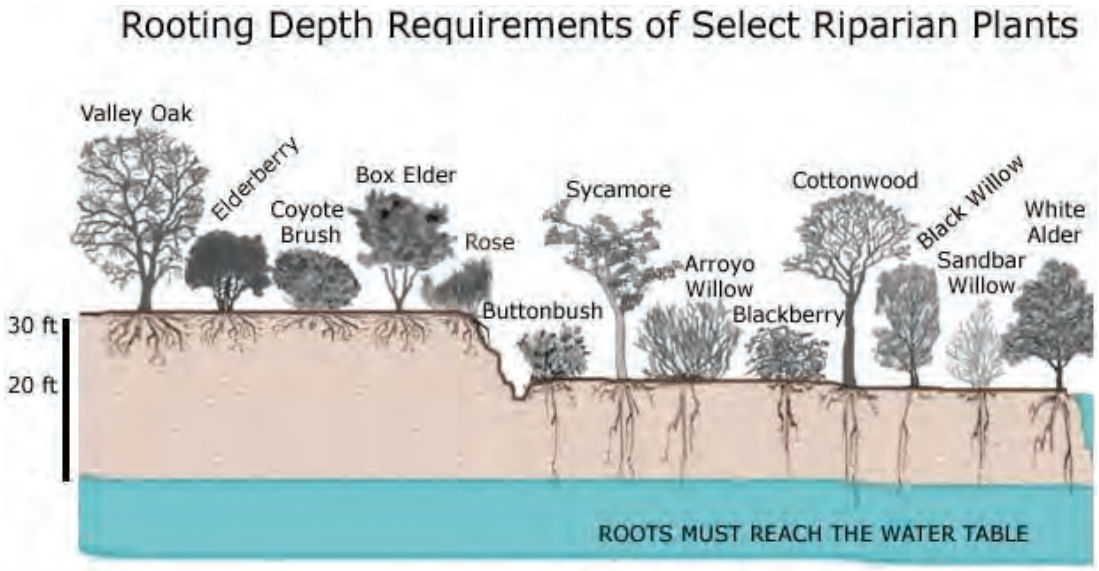
Comment Letter E *Attach.*

Figure 7: Rooting Depth Requirements of Select Riparian Species



Rooting depth requirements of riparian species must be known, along with the depth to the water table across the site, so that planted species will survive and thrive after irrigation is no longer applied.

Nutrients in Soils (natural vs. fertilizer)

Riparian soils are some of the richest in the state. Deep loamy soils, in combination with a water table within reach of plant roots, support rapid growth throughout the growing season for all species. Naturally occurring nutrients in the soil are abundant and readily available for plant growth. For example, stem cuttings of willow and cottonwood can grow to 6 feet tall the first season and valley oak grown from an acorn can grow to 4 feet the first year. With this kind of plant performance, additional fertilizer at the time of planting is not necessary.

Discussion Added by Friends of Putah Creek:

It is abundantly clear from this restoration manual that one of, if not THE most important criteria for success of any riparian restoration project is to have a complete and thorough understanding of existing soils in both the streambed and the adjacent floodplain. Information and analysis of multiple soil samples from different depths of numerous bores throughout the entire project area are key factors in determining the appropriate replanting strategy for a riparian forest.

This is all the more important if massive volumes of fill material are imported and deposited on a streambed and floodplain as they were by SCWA at the project. The fill also completely lacked the nutrients that promote rapid plant growth in natural and normal riparian soils like those either removed or covered by fill at the Winters Putah Creek project.

We have requested the soil information used by SCWA on numerous occasions. None was provided, indicating to us that they probably never took these most basic steps to ensure the success of their project.

Subsequent to installation of the first two phases of the project, we took our own post-project soil samples from the new floodplain. It required a pick-ax to dig out a one foot deep chunk of fill so hard it resembled an adobe brick or concrete. We do not believe a viable riparian forest will ever grow in this floodplain without extensive remediation or complete removal of this compacted and hardened fill.

VII. Monitoring Riparian Restoration Projects

A. Implementation Monitoring

The purpose, significance, and success of a riparian restoration project can be, and at times are required to be, monitored throughout the entire process. This means monitoring can take place before implementation, during restoration, and after implementation. The California Rapid Assessment Method (CRAM) is a statewide, standardized method to monitor wetlands (which include riparian areas) in a cost-effective and scientifically defensible manner. The methods and handbook are available online (www.cramwetlands.org). Given the ecological complexity of any restoration site, many unknowns will affect the performance of the plants. Consequently, implementation requires an adaptive management approach to the timing and level of intensity of management actions during implementation.

B. Measuring "Restoration Success"

Restoration success of the project will be determined by how well the goals for the project were met. Not only will success therefore be different for each restoration project, success can also be measured at several different levels.

1. The Contract Level

Contracts require some kind of quantitative measure of performance to evaluate success. Most call for a cumulative survival of all plants and trees after the maintenance period of at least 70 percent. Percent cover of the entire site by native species is a reasonable performance goal when grasses or other herbaceous species are planted.

2. Horticultural Success

In addition to survival, height and cover, or diameter at breast height of individuals of all species can be measured annually to track growth. Permanently marked sample plots are the ideal design, since they can also be used for post-project monitoring. Recent advances in the restoration of riparian understory species allows for restoration success to be defined as the percentage of the entire site that is covered by native species.

3. Wildlife Use

Monitoring of use of the restoration planting by wildlife species is the ultimate measure of success of any riparian restoration project. The methods of monitoring depend on the original goals of the project and wildlife for which the restoration was designed. Monitoring methods will also depend on the resources available for monitoring, including time. Long- term monitoring is the best way to understand how wildlife respond to the project site. It is best to select wildlife that are consid-

ered umbrella species, which are species that represent many other species, and to select a range of umbrella species that represent multiple habitat requirements. Land bird monitoring is an excellent way to measure restoration success, because birds are relatively easy to locate and observe and they cover a wide range of habitat types . A diversity of birds on the site means the restoration successfully provided a diversity of habitat to them. Presence and absence monitoring is a useful indicator of the wildlife present on the site. More detailed surveys that can provide demographic data such as nesting success, mortality rates and monitoring over many years will indicate whether the site is functioning as quality habitat for breeding or as a site that wildlife use temporarily.

Discussion Added by Friends of Putah Creek:

It is clear that a rigorous and quantitative wildlife monitoring regime is critical to measuring success of restoration projects in addition to adaptively managing efforts for mitigation and revising future restoration plans. Wildlife monitoring to determine restoration success should include plants, fish, insects, birds and mammals. Putah Creek wildlife monitoring is also required by SCWA under the 2002 Accord, which specifies minimum Creek flows among other things. These wildlife monitoring reports are required to be posted annually within 15 days of receipt by SCWA yet this reporting requirement has been routinely ignored for years by SCWA.

Friends of Putah Creek has repeatedly requested all pre-project and post-project wildlife monitoring for the Winters Putah Creek Park project without success. It is very telling that SCWA either has not performed the required monitoring or refuses to release the results as required by both the court and standard restoration practices.

Winters Putah Creek Park Design Philosophy Conflicts with Proven and Cost-Effective Restoration Strategies Discussed in *Low-Tech Process- Based Restoration of Riverscapes: Design Manual*., 2019, Utah State University Restoration Consortium

The recently published *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* provides the underlying design philosophy and tools for restoration scientists to restore riparian and salmon habitat. These methods produce significant increases in salmon spawning and fry development by using low cost beaver dam analogs and other natural material structures costing approximately $10,000 per mile of restored stream. In comparison costs of the Winters Putah Creek Park project were over $6,000,000 per mile.

Yet the Winters project has yet to produce any evidence of creek-born salmon returning eight years after completion of the first two phases of the project. What is apparent are substantial differences in the experience and mindset of the restoration ecologists and scientists describing their successful low-cost restoration strategies and that of the SCWA engineers and project managers who have produced very costly and destructive failures.

The full Design Manual is available to readers and covers many different aspects of riparian restoration. However, only those important sections of the manual that are directly applicable to the Winters Putah Creek Park project are excerpted and further discussed in this report.

For these applicable sections, bold, blue highlighting is placed on selected text by Friends of Putah Creek to emphasize important points to facilitate discussion of the Winters Putah Creek Park project shortcomings following the excerpted sections.

Comment Letter
E
Attach.

EXECUTIVE SUMMARY

Stream and riverine landscapes or riverscapes are made up of a series of interconnected floodplain, groundwater, channel habitats, and their associated biotic communities that are maintained by physical and biological processes that vary across spatial and temporal scales. An over-arching goal of riverscape restoration and conservation is to improve the health of as many miles as possible, while ensuring those systems achieve and maintain their potential in self-sustaining ways. This design manual is intended to help the restoration community more efficiently maximize efforts to initiate self-sustaining recovery of degraded riverscapes at meaningful scales.

Structural-starvation of wood and beaver dams in riverscapes is one of the most common impairments affecting riverscape health. At a basic level, a riverscape starved of structure drains too quickly and efficiently, lacks connectivity with its floodplain and has simpler more homogeneous habitat. By contrast, a riverscape system with an appropriate amount of structure provides obstructions to flow. What follows in the wake of structurally-forced hydraulic diversity are more complicated geomorphic processes that result in far more diverse habitat, resilience, and a rich suite of associated ecosystem services.

The purpose of this design manual is to provide restoration practitioners with guidelines for implementing a subset of low-tech tools - namely post-assisted log structures (PALS) and beaver dam analogues (BDAs) - for initiating process-based restoration in structurally-starved riverscapes. While the concept of process-based restoration in riverscapes has been advocated for at least two decades, details and specific examples on how to implement it remain sparse.

Here, **we describe 'low-tech process-based restoration' as a practice of using simple, low unit-cost, structural additions (e.g., wood and beaver dams) to riverscapes to mimic functions and initiate specific processes. Hallmarks of this approach include:**

- An explicit focus on the processes that a low-tech restoration intervention is meant to pro- mote
- A conscious effort to use cost-effective, low-tech treatments (e.g., hand-built, natural materials, non-engineered, short-term design life-spans)
- '**Letting the system do the work', which defers critical decision making to riverscapes and nature's ecosystem engineers**

Importantly, the manual conveys underlying principles guiding use of low-tech tools in process-based restoration in systems impaired by insufficient structural complexity. Although intended to be simple, low-tech restoration still requires some basic understanding of water- shed context, riverscape behavior and channel evolution, and careful planning.

The manual provides interested practitioners with sufficient conceptual and applied information on planning, design, permitting, construction and adaptive management to get started, as well as references to additional information and resources. Detailed design and construction guidance is provided on two effective low-tech tools: 1) beaver dam analogues (BDAs) for mimicking beaver dam activity, and 2) post-assisted log structures (PALS) for mimicking wood accumulation in riverscapes.

Throughout the manual, readers are reminded that the structures themselves are not the solution, but rather a means to initiate specific, desirable processes. Ultimately, embracing the design principles

will help practitioners better understand the 'why' behind structural interventions and allow for more efficient and effective riverscape restoration.

IMPLICATIONS FOR PRACTICE

- Riverscapes are composed of connected floodplain and channel habitats that together make up the valley bottom.
- The scope of degradation of riverscapes is massive. Tens of thousands of miles of riverscapes are in poor or fair condition.
- Structural-starvation is both a direct cause of degradation, as well as a consequence of land use changes and direct modification of stream and riparian areas.
- **Engineering-based restoration tends to emphasize channel form and stability, rather than promoting the processes that create and maintain healthy riverscapes, which leads to increased costs and a limited ability to restore more miles of riverscapes.**
- **Process-based restoration focuses on restoring physical processes that lead to healthy riverscapes. Low-cost, simple, hand-built structures have been used for over a century. Restoration principles are needed to guide the use of low-tech structures in order to address the scope of degradation, which will require that practitioners "let the system do the work."**
- The overarching goal of low-tech restoration is to improve the health of as many miles of riverscapes as possible and to promote and maintain the full range of self-sustaining riverscape processes.

"*What if restoration was about stream power doing the work, not diesel power?*"
— Jared McKee (USFWS)

RESTORATION REVIEW

Engineering-based Restoration

While there are a wide variety of approaches and techniques used in stream restoration we contend that engineering-based approaches have been, and continue to be, the most widely used. **Rather than address specific techniques used in engineering-based restoration (e.g., channel reconfiguration, engineered log jams), here we highlight themes that we believe limit the ability of such an approach to effectively scale up to address the scope of degraded riverscapes.**

These include i) precisionism and the need for certainty, ii) an emphasis on stability, and iii) high cost and limited spatial extent.

Our intent in this section is not to suggest that engineering-based approaches to restoration should be replaced by the low-tech approach outlined in this manual. Engineering-based approaches to restoration are and will continue to be useful in many riverscapes, especially on larger rivers and in areas where uncertainty cannot be tolerated, as in areas with significant infrastructure. Rather, due to their location and size, many riverscapes could be more effectively restored using low-tech methods.

Many restoration funders and land managers are expected to evaluate the success of restoration projects by specific criteria, which creates a need for restoration practitioners to design projects that have a high certainty of meeting project objectives. As a result of these pressures, and in order to avoid uncertainty in outcomes, restoration often focuses on stability.

Stability

Stability is not a hallmark of healthy riverscapes. While healthy riverscapes can be generally characterized by a collection of attributes (e.g., Stage 0), the specific location of structural elements and habitat features changes through time while reach-scale metrics remain relatively constant. The desire to reduce uncertainty and precisely predict restoration outcomes has led to practices that tend to emphasize the stability of channels and in-stream structures. In the context of stream restoration, stability has often meant static. Constructed features and attributes such as plan-form, channel width, location of pools and riffles are designed in such a way that they do not change through time.

An example of the emphasis on channel stability is the extensive use of rip-rap on meandering channels to prevent lateral migration. Importantly, lateral migration is the process responsible for the creation of meandering channels, limiting this process necessarily means the stream will not be able to function naturally. Another example of the emphasis on stability can be shown with the use of in-stream structures. Adding wood to degraded streams is generally considered to improve habitat conditions and is a common restoration practice. Wood is typically added to streams by constructing large woody debris structures that simulate log jams (e.g., engineered log jams (ELJs)); or by designing log structures to be static by cabling, burying, or using boulders to secure wood in place. The emphasis on stability requires detailed engineering designs, modeling, and heavy equipment, all of which contribute to the high cost of restoration. Studies have generally found that such structures do increase local geomorphic diversity. **However, population level response of target species (e.g., salmon or steelhead) to these restoration actions is equivocal.**

High Cost – Limited Footprint

Emphasizing stability and certainty leads to highly-engineered restoration projects that necessarily increase the cost of restoration. The results of the high cost, per unit length of stream, inevitably results in fewer stream miles being restored. This is important for at least two distinct reasons. First, we are unlikely to be able to address the scope of degraded riverscapes using a high-cost approach to restoration. Second, many ecological goals of restoration must be addressed at large spatial scales. For example, improving in-stream and floodplain habitats to affect a population level response in salmon necessarily requires restoring large spatial extents. In short, reach-scale projects are unlikely to achieve many ecological goals.

Process-Based Restoration

In many degraded streams and rivers, the processes that sustain healthy riverscapes have been altered by both watershed-scale changes (e.g., conversion of forest to agriculture) and reach-scale alterations (e.g., channelization, removal of wood and beaver). Generally, restoration has focused more on restoring riverscape form without addressing the underlying processes responsible for that form. In response, the scientific community proposed a process-based restoration philosophy.

Process-based restoration is defined as protecting, enhancing, and/or restoring "normative rates and magnitudes of physical, chemical, and biological processes that sustain river and floodplain ecosystems". A central premise of process-based restoration is that restoration of natural systems (e.g. rivers streams, their floodplains and watersheds) is best achieved by 'let-

ting the system do the work'. Process-based restoration recognizes that to restore ecologically functional riverscapes, we need to restore the physical and ecological processes responsible for creating and maintaining those conditions.

Low-Tech Process-Based Restoration

We define low-tech process-based restoration of riverscapes as, simple, cost-effective, hand-built solutions that help repair degraded streams. In the context of process- based restoration, low-tech approaches are designed to "kickstart" processes that allow the stream to repair itself" . Historic and current examples of low-tech restoration, as both a label and an approach, are abundant. These low-tech restoration approaches, such as simple rock and wood structures, management with beaver, and time-controlled grazing management rely primarily on human labor, natural materials, and changes in management to restore hydrologic, ecologic, and geomorphic processes.

Discussion Added by Friends of Putah Creek:

Low-technology "process-based" creek and stream restoration using beavers, beaver dam analogs, or other low-cost, in-stream structures using natural materials to add complexity and diversity to floodplains is inherently less expensive (by at least 2 orders of magnitude) than comparative restoration techniques using massive earth-moving machinery to form a "precision - engineered" streambed as was practiced at Winters Putah Creek Park. In addition to the financial advantages, there are also substantial ecological advantages. For instance, great effort has been expended in Winters Putah Creek Park to obtain a "stable" and "self- sustaining" Creek form.

*Yet according to the authors of the Low-Tech Process-Based Restoration of Riverscapes: Design Manual, these attempts are self-defeating because "Stability is not a hallmark of healthy riverscapes...The desire to reduce uncertainty and precisely predict restoration outcomes has led to practices that tend to emphasize the stability of channels and in-stream structures. In the context of stream restoration, stability has often meant static. Constructed features and attributes such as plan-form, channel width, location of pools and riffles are designed in such a way that they do not change through time. ….The emphasis on stability requires detailed engineering designs, modeling, and heavy equipment, all of which contribute to the high cost of restoration….**However, population level response of target species (e.g., salmon or steelhead) to these restoration actions is equivocal.**"(Emphasis added)*

Certainly that has been the response in Winters Putah Creek Park. Despite a cost of $6,000,000 to alter only one mile of Creek, there have been no quantifiable increases in benefits to wildlife. Its compacted imported fill has prevented reforestation and caused hundreds of planted trees and shrubs to die over many years. And we know the loss of pools, undercut banks, and overhanging vegetation caused by the bulldozing of the original Creek channel and floodplain has resulted in the loss of almost all in-creek habitat required by native fish populations, which have consequently plummeted in the affected areas according to SCWA's own data. There have also been noticeable drops in mammalian and bird populations in the area SCWA targeted for alteration.

Indeed, the focal species that was supposed to most benefit from this Winters Putah Creek Park project was fall-run salmon. Yet 8 years following completion of the project's first 2 phases there is no evidence a single salmon has been hatched and reared in the Creek and then returned there to spawn.

Comment Letter

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Attach.

According to the authors of this design manual, "A central premise of process-based restoration is that restoration of natural systems (e.g., rivers streams, their floodplains and water- sheds) is best achieved by 'letting the system do the work'. Process-based restoration recognizes that to restore ecologically functional riverscapes, we need to restore the physical and ecological processes responsible for creating and maintaining those conditions."

Friends of Putah Creek fully agrees with the basic premises of this low technology restoration solution promoted in this design manual. Restoration of the Creek requires a much lighter touch than the heavy-machine, diesel-powered, over-engineered mindset of SCWA which has proved particularly destructive in the Winters Putah Creek Park.

We prefer the approach favored by one experienced US Fish and Wildlife Service ecologist:

"What if restoration was about stream power doing the work, not diesel power?" — *Jared McKee (USFWS)*

Appendix A – See Following Pages

Comment Letter
E
Attach.

STREAMWISE

Stream Assessment and Restoration

Achieving restoration goals with natural stream form, processes, and function.

600 S. Mt. Shasta Blvd.
Mt. Shasta, CA 96067
(530) 941–6334
streamwise@sbcglobal.net
www.streamwise.com

July 27, 2011

Rich Marovich
Streamkeeper
Lower Putah Creek Coordinating Committee

Dear Rich,

In response to the resource agency question regarding "*appropriate channel width*" I offer the following thoughts for consideration:

During the past twelve years of work on Putah Creek and its tributaries, we have spent innumerable hours in the field studying the creek and the current conditions. We have looked closely at the full range of channel dimensions, patterns, and entrenchment ratios to determine what combination of factors tend to provide the most likely conditions for a self-maintaining channel morphology.

Given the changes to sediment delivery and flow regime imposed by the upstream impoundments, calculation of such conditions is greatly facilitated by use of careful field observations of the stable channel form. Indeed, these observations are the foundation of design specifications for many of the successful projects we have worked on over the past twelve years.

The key to accurate approximation of the stable condition is to document areas where the stream channel forms its own dimensions through depositional features. Many of these sites are formed by recent channel avulsion, or through building point bar deposition below Dry Creek confluence, where gravel bedload sediment is in ample supply.

We have found a very consistent tendency for the channel to settle into a dimension of approximately 27 to 28 feet in width, with riffle control mean depth of approximately 1.5 feet. When coupled with adjacent inset floodplain features that allow for the dissipation of flood energy, the Putah Creek channel tends to show long-term tendencies to remain in stable condition, without accelerated vertical or lateral erosion. This condition is optimal for the establishment of native riparian vegetation, such as sedge, alder, willow, and cottonwood.

StreamWise relies on these field observations for project design, and prefers the use of

Comment Letter

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field indicators over other more technical methods of channel design and flow modeling. Modeling is a valuable tool and can be used to support design criteria, but should be verified with field data that documents the natural tendencies of the stream channel form and function.

I hope this summary helps resolve any concerns over our design for the Winters Putah Creek Park and allows the project to move forward in a timely manner.

Thanks for the opportunity to comment on this important issue,

Rick Poore
StreamWise

Comment Letter

E

Attach.

UNIVERSITY OF CALIFORNIA, DAVIS

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

Department of Environmental Design

University of California
One Shields Ave.
Fax: (530) 752-1392
Davis, CA 95616

July 25, 2011

Rich Marovich
Solano County Water Agency

Dear Rich,

As a professional geomorphologist, I have been studying Putah Creek for the past 10 years. One of the issues on Putah Creek is that - due to previous manipulations to the creek - the channel width has been "over-widened." In coordination with others, I have done field studies on the creek that suggest that the geomorphically appropriate width (the width that would self-form according to the existing hydrology of the creek) is significantly less than what is observed in many places today. These field studies suggest that the geomorphically (hydrologically) appropriate width is approximately 30 feet.

If I can provide other information, please let me know.

Sincerely,

Eric Larsen

Eric Larsen, Ph.D.
Research Scientist
Phone: (530) 752-8336
ewlarsen@ucdavis.edu

LETTER E
Alan Pryor
Friends of Putah Creek

Response E-1: The comment, which asserts that the Draft Supplemental IS/MND needs to disclose environmental degradation associated with the previous Winters Project, is noted. Please see Response D-2.

Response E-2: Similarly, this comment asserts that the Draft Supplemental IS/MND is insufficient in terms of disclosure and discussion of possible mitigation to reduce potential environmental impacts such as occurred with the Winters Project. Please see Response D-2.

Response E-3: This comment states that the failures seen at the Winters Project will likely be seen in the proposed project and introduces the more detailed comments included in the letter, which are responded to in Responses E-4 through E-7. Identified issues include failure to decrease stream water temperatures, failure to improve fish populations and habitat, failure to improve wildlife habitat, failure to revegetate the floodplain, and reduction in aquifer recharge. Overall, the commenter asserts that the proposed project would result in environmental impacts because it will fail to meet its stated objectives. Please see Response D-1.

Response E-4: The comment states the opinion that the proposed project will not reduce creek temperatures to improve trout and other native fish habitat and that SCWA has not provided sufficient evidence that such a beneficial effect will occur as a result of the proposed project. The removal of invasive eucalyptus and tamarisk trees within the floodplain may reduce shading of the stream in the short term (5-10 years) until replanted or naturally established native trees have filled canopy gaps. However, the proposed project would narrow a wide segment of the existing channel, create a design channel with riffles, and restore a functional floodplain that would recruit native vegetation and ultimately increase the area of shaded water within the project area. These combined effects would ensure that water temperatures would not increase above current baseline levels in the short term and are likely to decrease as the project improvements mature. Please see Responses D-1 and D-2.

Response E-5: The comment states that the Draft Supplemental IS/MND does not address the perceived revegetation failures following re-channelization of the Winters Project. The proposed project incorporates many “lessons learned” from previous restoration efforts, including the facilitation of reverse drainage and subsurface irrigation within the floodplain and the retention of most native riparian trees and their root space. Please see Responses D-1 and D-2.

Response E-6: The comment asserts that the proposed project would not improve fish habitat because this objective was not met by the Winters Project. Please see Responses D-1 and D-2. Overall, the project would result in a net gain of 1,000 feet of spawning and juvenile salmonid rearing habitat.

Response E-7: This concluding comment reiterates the previous assertions that are addressed in Responses E-4 through E-6.

Comment Letter

F

April 31, 2023

Solano County Water Agency
810 Vaca Valley Parkway, Suite 203
Vacaville, CA 95688

Subject: Nishikawa Project Initial Study / Mitigated Negative Declaration

I am pleased to have the opportunity to provide my comments addressing the Nishikawa IS/MND. I am also including my reaction to responses to the comments I made which apply to 2022 Lower Putah Creek PEIR, which are relevant to the Nishikawa project.

I have been a resident of Winters for 23 years and of Yolo County for 55 years. I obtained my BS in Biological Science from UC Davis in 1973 and was a business owner in Davis for 42 years. Beginning in 1999 1 volunteered with Jeannie Wirka to plant the native oaks, toyon, elderberry, creeping wild rye, sedges, coyote brush, and other plants that landscape the upper level of the Winters Putah Creek Park (WPCP). I was the founding chair of the Winters Putah Creek Committee and served for four years. Since then I have worked independently to control invasives, particularly yellow star thistle, and have participated in numerous organized weed control and cleanup activities.

I will leave it to others to comment on environmental law perspectives and focus my comments on my observations following the prior three WPCP phases with the hope that common sense will prevail in future restoration activities. My property backs up to the Nature Park and I have had many years to observe the creek, its habitat, and the impact of Phases 1-3 of creek re-channeling. I live with it daily. In a letter I submitted on July 21, 2016, I offered comments on the previous PEIR, several of which that were not adequately responded to. I will address those which are numbered 1-12 in the 2016 PEIR Comments and Responses document issued in October of that year.

1. I pointed out that attempting to restore the creek to its condition prior to Monticello dam is not possible given the regulated flows and infrequent high flows fed by Dry Creek and infrequent spillway overflows.

The response that stated "Program goals are to restore Putah Creek to improved geomorphic and ecological balance with the present day hydrologic/sediment regime and to provide conditions more suited to the native flora and fauna historically supported in Putah Creek" sounded to me like ecological jingoism designed to impress grantors and the unknowing public. In my observations, removing established native trees, scraping the land clean using heavy equipment, and moving the channel have done nothing to restore native flora and fauna and ecological balance. The kingfishers, egrets, and waterfowl are gone from the nature park. "Geomorphic improvements" are a construct of engineers, not nature. The reality is, the creek will naturally seek an ecological equilibrium governed by the historic and current flow regimes, water removed for irrigation, and our tampering.

The PEIR repeatedly lists goals such as "Restore natural channel form and ecological function", "Restore riparian vegetation to establish 50% canopy cover over the water surface of the channel", and "Remove invasive weeds." What is natural in an ecosystem that has been modified by dams, roads, farms, development, and now tampering with the historic channel? Though there have been valiant efforts to replant trees and shrubs in the nature park, milk thistle and other invasives grow in profusion without interference.

F-1

Comment Letter F Cont.

2. I commented that "A project of the scale of that proposed would be impossible to manage after construction is complete without substantial annual expenditures." I asked for public disclosure of how the grant funds would be spent on each stretch, suggesting they would be better applied to restoration of natural streams. F-2

3. I stated that the PEIR does not provide sufficient detail to evaluate specific environmental risks or mitigations, and that individual EIRs should be required for each section that includes project-specific details. I asked for plans for post-project management. I pointed out that individual EIRs should be required for each stage of work that include engineering drawings and detailed descriptions of impacts and mitigations specific to each stretch. F-3

4. I stated that declaration of low impacts presumes proper management following construction and asked where the plan for this is described and how it will be supported. F-4

The responses to items 2-4 did not address whether there were any budget set-asides for ongoing management. It did indicate that each targeted project would be designed to address site-specific conditions. I have not seen detailed documentation of that in the updated PEIR, for example, for the Nishikawa phase where are the plans for rechanneling, how much fill will be imported, and how deep will the existing terrain be excavated? How is it possible to respond to an EIR that assumes that each proposed restoration segment is not unique? If plans for Nishikawa have been publicly disclosed, I am not aware of it. F-5

Minutes from the LPCC meeting of April 14, 2022 included a Nishikawa Project Update as follows: "Programmatic Environmental Impact Report for all Putah Creek will be adopted as part of Nishikawa. Signed a contract to model pre and post flood water elevations for permitting. Scheduled the tree survey. A soil stratigraphy survey found lots of clay that will be difficult to plant into and little shallow groundwater. The grading plan will be revised to accommodate using adaptive management principles." That vague "adaptive management" term is a convenient way of saying, "Trust us, we've got it covered." The revised PEIR should have disclosed the problems that were encountered in PCC Phase 3, the attempts made to resolve them, and the outcome. For example, the PEIR makes no mention of the challenges faced with re-planting and the futile efforts made to correct mistakes in disrupting the natural stratification of soils by digging trenches perpendicular to the creek and filling them with gravel. F-6

5. I pointed out that there is nothing to prevent eventual concretion of spawning gravels. The response to this comment was that "human intervention is now necessary to reset creek morphology/conditions to the current hydrologic/sediment regime." I have observed that introduction of spawning gravels and scarification have been needed to maintain spawning grounds. There have been only two years where I have observed significant spawning activity along WPCP. Despite the amount of flow, each year the spawning gravel is filled in with sediment making it impossible for fish to create redds without the addition of new gravel as was done the previous fall. That does not constitute restoration of "natural channel form and ecological function." What is the cost, and where do the funds come from? The elevation drop F-7

6. I faulted the prior PEIR for not clearly articulating the goals of the project other than reducing water temperatures that would only benefit anadromous species and trout while ignoring species such as Sacramento Blackfish that thrive in warmer waters. The response states that the goal is to decrease water temperatures to encourage native fish and salmonids. Fish surveys have repeatedly identified only native fish above the 1-505 bridge between 2013 and 2020. For WPCP, the Normandeau reports show rainbow trout counts of 8, 9, 11, 2, 9, 7, 1, and 10 for those years respectively, which shows higher F-8

Comment Letter F Cont.

trout populations are not trending despite the narrower channels. No surveys of water temperatures have been provided to show that restoration has reduced them or affected salmon migration.

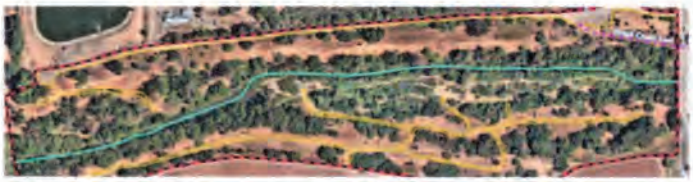
F-8 cont.

7. I commented that no water temperature or BOD measurements were provided to support arguments for improved fish habitat. None were provided in the response.

8. I addressed the problem Winters is having with meeting tighter state standards for Chromium 6 concentrations in ground water and the lack of mention in the PEIR. The response said nothing about this topic, only that restoration efforts are not likely to affect groundwater without providing any evidence. Monitoring wells were installed near WPCP and it would useful to see the results.

F-9

9. The effect of stream shading provided by overhanging trees and shrubs has been acknowledged and the Nishikawa site (shown at right) has much to offer in that regard. The type of restoration proposed that involves stripping existing vegetation, stream narrowing, and replanting will take several decades to provide the kind of diversity and habitat that it now has. The relative barrenness of the Winters project phases are testimony to that.



F-10

10. I noted that no projections of the increase in stream turbidity resulting from construction work, nor monitoring of those impacts on downstream fisheries are presented. The response indicated it would be done for each project as required by permits, but I have not seen any data for WPCP.

F-11

11. I commented on the value of beaver to the creek ecosystem. I have only observed beaver occupying lodges in stream banks in stretches of the creek with calm pools. Their habit of feeding on aquatic plants (as observed) keeps the plant growth under control in calmer waters. The response made it clear that according to CEQA, if a species isn't listed then they don't matter.

F-12

12. The document did not list the Western Pond Turtle as being observed in the Winters Nature Park. They are now only observed in the back channel that was thankfully preserved though not included in the disclosed rechanneling plans. I appreciated the later information provided on Western Pond Turtle observations, but there was no indication of whether the WPCP project had any impact on their population or future plans to protect them.

F-13

I am hopeful that my comments will be taken seriously and that they may have an impact of future activities conducted under the Nishikawa IS/MND.

Respectfully Submitted,

David Springer

David Springer
200 Madrone Ct.
Winters, CA 95694

LETTER F
David Springer
Friends of Putah Creek

Response F-1: This comment, which references a prior comment on the 2016 Program EIR, is noted. The comment states that the restoration of the creek is not possible given past modifications to the natural ecosystem (e.g., construction of dams, roads, farms, etc.). This comment relates to the merits of the proposed project and not to the environmental impacts and mitigation measures identified in the Draft Supplemental IS/MND. In accordance with Section 15024(a) of the CEQA Guidelines, SWCA is not required to respond to comments that express an opinion about the project, but do not relate to the environmental analyses provided in the Draft Supplemental IS/MND. This comment will be considered by SWCA decision-makers when considering whether or not to approve the proposed Project.

Response F-2: This prior comment from the 2016 Program EIR, which requests disclosure of grant funds for the proposed project, is noted. Project costs are not a CEQA issue. SWCA has determined that there is adequate funding for implementation of the proposed project. No change to the Draft Supplemental IS/MND is needed.

Response F-3: This prior comment from the 2016 Program EIR, which requests individual EIRs for each section with project-specific details, is acknowledged. The Draft Supplemental IS/MND is a project-level document, which evaluates the impacts of the Lower Putah Creek Restoration Project, Nishikawa Reach based on the site-specific design prepared by SWCA. As described in the Draft Supplemental IS/MND, environmental impacts associated with the proposed project would be the same as or similar to those identified in the 2016 Program EIR. Several new impacts were identified for biological resources, but measures agreed to by SCWA would avoid or mitigate the effects to a point where no significant effect on the environment would occur (i.e., to a less-than-significant level). None of the environmental impacts would result in any significant effects that could not be mitigated to less-than- significant levels following implementation of mitigation measures identified in the 2016 Program EIR or new, project-specific mitigation measures identified in the Draft Supplemental IS/MND. No change to the Draft Supplemental IS/MND is required.

Response F-4: This prior comment from the 2016 Program EIR, which requests information related to ongoing management, is acknowledged. As described in Section 3.3 of the Draft Supplemental IS/MND, a site-specific Adaptive Management Plan would be developed as part of the proposed project. In addition, the proposed project must comply with regulatory permitting requirements,

which establish minimum performance standards (e.g., survivability, coverage requirements) for revegetation activities. SCWA is currently authorized to conduct various habitat enhancement activities pursuant to Streambed Alteration Agreement Notification No. 1600-2016-0058-R3 (Lower Putah Qreek Salmon Spawning Habitat Enhancement Project) and Amendment of Lake or Streambed Alteration Agreement, Notification No. 1600-2014-0265-R3 (Lower Putah Creek and Tributaries Maintenance Project). No change to the Draft Supplemental IS/MND is required.

Response F-5: The comment asserts that detailed plans for the proposed project have not been provided, including information related to rechanneling, amount of fill to be imported, and depth of excavation. Section 3.0, Project Description, in the Draft Supplemental IS/MND provides a detailed description of proposed activities to be undertaken as part of the Lower Putah Creek Restoration Project, Nishikawa Reach, including proposed channel reconfiguration, floodplain recontouring, channel design (e.g., width, depth, pools/runs, riffles), bank stabilization, vegetation management, weed control, restoration/replanting efforts, and irrigation. No change to the Draft Supplemental IS/MND is required.

Response F-6: This comment, which repeats a prior comment on the 2016 Program EIR, is noted. The comment asserts that the 2016 Program EIR fails to disclose issues/impacts associated with the Winters Project. This comment is related to the 2016 Program EIR and the impacts of the Winters Project, which is not the subject of this Draft Supplemental IS/MND. Please see Responses D-1 and D-2.

Response F-7: This comment, which repeats a prior comment on the 2016 Program EIR, is noted. The comment states that introduction of spawning gravels and scarification have been needed to maintain spawning grounds and requests information on the cost and funding for such ongoing maintenance. As discussed in Response F-2, project costs are not a CEQA issue. SWCA has determined that there is adequate funding for implementation, including ongoing maintenance of the proposed project. No change to the Draft Supplemental IS/MND is needed.

Response F-8: This comment, which repeats a prior comment on the 2016 Program EIR, is noted. The comment states that no water temperature or biological oxygen demand (BOD) measurements have been provided to support arguments for improved fish habitat. Please see Responses E-4 and E-6.

Response F-9: This comment, which repeats a prior comment on the 2016 Program EIR, is noted. The comment states that the Winters Project is having problems meeting tighter State standards for Chromium 6 concentrations in groundwater and requests information from monitoring wells installed near the Winters Project. This comment is related to the 2016 Program EIR and

the impacts of the Winters Project, which is not the subject of this Draft Supplemental IS/MND. Please see Responses D-1 and D-2.

Response F-10: This comment, which expresses an opinion regarding the merits of the proposed project, is noted. Please see Response F-1.

Response F-11: This comment, which repeats a prior comment on the 2016 Program EIR, is noted. The comment states that projections of the increase in stream turbidity nor monitoring results from the Winters Project have been provided. This comment is related to the 2016 Program EIR and the impacts of the Winters Project, which is not the subject of this Draft Supplemental IS/MND. Please see Responses D-1 and D-2.

Response F-12: This comment, which repeats a prior comment on the 2016 Program EIR, is noted. The comment references potential impacts to North American beaver. In accordance with the CEQA Guidelines, the Draft Supplemental IS/MND addresses potential impacts to special-status species. Special-status species are defined as follows:

- Species that are listed, formally proposed for listing, or designated as candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA);
- Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under the California Endangered Species Act (CESA);
- Plant species on California Rare Plant Rank (CRPR) Lists 1A, 1B, and 2 in the CNPS Inventory of Rare and Endangered Plants;
- Animal species designated as Species of Special Concern or Fully Protected by the California Department of Fish and Wildlife (CDFW);
- Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA guidelines; and
- Species considered being a taxon of special concern by the relevant local agencies.

Because North American beaver do not meet the criteria for a special-status species under CEQA, impacts to this species are not addressed in the Draft Supplemental IS/MND. Furthermore, the project does not propose to remove beaver dams, which can provide valuable in-stream habitat for multiple species. Therefore, the project would not create significant impacts to aquatic and wildlife resources. No change to the Draft Supplemental IS/MND is required.

Response F-13: This comment, which repeats a prior comment on the 2016 Program EIR, is noted. The comment states that no information regarding the potential impacts to western pond turtle associated with the Winters Project was provided. As described in Response D6, impacts to western pond turtle are described in Section 5.4 of the Draft Supplemental IS/MND and mitigation is provided to reduce potential impacts to this species to a less-than-significant level. No change to the Draft Supplemental IS/MND is required.

Comment Letter G

Comments on Draft Initial Study/Mitigated Negative Declaration, Lower Putah Creek Restoration Project, Nishikawa Reach, Yolo and Solano Counties, California. March 2023. Solano County Water Agency.

By Jeff TenPas

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Comment Letter G Cont.

I. Qualifications of Commenter

My name is Jeff TenPas, I live in Winters, California, and have resided in Winters for 27 years in a home with a back gate leading to Putah Creek. I am by education, training, and experience well qualified to make expert comment on this Project.

I am educated and trained and experienced as a soil scientist, hydrologist, and watershed restoration scientist. I hold a Masters in Soil Science degree from University of California-Davis. I am retired from the US Forest Service where I worked for 20 years in positions of soil scientist and hydrologist. During those years I served two details in national leadership positions in the Washington Office of the US Forest Service - as national program leader for Soil Science, and again as national program leader for Burned Area Emergency Response. I retired as Regional Soil Scientist and Regional Burned Area Emergency Response program leader for the 18 national forests and 20,000,000 acres in California. Prior to that I was regional leader of the Watershed Restoration program covering those 20,000,000 acres. Before that I had worked at the research branch of the Forest Service with the Rocky Mountain Research Station in Moscow, ID, and on three National Forests in California.

I know Putah Creek and the reach now called Winters Putah Creek Park (WPCP) very well. And I know as well as anybody the SCWA projects in WPCP and their impacts. I have the advantage that for the past 27 years I have lived with WPCP just out my back gate, as a dog owner I have walked along the creek daily for those 27 years, I am an acute observer of the creek and natural phenomena, and have the training and experience to understand the physical processes behind the phenomena. I had ten years to observe pre-project conditions before SCWA began its projects in WPCP in 2011. I observed SCWA's radical restructuring of the creek and the floodplain beginning in 2011. And I have had 12 years since to observe and interpret the outcomes.

II. Introduction

There is a fundamental flaw in the environmental assessment of this Project: there is a complete lack of consideration for the effects of the Project on the floodplain structure and groundwater hydrology.

The Project that Solano County Water Agency (SCWA) proposes for the Nishikawa Reach of Putah Creek has potential to do great, fundamental, and lasting harm to groundwater supplies by blocking groundwater flowpaths in the floodplains. This would permanently harm the riparian forest ecosystem including the wildlife, fish, and humans that depend on and use it, and it would permanently harm regional groundwater recharge rates.

The following comments pertain both to the proposed restoration of the entirety of Putah Creek (the "Program") as more fully described in the *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program* (PEIR) and to the specific restoration project proposed for the Nishikawa reach of Putah Creek (the "Project") as more

fully described in the *Initial Study Mitigated Negative Declaration: Lower Putah Creek Restoration Project, Nishikawa Reach (IS/MND).*

These comments will review the proposed Project, the applicable science concerning groundwater processes in riparian areas, including how groundwater flow depends on floodplain structure, how the Project's will massively alter floodplain structure by machine, and how the alteration of floodplain structure will significantly impact on groundwater flow and groundwater supplies.

III. Description of the Program and Project and Fundamental Concerns

The Program proposed for Putah Creek constitutes a radical level of stream and floodplain alteration along 26 miles of Putah Creek. The Program divides 26 miles of Putah Creek into 17 subreaches and proposes "channel reconfiguration" activities in every one (PEIR, Table 2-3). The plans include moving the main channel in 16 subreaches and altering the channel to increase sinuosity in 16 subreaches.

This is an enormous amount of channel reconfiguration and earthmoving. The plans for this work focus solely on the ***surface*** conformation of the creek, its banks and floodplain. Meanwhile there is a comparable and enormous amount of collateral alteration happening to the ***subsurface,*** to the structure of the floodplains and to groundwater flowpaths, that is unrecognized, unstudied, and unmitigated.

The plans lack any consideration of groundwater and the planners seem to lack even cognition that groundwater is flowing beneath the surface. There is no information on current groundwater elevations in the floodplains or in the greater regional groundwater body. There is no information on the current rates of groundwater recharge occurring in the reach. There is no discussion or analysis of Project alterations to floodplain structure and groundwater flowpaths or how that might directly affect groundwater supply to the riparian ecosystem and groundwater recharge

The Project proposed for the Nishikawa Reach of Putah Creek involves relocation of 0.5 miles of the channel of Putah Creek. A total of 37,500 cubic yards of earth would be excavated, the equivalent to 3,750 dump trucks loads. About 14,000 cubic feet of material would be cut and placed to completely fill the existing channel. The construction plans include what are described as "reverse French drains", a series of 31 trenches to be dug transverse to the channel, connected to the channel, and back-filled with one foot of gravel and rocks then topped with floodplain material mixed with mulch.

The focus of groundwater concerns are those activities that would intersect and disrupt the existing groundwater flowpaths, including the floodplain excavation and grading, the fill placed in the existing channel, the construction of "reverse French drains", and the excavation of the

new channel. The fill of the existing channel in particular creates a continuous linear body of fill running the full 0.5-mile length of the project, separating the one side the floodplain from the new channel, and separating one side of the stream canyon from the channel.

IV. Natural Floodplain Structure, Sorting, Stratification, and Groundwater Conductivity

Earth scientists concerned with groundwater recognize that groundwater mounds are common below streams. The mounds are stream water on its way to merge with the regional groundwater. Groundwater mounds spread out from a stream somewhat horizontally beneath the floodplain and gradually tail off until reaching the regional groundwater level. Groundwater mounds show that groundwater flows horizontally in floodplains in preference to following gravity to fall vertically.

The reason groundwater flows horizontally in preference to vertically lies in the structure of the floodplain soil materials. Floodplains are built up of relatively horizontal layers of sediment deposited by successive floods. Some layers are coarse and some are fine depending on flow velocity and sediment supply of the flood waters. Groundwater moves more easily through coarse layers than through fine, just as water drains into sands vary fast and into clays very slow. Groundwater follows the easy path of horizontal flow through coarse layers, and is impeded by fine layers from draining vertically. Where a material has a physical property which has a different value when measured in different directions it is called anisotropic. This is in contrast to isotropic, where the physical property has the same value when measured in all directions.

In general, the floodplain sediment layers follow Steno's Laws of Horizontality and Continuity. The layers are generally horizontal and continuous to greater or lesser degree. The layers can be thick or thin and distinct or so faint as to be invisible to the naked eye. Flowing water sorts and deposits sediments in accord with Stoke's Law so that coarse sediments drop out at a given time and place where water velocity is high and finer sediments deposit at a given time and place where water velocity is low. The result is that surface flood waters over time lay down a floodplain with contrasting horizontal layers and create favorable conditions for horizontal flow of groundwater.

The rate of water flow through the deposits of granular materials follows Darcy's Law, where each sediment size or material has an empirical coefficient of permeability representing the ease of water flow through it. Water flow through clay is slow, and through gravels is fast. It is useful to consider the magnitude of difference in permeability that can exist between adjoining sediment layers in Putah Creek. For example, permeability ranges from 10^{-7} m/s in silty sand to 10^{-3} m/s in sandy gravel (Figure below). That is four orders of magnitude difference between layers that could easily be found one above the other in the floodplains of Putah Creek. To put it in context, a one square foot cross-section unit of the sandy gravel in the stream bank or

floodplain has the potential to allow as much groundwater flow as a 10,000 square foot cross section of silty sand.

Clearly sorting and layering matters tremendously.

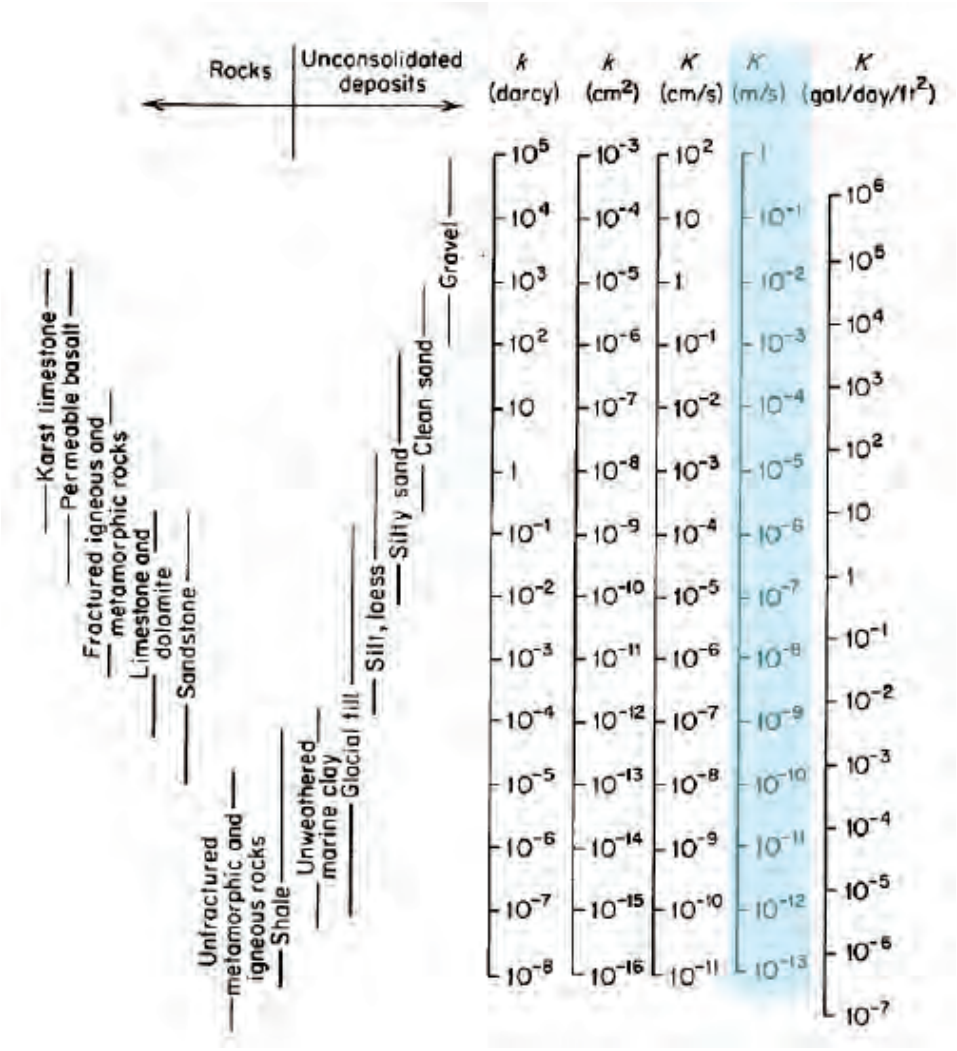

Figure 1. Hydraulic Conductivity of Various Geologic Materials (CC BY-SA 4.0; Freeze, R. A., & Cherry, J. A, edited by Taryn Lausch, via Wikimedia)

V. The Case of Winters Floodplain Stratigraphy

SCWA has considerable information of floodplain stratigraphy on Putah Creek that was not shared in the PEIR or IS/MND. SCWA dug nine trenches across the floodplain in their Phase 2 project area in Winters. These trenches were made by excavator and were wide enough for a person and 8 feet deep. SCWA also dug at least three exploratory trenches in the Nishikawa Project area. SCWA can and should provide photos and information from all the trenches as basis for analysis of groundwater impacts of the Project.

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I had the good fortune to be able to observe a single trench in Winters. What I observed in the Winters trenches was in keeping with the description above of a floodplain built up of sorted and stratified layers. The layers were in fact remarkable to me for their thickness, horizontality, and continuity. You can detect it even in a photograph (Figure 2).

Figure 2. Trench in Winters. Sorted and stratified sedimentary layers.

Comment Letter G Cont.

VI. From Sorted to Mixed: From Permeable to Impermeable: How Diesel Geomorphology Changes Floodplains

What earthmovers and bulldozers do to a sorted and stratified floodplain built up by flowing water is to push and scrape and tumble the delicately-sorted, finely-stratified layers of natural sediment. The sorting and layering is immediately undone. The machines deposit the jumbled material as fill.

Given that particle size makes many orders of magnitude difference in the permeability of sediment layers, then mixing sediment layers of various particle sizes matters tremendously. The rule for mixed sediments is that if the finer component is present in an amount sufficient to fill the voids between the coarser particles, then the finer component prevails in determining permeability. In other words, when an earthmover scrapes up a sandy-gravel layer and mixes it with an equally deep silty layer and redeposits them as a single mixed layer, then permeability falls by multiple orders of magnitude (Before: 1*1 + 1*10,000 = 10,001, and After: 1*1 + 1*1=2)

Applying this science to the Project, the earthmovers are pushing and scraping up natural floodplain layers from the floodplain surface, mixing in the process, and depositing them as fill in the old Putah Creek channel. That fill will have the lowest permeability of its components (silt) and the fill will perform as a barrier or impermeable wall in the floodplain. Likewise, the Project includes proposed “drains” that will transmit water along a gravel base course, and block water in the backfill above. The bed and banks of the new channel will be scraped and bulldozed to sculpt them, and the sorted sedimentary layers will be mixed and ground up by traffic, and the bed and banks may be the first barrier to groundwater leaving the channel.

Comparing landscapes created by flowing water (fluvial geomorphology) to landscapes created by machine (diesel geomorphology):

> Flowing water creates order in sorted and stratified sedimentary layers. These layered sedimentary bodies will support groundwater flow.
>
> Diesel geomorphology mixes and creates disorder and isotropic masses. Fills placed by machine are inherently barriers to groundwater.

Compaction by heavy machines is a further source of injuries to the floodplain. Compaction occurs as heavy equipment presses down on soils and increases its density while decreasing the pores that water can move through. Compaction will compound the negative impacts of the loss of stratification and is simply another factor in reducing permeability. Compacted soil is on the order of 1/10 as permeable as uncompacted soils. Earthmoving projects result in extraordinary levels of compaction: first, because rubber-tired earthmovers have extraordinarily high ground pressures (on the order of 80 psi, as compared to 18 for tracked equipment). Secondly, earthmovers ordinarily construct fills in layers (called lifts) of about 6 inches. Each lift is compacted by the next pass of equipment placing the next lift, and on and on, until a fill is completed. This produces a mass of earth compacted by the highest of tire

pressures to the full depth of the fill. Rain will stand in puddles on a dirt road until it evaporates rather than infiltrate into the compacted road. Imagine then that what when an earthmover fills the old channel of Putah Creek with unsorted, unstratified, compacted fill to the full depth of the floodplain, that is a barrier water will not pass.

VII. The Case Against Moving the Channel to the Middle of the Floodplain

The Project proposes to move the stream channel from its current location, where it runs mostly near one side or the other of the Putah Creek canyon, and move it to the middle of the floodplain. This is a mistake so far as recharge of regional groundwater is a concern. Consider that the Putah Creek runs in a canyon 40 or so feet deep that is cut into an "old" geologic formation. Lining the bottom of the canyon is a bed of recent sediments.

For water to get from the creek to the regional groundwater the path runs from the stream, through stream banks, through recent floodplain sediments, and then into the old geologic formation. The connection from the flowpath in recent floodplain sediments to a good flowpath in the old geologic formation is a potential pinch point in the flow.

Where the stream cuts up against the edge of its canyon and right up to the old geologic formation, there is a short cut to regional groundwater. The path is more direct. Moving the channel to the middle of the floodplain will likely make the path to regional groundwater more indirect and slow the flow.

In floating and walking the creek I have seen exposures of gravel bodies where the current stream bank cuts up against the old geologic formation. These gravel bodies looked like channel fills. They are probably long, and they have high permeability. Cutting the stream off from these potential flowpaths could greatly decrease groundwater recharge potential.

The SCWA should survey the current stream banks for exposures of gravel and not separate the stream from them. The same principle could apply wherever the stream is near the canyon side and the path to regional groundwater is likely shorter and faster.

VIII. The Importance of Groundwater in Riparian Systems

For groundwater and the groundwater dependent riparian ecosystem, what is happening subsurface during the Project is more critical than what happens at the surface. The plan states an intent to increase surface flooding. There is a surface flood connection between the stream and the floodplain only a few days a year, and the Program or its Projects will only marginal change the term of any flooding. But below ground, streams are connected (or disconnected) to their floodplains 365 days a year. The below ground connection of stream to floodplain is critical to riparian ecosystems, for groundwater to support the riparian ecosystem, for hyporheic exchange between the stream and floodplain, and for groundwater recharge.

Comment Letter G Cont.

Groundwater is the defining element for a riparian ecosystem. Without shallow groundwater, a riparian cottonwood forest will not grow. If it grows, the riparian forest is a hotspot of ecosystem productivity and diversity. If the riparian forest fails there will be a loss of a shaded understory, shade for the stream, habitat to birds, a continuous wildlife corridor from the Coast Range to Sacramento Valley. A riparian cottonwood forest provides a shade for people recreating at the stream. All this is dependent on the groundwater conditions in the floodplain.

IX. Groundwater Analysis in the IS/MND and PEIR

1. PEIR

The IS/MND tiers from a Final PEIR (August 2022) which contains absolutely no facts, data or analysis of the Project impacts on Groundwater Hydrology. The PEIR simply disclaims any need for environmental assessment of groundwater impacts because "the Project has no potential to affect". There is nothing to support that claim.

True to its word, never in the course of a 791-page document does the PEIR provide data or information on groundwater levels or address the potential impacts of the Project. The subject of groundwater is discussed only in the context of water quality topics. The PEIR states:

> The following CEQA Guidelines Appendix G hydrology topics are not addressed in this PEIR
> because the Project has no potential to affect them:
>
> • Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

G-1

B. The Nishikawa Project IS/MND

The IS/MND states a conclusion of "No New Impacts" with regard to the Project impacts on groundwater hydrology. The are no facts, data, or analyses to back up this conclusion. There is no expert opinion based on facts. The IS/MND analysis is as follows:

> 5.10.1 Background - 5.10.1.3 Groundwater

G-2

Lower Putah Creek, including the project area, overlies the northern end of the Solano Subbasin, a 664-square-mile subbasin of the Sacramento Valley Groundwater Basin. The Solano Subbasin is the largest groundwater basin in Solano County. Groundwater within the Solano Subbasin is considered to be of generally good quality. Total dissolved solids (TDS) range from 250 parts per million (ppm) to 500 ppm in the northern portion of the basin (which includes the

project area), below or approaching the 500-ppm secondary maximum contaminant level (MCL). Most of the water within the subbasin is classified as hard to very hard. Boron concentrations are less than 0.75 ppm in the project area's portion of the basin (levels above 1.0 ppm can affect sensitive tree crops). Basin arsenic concentrations are typically between 0.02 ppm and 0.05 ppm (the primary MCL for arsenic is 0.05 ppm).

5.10.3 Impact Analysis

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

(No New Impact)

The project involves restoring a section of active channel that is currently in an over-widened
condition. Project activities include stream recontouring, in-channel structural improvements (e.g., natural stone feature construction), and low-flow channel reconfiguration to prevent erosion, minor bank stabilization, and habitat enhancement following a vegetation management plan. The proposed project would not result in an increase in impervious surfaces or require groundwater dewatering. Implementation of the proposed project would not significantly affect groundwater supplies and groundwater recharge and would not cause a net deficit in aquifer volume or a lowering of the local groundwater level. No new impacts or substantially more severe significant impacts related to groundwater supplies would occur.

G-2 cont.

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

(No New Impact)

As discussed in Section 5.10.3.a, the proposed project would be required to comply with requirements set forth by the Construction General Permit, the CDFW Lake and Streambed
Alteration Agreement, and CWA Section 401 Water Quality Certification which require the
implementation of construction BMPs to control stormwater runoff and discharge of pollutants.
With adherence to these regulatory requirements, the project would not result in water quality
impacts that would conflict with the Regional Water Quality Control Board's Water Quality Control Plan (Basin Plan) for the Central Valley Region. Therefore, impacts related to conflict with a water quality control plan would be less than significant.

The proposed project would not conflict the California Sustainable Groundwater Management Act (SGMA), which took effect on January 1, 2015. SGMA established a framework of priorities and requirements to facilitate sustainable groundwater management throughout the State.[55] The intent of SGMA is for groundwater to be managed by local public agencies (e.g., water districts, irrigation districts, etc.) and newly formed Groundwater Sustainability Agencies (GSAs) to ensure a groundwater basin is operated within its sustainable yield (no long term overdraft) through the development and implementation of Groundwater Sustainability Plans (GSPs). As described in Section 5.10.1, Background, the project site is located within the Solano Subbasin, which has been designated as a medium priority subbasin and is therefore required to develop a Groundwater Sustainability Plan. A group of Groundwater Sustainability Agencies (GSAs) in the Solano Subbasin formed the Solano Subbasin GSA Collaborative and developed The Solano Subbasin Groundwater Sustainability Plan which was finalized in December 2021. The proposed project would not conflict with the GSP for this area, given the fact that the proposed project would not include any on-site groundwater utilization, nor would it significantly reduce groundwater recharge. Therefore, no impact related to groundwater sustainability or conflict with a GSP would occur. No new impacts or substantially more severe significant impacts related implementation of a water quality control plan or sustainable groundwater management plan would occur.

G-2 cont.

C. Missing Groundwater Data for the Project

A SCWA contractor dug a set of exploratory trenches perpendicular to the creek across the Nishikawa Project site to look at floodplain structure and groundwater. That shows SCWA had a concern for potential impact and has information about groundwater conditions that is not being disclosed. As a result of that work, the Project plan includes some work variously called "soil mitigation trenches" or "reverse French drains" in the IS/MND. These trenches are discussed later in these comments.

SCWA should provide the information discovered in those exploratory trenches:

What are the groundwater levels (GWL) at the Nishikawa Project site?
What is the structure and stratigraphy of the floodplain?

G-3

D. Summary of CEQA Analysis of Groundwater Hydrology

In the Final PEIR (791 pages) and the IS/MND (227 Pages) not one page is given to discussion and analysis of groundwater impacts. There is no data, information or analysis. There is no expert opinion based on facts.

Groundwater is important. Groundwater issues have been raised numerous times in comments on this Project and the Program and backed up by facts. SCWA itself has voluminous data and reports on groundwater levels along Putah Creek, a collection of scientific reports going back 100 years on how the stream and groundwater are connected, and the creek's contribution to

G-4

groundwater recharge. Evidence has been provided to SCWA of the impacts of the WPCP project on groundwater. SCWA has information on groundwater and floodplain structure at the Project site gleaned from the exploratory trenches. There is no conceivable reason to justify a stubborn refusal to address the issue.

G-4 cont.

X. Evidence of Negative Impacts

A. Science

Based on science there is ample basis for an inference that the Project will have new significant impacts on groundwater supplies. The science and analysis were discussed above.

B. Evidence from Winters Putah Creek Park Project

The WPCP project was implemented beginning in 2011 for Phases 1 and 2, and in 2018 for Phase 3 and NAWCA 3. It was not long after 2011 when the riparian vegetation began to show signs of water stress, followed by multiple signs of adverse groundwater impacts.

In approximately sequential order of occurrence, the signs of negative impacts were trees dying, a dry desiccated floodplain with a narrow green border along the stream, and failures of replantings. Then at my urging SCWA investigated groundwater conditions in trenches crossing the floodplain, and that revealed excessively low groundwater conditions. At this point I discovered there was a nearby well included in the state's groundwater monitoring program, and the data showed that groundwater elevations had fallen in that well concurrently with the WPCP projects. After that I learned there were stream gauges above and below WPCP, and processed data from those gauges to see if the stream gauges might show the effects of the projects as changes in flow, and they did.

G-5

One might try to dismiss one or two of these pieces of evidence as happenstance. When six lines of evidence line up to point at one explanation, it is hard to ignore. There is substantial physical evidence now that those WPCP projects had negative groundwater impacts. The Nishikawa Project alterations to the stream and floodplain are similar to the WPCP project work.

1. Death of remnant cottonwood trees

Like the proposed Nishikawa Project, the Winters Project began with near total clearing of the floodplain, destroying a mature and mostly native riparian forest. A handful of mature native trees were spared, some perched on pedestals, others having endured heavy traffic pounding over the root zone. In subsequent years, the remnant mature trees spared in the Project died as a result of the project.

Comment Letter G Cont.

Figure 3. Remnant cottonwoods that died after Phase 1 of WPCP project.

2. Failure of tree plantings

At the same time as the mature trees were dying, replantings were failing. There are areas in WPCP where trees have been replanted three times and still after 10 years remain almost barren save for weeds.

G-5 cont.

Figure 4. Winters Putah Creek Park – Phase 2 – 2019. Replanting again, eight years after "restoration", and two previous failed plantings.

Comment Letter G Cont.

3. Greenline Effect

Massive, unsorted, unstratified fill lines the banks of Putah Creek in Winters. The fill was put there to narrow the channel to meet SCWA's channel width objective. The fill is so impermeable and blocks groundwater so much that there is only enough water penetrating the banks to water a thin 4 foot greenline of vegetation along the bank (Figure 5). To explain the effect in scientific terms, what we see is that the permeability of the stream bank is equal to the transpiration from four feet of floodplain vegetation. This is exemplary of the effect of a linear fill, and shows how the filling of the old stream channel as proposed at the Nishikawa Project would block groundwater from moving across the fill.

Figure 5. The Greenline Effect – When a bank is nearly impermeable, there is only enough water penetrating the bank to water a thin greenline of vegetation.

G-5 cont.

4. Trenches and deep pit

SCWA dug trenches across the floodplain in the Phase 2 project area of WPCP in 2017. The trenches revealed extraordinarily low groundwater levels. A fuller description is provided in the next section.

5. Groundwater monitoring well

There is a groundwater monitoring well located about 200 feet away from the creek and directly across from the WPCP and SCWA's projects there. The data go back to 1931. What the groundwater elevation data show is a significant drop in water levels subsequent to the

implementation of SCWA's projects in 2011. This suggests that there was a drop in groundwater recharge due the WPCP project in 2011.

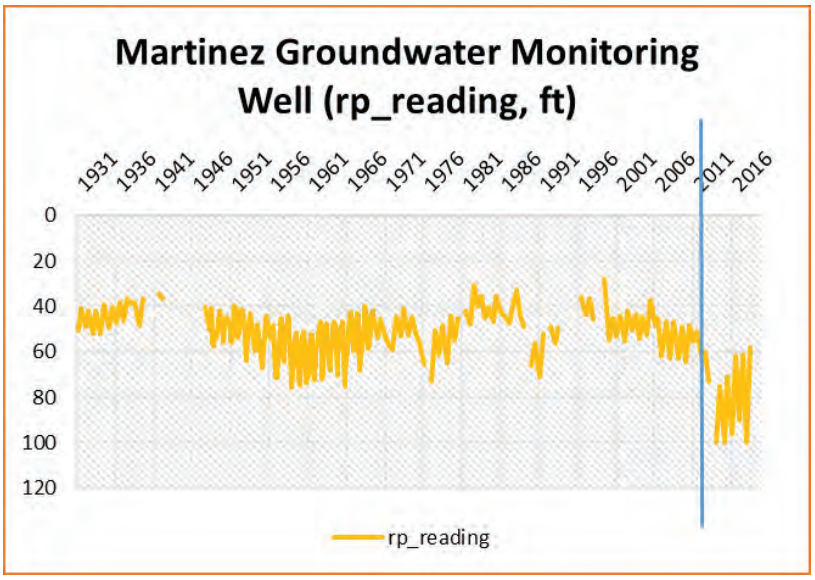

Figure 6. Groundwater Levels, Martinez Well, near Winters Putah Creek Park. Blue line indicates implementation date of Winters Project and the beginning of groundwater decline.

G-5 cont.

6. Stream gauge data

SCWA collects stream flow data at a gauge above the Winters project at the diversion dam west of Winters, and there is a second gauge at I-505 just below the Winters project. This part of Putah Creek normally loses water and the lost water goes into groundwater recharge. In theory, if the Winter projects were blocking groundwater recharge, and the amount were relatively large, it should show up in stream gauge data. There is comparable data going back to 2008, three years before project implementation, and forward to the present. Those data were examined to see if they would show impacts of the WPCP projects. Data for August and September were analyzed because those are months with minimal perturbations by unmeasured riparian pumping withdrawals or precipitation.

The data for August and September of 2008 to 2010 showed an average decrease of flow between the upstream and downstream gauges of 15.5 cubic feet per second (cfs), implying an equivalent fall contribution to groundwater recharge (TenPas, J. 2018. Declaration on Phase 3).

The data for 2013 to 2017 showed that the average stream loss decreased to 9.8 cfs, implying a 5.6 cfs reduction in the rate of groundwater recharge. On an annual basi, 5.6 cfs comes to 4,054 acre feet of water, water not going to recharge the aquifer that supplies municipal water to the City of Winters. That reduction is over 2x the annual pumping by the City of Winters. In a word it is a very significant reduction to groundwater recharge on an annual basis, and even more significant on a permanent basis.

Comment Letter G Cont.

C. Evidence: SCWA's Actions

In the years since the WPCP project began in 2011, SCWA has taken several actions that betray their knowledge of abnormal groundwater conditions in WPCP since their projects were implemented.

1. Groundwater Mitigation Trenches Installed in 2017 in WPCP

By 2017, there had been several successive failures of tree and shrub plantings in WPCP Phase 2. At my suggestion, SCWA investigated groundwater conditions and attempted mitigation for the conditions it found. SCWA's actions prove it recognized the adverse groundwater conditions created by the restoration project.

SCWA installed a set of 9 trenches in WPCP. The trenches were 8 feet deep and extended from the stream and across the floodplain. The trenches revealed post-project groundwater conditions and floodplain structure. I was told (personal communication with Vic Clausen) that the trenches were dry except for one. One would expect shallow groundwater near the creek to be near the elevation of the surface water.

As those trenches were dug, the excavator operator took photographs and video of the trenches (personal communication with Duc Jones, 11/22/2017). I explored one of those trenches and observed multiple alternating layers of coarse and fine sediments, layers which were relatively horizontal, continuous for up to 100 feet, and well-sorted. The coarse layers were a highly permeable potential flowpath for groundwater. However, the stream-ward end of the layered floodplain sediments ended in a plug of compacted fill emplaced by SCWA project to narrow the stream. The fill separated the stream from the layered floodplain sediments blocked groundwater.

G-5 cont.

To mitigate the adverse groundwater conditions, SCWA laid a base course of gravel in the trenches and then backfilled with the excavated material. Then SCWA connected the trench to the stream in an attempt to bring groundwater back under the floodplain. SCWA installed pipes to monitor groundwater levels. Friends of Putah Creek subsequently requested the monitoring data and the photo and video records for the trenches, but this public information was never provided.

2. SCWA September 4, 2019 Work in WPCP

SCWA investigated further into Phase 2 groundwater levels and attempted further mitigation in September 2019. When I observed the work, a 16 ft. deep exploratory pit had been dug about 20 feet from the stream. The groundwater level was an astounding 15 feet below the surface and 14 feet below surface water elevation. SCWA proceeded with mitigation work. As of 2023, this area in Phase 2 can be described as a treeless floodplain desert (TenPas, J. 2019. Winters Putah Creek Nature Park update)

Comment Letter G Cont.

3. Phase 3 Planting Tree Planting in Wells and Irrigation

In the 2018, SCWA implemented another project in WPCP during which the channel was relocated and the old channel filled (as in the proposed Nishikawa Project). For subsequent tree plantings, SCWA mitigated for project effects and low groundwater levels by excavating pits until reaching groundwater and backfilling with amended soil. SCWA has been watering these tree plantings ever since, including 2022. Trees in a natural undisturbed floodplain should never need either special planting preparation or long term irrigation. SCWA betrays that they know the project has negatively impacted groundwater levels.

G-5 cont.

D. SCWA's Tacit Admission of Concern for Negative Groundwater Impacts at the Nishikawa Project

The IS/MND for the Project is silent as to groundwater conditions and disclaims any potential for effects. There is however one detail in the project plan that amounts to a tacit admission that SCWA is concerned about groundwater impacts. SCWA is proposing a set of 31 trenches, referred to as "reverse French drains", that they describe as being there to sub-irrigate floodplain disturbed by the Project. This detail is shown as "Proposed Soil Mitigation Trench(es)" in the Project design drawing (Fig. 3, IS/MND p. 3.9, Proposed Soil Mitigation Trench) and discussed in the text (Section 3.3.3.2 Reverse Drainage and Subsurface Irrigation).

> IS/MND p 3-15
> 3.3.3.2 Reverse Drainage and Subsurface Irrigation
> The current floodplain of the project area is underlain by a thick layer of clay. In some places, this layer exceeds 12 feet. Recontouring the floodplain would bring the actual surface closer to this clay layer and may expose it in places. Due the impermeability of the clay layer, planting trees may be challenging. Therefore, reverse drains are designed to bring water from the design channel to the trees in subsurface "reverse French drains". These drain channels would be constructed as a perpendicular trench leading from the design channel into the newly created floodplain. Trenches would be dug to the elevation of the design channel bottom and would be sloped slightly downward from the channel to provide a flow gradient for moisture away from the channel. The drain would be filled with up to 1 foot of coarse gravel and rocks and then backfilled to grade with regular floodplain material, mixed with mulch. Trees would be planted into these drains, while shrubs and willows would fill the interstitial spaces between the drain locations. This design ensures that the entire floodplain is quickly re-populated with site-adapted trees and shrubs. Over the years, as the drains fill with sediment, trees and shrubs would have completely conquered the available rooting zone.

G-6

The "drains" reveal that SCWA has concerns that the Project may impact groundwater and leave the riparian forest without groundwater. The "drains" are mitigation for potential impact. The IS/MND does not own up to the potentially significant impact, and the mitigation is not disclosed as mitigation. This contradicts the IS/MND determination of "No New Impact".

Unfortunately, the SCWA stopped short of considering the full scope of the potential impact and did not consider that recharge to regional groundwater would be affected too. The floodplain after all gets the first draft from groundwater flows, but most water flows on past the floodplain toward deeper regional groundwater. If the floodplain trees need groundwater mitigation, then so does regional groundwater recharge.

G-6 cont.

E. SCWA was Knowledgeable of the Evidence for Potential Impacts

SCWA had knowledge of conditions in Winters Putah Creek Park. SCWA took actions to mitigate groundwater conditions in WPCP. SCWA was in receipt of written comments that presented facts concerning impacts in WPCP. SCWA knew all this when it certified the PEIR. These facts should have been but were not included in the later Nishikawa Project IS/MND.

The failure to disclose these facts deprived public agencies and the public of information on the environmental impacts of the Nishikawa Project. The SCWA's failure to disclose these facts was grossly negligent or intentional.

G-7

XI. Conclusions

Based on facts and science, I infer that the Project will put in place masses of unsorted, unstratified, compacted fill created from sorted, stratified floodplain materials. The fills will be much less permeable to horizontal flow and will function as nearly impermeable barriers to groundwater flow. Based on that, I conclude that the proposed Project would harm groundwater flows and groundwater supplies.

Logical inferences from physical science for the effects of the Nishikawa Project:

- Wherever the Project puts fill, it will block groundwater flows
- Fill of the existing channel will block groundwater to the channel footprint and beyond to the floodplain on the other side
- The transverse "Soil Mitigation Trench(es)" will block groundwater flows parallel to the stream and hyporheic exchange between channel and groundwater
- Cutting and forming the bed and banks of the new channel will line the channel with a low permeability barrier to groundwater
- Lack of shallow water beneath the parts of the floodplain cutoff from groundwater will cause die-off of some or all remnant forest and permanently prevent the growth of a healthy riparian forest
- Failure of the riparian forest will have negative effects on habitat for birds, wildlife, fish, and for human recreation
- The Project will permanently block recharge to regional groundwater along one side of the stream

I have seen the evidence in SCWA's past projects in WPCP of harms to groundwater supplies. These projects that were similar in important ways to the proposed Project. I conclude that the proposed Project would harm groundwater flows and supplies.

G-8

I have seen the evidence that SCWA in fact recognized the harm to groundwater supplies in Winters and now recognizes a threat to groundwater flows and supplies at the Project.

There is data and information critical to agency and public understanding of the Project's potential environmental effects that has been negligently or willfully suppressed and not disclosed in the environmental analyses for the Program and the Project.

G-8 cont.

XII. Expert Opinion

My opinion as a scientist is that the proposed Program and Project will have significant negative impacts on floodplain structure, groundwater flowpaths, and groundwater flows, and significant negative impacts on groundwater supplies to the groundwater-dependent riparian ecosystem in the Project area, and significant negative impacts on recharge to regional groundwater. These negative impacts were not adequately disclosed and analyzed, nor were proper mitigations proposed and discussed in the IS/MND or the PEIR.

XIII. Recommendations

Proposed Rules for Fill in Floodplains

Due to the significant effects of fill on groundwater processes in floodplains and riparian zones, certain assumptions should be made and rules followed.

Assumptions

- That earthmoving mixes earth into an unsorted disordered mass that is isotropic with respect to groundwater permeability
- That fill placed by machine will be only as permeable as the least permeable of the components in the mix
- That fill will not support horizontal groundwater flow or maintain a groundwater mound beneath a stream
- That the surface area and depth of fill matter
- That the distance of fill from the channel matters
- That the continuity of a body of fill matters

Rules

- That fills are low permeability and isotropic barriers to groundwater
- That floodplain alterations that disturb fluvial sediments and disrupt floodplain stratigraphy should be avoided or minimized
- That fills must disclosed and analyzed for their groundwater impacts in environmental reviews

Comment Letter G Cont.

XIV. Attachments

TenPas, J. 2016. Comments on draft PEIR - Lower Putah Creek restoration project

TenPas, J. 2018. Declaration on Phase 3

TenPas, J. 2019. Winters Putah Creek Nature Park update

TenPas, J. 2022. Comment letter to LPCCC re Nishikawa

Comment Letter G *Attach.*

Jeff TenPas
Winters Friends of Putah Creek
24 East Main Street
Winters, CA 95694

July 22, 2016

Solano County Water Agency
Putah Creek PEIR
810 Vaca Valley Parkway, Suite 203
Vacaville, CA 95688.

By email to:

Roland Sanford, Executive Director, Solano County Water Agency: rsanford@scwa2.com
Chris Lee, Dir. of Env. Compliance, Permitting, and Habitat Conservation: clee@scwa2.com

Comments on Draft Program Environmental Impact Report – Lower Putah Creek Restoration Project

Dear Mr. Sanford, thank you for leading the SCWA and overseeing its stream restoration efforts. This is an endeavor we can all fully support. Please consider the following comments on the draft PEIR for the Lower Putah Creek Restoration Project in the spirit with which they are given, coming from a supporter and a group supporting Putah Creek restoration and who would like to help and to achieve the best outcome for the creek.

Yours Truly,

/Jeff TenPas/

Intro

My name is Jeff TenPas, and I live at 24 East Main Street, Winters, California. I am a trained and experienced environmental scientist with an MS in Soil Science and over 20 years of experience in watershed restoration and environmental assessment. For the last 14 years I have worked for the USDA Forest Service. For 10 years my duties included being the regional watershed improvement program manager for the 18 forests in California. I am considered an expert in soils, water and soil interaction, soil water storage and movement, soil impacts from management activities like timber harvest and heavy equipment traffic, and environmental planning for watershed restoration projects.

I am intimately familiar with Putah Creek in Winters. For the last 20 years I walked the dog daily up and down the creek, first one dog, then the next. I opened up trails along the creek to promote public access. As much as anyone, I have observed the creek and floodplain on a daily basis, and read the landscape with a scientific eye.

Comment Letter
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I am deeply concerned with the environmental impacts of the program of work as proposed. Don't get me wrong, I am in full support of restoration, but I question the heavy-handed methods, the narrow one-species focus on salmon, and the significant impacts.

Overarching Comments

The scope and scale and intensity of disturbance from the proposed Program is huge but difficult to comprehend from the PEIR. I begin with some overarching comments about the overall project, the disclosure in the draft PEIR, and CEQA compliance.

1. Disclosure of Past Projects. The Program is an extension of a program of work that the SCWA has been carrying on for more than ten years. There is quite a bit of information from past projects that could and should have been used to inform the assessment of the effects and cumulative effects of the current plan. That includes especially information about the revegetation failures and wetland mitigation failures of the past projects Phases 1 and 2 of Channel Realignment in Winters. The analysis should include a discussion of these past projects and how these circumstances will be avoided in the future. The past project history cannot be left out without leaving out cumulative effects and without calling into question the good faith of the analysis.

   Comment 1: In the Final please include a list of past projects, and an assessment of compliance with mitigation requirements, and compliance with conditions of permits of approval.

2. Project Costs. The PEIR should discuss the Program costs. The program work done so far in Winters has cost over $5 million for one mile, so the work on 24 miles might exceed $100 million. While costs are not a direct environmental issue or effect, an indirect effect of spending so much on Putah Creek is that there is less money to go to potentially more cost-effective and beneficial salmonid or stream or watershed restoration projects elsewhere. It helps to consider costs too as a factor in the likelihood of funding for the proposed project or a lower cost feasible alternative.

   Please include projected Program costs in the PEIR.

3. Good Faith Effort at Analysis Commensurate with the Project Cost and Scope. The scope and scale and cost of this project is huge. For this, one would expect a thorough and comprehensive assessment of existing resources, including biological surveys and mapping where needed, and a serious effort to identify impacts and alternatives. This PEIR needs more depth and analysis. The project activity description is too much a discussion in generalities. The impact assessment is too conclusory without support.

   Please improve the PEIR by basing the analysis on biological surveys, mapping, soil analysis, etc to build a PEIR that is commensurate with the scale of the project.

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4. Public Participation. There has been too little opportunity for public participation in planning and analysis of such a large programmatic project (Guidelines, Sec 15201). There was one single scoping session for the PEIR in Winters, and one single public meeting on the draft PEIR in Winters where the agenda was mostly dominated by presentations to the public instead of taking public comment. There were no public meetings in Davis, the largest part of the public affected by the project, or outreach to landowners, the people most directly affected by the project.
    a. There should be public meetings on the program in Davis.
    b. There should be outreach to abutting landowners.
    c. There should be true public hearings on the draft PEIR, not public meetings with and agenda dominated by talking at the public.

5. Standards for Adequacy of an EIR (Guidelines, Sec 15151)). I suggest that the draft PEIR does not achieve a full disclosure of the scope of the project, and the potential impacts of this kind of work that are known to the agency. The SCWA knows there are problems with similar past projects. The SCWA knows of other environmental issues that were raised but not included in the PEIR, including the very important issue of the effect on ground water recharge. I have submitted information to the agency to show that the sort of work now proposed in the Program is detrimental to floodplain groundwater hydrology and groundwater recharge. These issues are known to the agency and should without question have been included in the PEIR.

6. Recreation Impacts and Recreation Planning. It is noticeable and regrettable that the Program neglects to include improving swimming and other recreational opportunity. One would hope that a planning effort and environmental assessment of this scale would consider swimming as a significant use to be protected and enhanced.

Program Objectives

The SCWA proposes this Program in part to reduce stream temperatures for the benefit of salmonids. In relation to Program Objectives, the PEIR provides little information to show what the limiting factors are for salmonid habitat or how this project addresses the limiting factors. One of those factors is identified as stream temperature, but there is no data on existing temperature, nor analysis of the Program's potential effect. The PEIR should give substantially more effort to present the program objectives.

7. The PEIR should show where (spatially) and when (diurnally and seasonally) that there is a need for temperature reduction.
8. The PEIR should assess whether the bottoms of the deep pools that the Program will eliminate are not cold water refugia on a hot day.
9. The PEIR should present the water temperature data that the SCWA has.
   I have seen such data presented at past meetings of the Lower Putah Creek Coordinating Committee, and the Winters Putah Creek Committee.

Comment Letter
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Disclosure of Project Activities and Disturbance

The PEIR needs work on its Project Description. A PEIR is not expected to include site specific project designs. What we should expect is a good faith effort to describe the program of work, what will occur on the ground, how it will occur, how much work will be done, what impacts it might have, and how much cumulative impact may be.

Here is the minimal description the PEIR gives for the activity of filling an old channel and creating a new channel it says:

"Reposition Thalweg (p.2-10) .. Thalweg repositioning would involve excavating a new thalweg and/or filling all or portions of the old thalweg with the excavated material"

In practice, moving a stream channel creates an extreme level of disturbance that the PEIR description does no justice to. A better description might say:

Channel realignment requires building an access route, trees are cut, the banks(s) are cleared of vegetation, the stream channel is blocked, the stream is rerouted through a pipe, the channel is dried up, earthmovers and bulldozers disturb most of the floodplain, banks, and channel. The mature riparian cottonwood forest that is cleared will take a generation to regrow, the streambed, banks, and channel are rearranged and compacted, undercut banks are gone, and any mussel beds are destroyed. The hyporheic zone is entirely disturbed.

10. The PEIR should include a thorough description of each Program Activity, describing the steps and what disturbance there will be to the floodplain, banks, channel, soils, wildlife, fish and aquatic organisms.

Disclosure of Cumulative Extent of Project Activities

If the purpose of the PEIR is to improve the assessment of cumulative effects, then the PEIR needs to include an estimate of the cumulative total of project work and its footprint as a first step. Then the PEIR can go on to estimating the cumulative total of project effects. This will give the PEIR the advantage over multiple separate project-level CEQA documents by including a more exhaustive consideration of the program as a whole and the cumulative effects and alternatives. This allows the lead agency to consider program-wide mitigation measures "at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts" (CEQA Guidelines, Section 15168, subd. [b]).

11. The PEIR should estimate, summarize, and discuss the cumulative totals of each individual channel reconfiguration activity, including total stream length affected and stream area affected.

12. The PEIR should estimate how much total pool area there is existing, how much pool area will be filled, and how much will remain.

Comment Letter G ***Attach.***

13. The PEIR should estimate the total acreage of floodplain that will be (1) cleared , (2) trafficked, and (3) compacted by heavy machinery.

14. The PEIR should disclose the estimated area of floodplain that will be cleared and the estimated number of trees that will be cut.

Potentially Significant Environmental Effects That Need Assessment and Mitigation

There is evidence for additional potentially significant environmental affects that were not identified in the PEIR and need to be assessed and then mitigated should be considered as appropriate.

Soil compaction. On this I am a scientific expert. Any heavy equipment traffic will compact soils, and soil compaction is detrimental to growing plants and soil hydrologic function. In forest soil management, we aim to limit compaction to a minimum, and in riparian areas may do that by excluding equipment entirely. This Program proposes what appears to be a great deal of heavy equipment use in the riparian area. I have witnessed and can attest to the soil compaction and its detrimental effects produced by past projects by the SCWA on Putah Creek. The SCWA is in fact currently struggling to establish vegetation on the floodplain in Winters due in part to soil compaction.

15. The PEIR should include an assessment of the extent of the area that will be affected by heavy equipment traffic and the degree and extent of compaction that will result.
16. The PEIR should include mitigation measures to avoid, minimize, and ameliorate compaction. Mitigation measures could include limiting the equipment traffic to limited travel routes, and using moveable pads to travel on.

Riparian cottonwood forest. Riparian cottonwood forest is a special aquatic habitat and a habitat that has been broadly affected by land and agricultural development. Prior SCWA projects in Winters avoided some cottonwood trees. The past projects however disturbed and compacted the surrounding soil and floodplain to an extreme extent (Jeff TenPas, expert opinion of a soil scientist) and the remnant trees are stressed or dead. The Program has the potential to detrimentally affect a significant portion of the existing mature healthy riparian cottonwood forest extent along Putah Creek.

17. The PEIR should include an assessment of the area of mature riparian cottonwood forest that will be affected, the relative amount of the total that will be affected, and the effect on the age distribution of forest.
18. The PEIR should include mitigation measures to avoid and minimize disturbance to riparian cottonwood trees and the surrounding floodplain.

Floodplain groundwater hydrology and water supply to riparian cottonwood forest. Floodplains and their riparian forests are dependent on their groundwater connection to the surface water in the stream. Riparian forests exist only because of a water subsidy from surface water. Water movement from the stream through the stream bank and the floodplain soils is

controlled by the porosity and water potential gradient in accord with Darcy's Law. This is an area of my scientific expertise. Alteration of the floodplain soil material by imported fill, by mixing, and by compaction alters water movement. This has occurred in Winters in the SCWA's Phase 1 and 2 projects, where a clayey fine-textured fill was imported, placed, and compacted detrimentally reducing the groundwater hydrology and supply of water to the floodplain and forest. This is based on my professional knowledge, observation, and testing of the fill, its texture, and observation of its placement by earthmoving equipment.

The SCWA has reason to know, given its expertise in canal design and construction, that a clayey material has permeability that is an order of magnitude less than a normal sandy loam floodplain soil. The SCWA has bored holes in the floodplain after doing Phase 1 and 2 in Winters, the holes were up to ten feet deep and just ten feet from the creek, and most of the holes came up with dry holes, where there should have been free water at near the elevation of the stream water. I have observed this and measured this in those holes.

The Program proposes to import more fill, and place it with heavy equipment, to reduce the stream bed and bank size and area. This will inevitably reduce groundwater movement and supply to the floodplain, first by decreasing the channel surface area, second by compacting the material with heavy equipment traffic, and third by substituting finer textured soil material than was originally present.

We have seen in Winters Phases 1 and 2 the significant detrimental effects of the channel-modification projects on floodplain groundwater movement and supply to riparian forest.

19. The PEIR must include an analysis of the amount and type of fill to be used, and its permeability after emplacement, with a comparison to existing conditions.
20. The PEIR must include mitigation measures designed to fully maintain floodplain groundwater hydrology.

Groundwater Recharge. Groundwater is an increasingly important resource, and Winters relies upon it for its City water supply. The proposed Program will have an effect on it, a potentially significant and detrimental effect.

SCWA has on its website information relating to losses of Putah Creek instream flow to groundwater, showing that in the reach from the Diversion Dam to I-505 that is an average loss over 4.3 cfs in the June to October period. This represents a great deal of groundwater recharge. Movement of water from the stream to groundwater is described by Darcy's Law, where the quantity of recharge is related to the infiltration area, permeability of the material, and the water potential gradient. The proposed program proposes to decrease the area available for recharge by filling in pools, narrowing the channel, and filling gravel pits. The Program also proposes to import as fill the spoils of digging the South Putah Canal, a material that is clayey and naturally lower in permeability than a sandy loam floodplain or a gravel deposit. It will be impossible not to diminish groundwater recharge.

Comment Letter

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***Attach*.**

I have supplied the SCWA with estimates showing that just the past projectw in Winters may have decreased groundwater recharge in an annual amount greater than the City of Winters annual water use. This additional Program would have a cumulative effect on groundwater recharge that could potentially exceed 5000 acre feet per year. One could improve the estimate, but the effect is unavoidable, and must be recognized as a potentially significant effect of the Program. The gravel pits that are proposed to be filled are probably a focal point for recharge. One might still choose to fill the pits, but must be preceded by analysis and disclosure of the effects.

Groundwater recharge potential will be further diminished during flooding if the floodplain material and permeability are altered, as by importing fill and compaction due to machinery traffic.

21. The PEIR must include an assessment of the effects of the Program on deep groundwater recharge through the bed and banks of the channel and gravel pits. The existing surface area and permeability of the stream bed and banks, including the gravel pits, should be estimated. The post-project surface area and permeability should be estimated. An analysis should be made of the effect on ground water recharge potential.

22. The PEIR must also include an analysis of the reduction in recharge through the floodplain during flooding by considering the effects of changes in floodplain material where fill is imported and where there is compaction due to heavy machinery traffic.

23. The PEIR should also analyze the effects where the stream normally gains water from shallow groundwater. Here the effects to consider are how the lowering of permeability or groundwater discharge may affect stream flow and moderation of stream temperature by the mixing of cold groundwater with warm stream water.

Impacts on Swimming and other recreation impacts. Pools and gravel pits in the creek are potentially important swimming and recreational sites. These sites are important to consider even if they are now not accessible to the public, because they might be next year or 100 or 200 years from now. A previous SCWA project in Winters eliminated a very popular swimming hole where annual usage was far over 5000 user days per year. There is another project proposed in Winters that will eliminate a smaller yet still popular pool. There has already been a significant reduction in swimming in Winters, and any further loss increases the cumulative effect. Any pool and every pool presents some opportunity, and there is currently little good public access to swimming, and that is a precious commodity in a hot climate. The Program proposes channel reconfiguration activities that will result in a cumulative filling in pools and gravel pits up and down the creek that will result in a reduction in current and future swimming opportunity. This should not occur without a clear and focused cumulative analysis of the change in total pool area and swimming opportunities.

24. The PEIR should map and inventory the pool sites and gravel pits, both those that are proposed for filling and those that will remain, and assess current and future prospects for public swimming opportunities.

Loss of hyporheic zone and its water temperature and nutrient processing functions. The Program channel reconfiguration activities will disturb and alter the hyporheic zone over a large part of the stream. The hyporheos depends on continuity of flow paths through permeable layers and lenses of material. It would be very difficult for heavy equipment and project constructed channels to duplicate the complexity involved in stream deposits and duplicate the permeable lenses and layers that make up the hyporheos.

25. The PEIR should assess how the channel reconfiguration activities will affect the hyporheos, the proportional extent, and the impacts on stream temperature and nutrient conditions.

Loss of mussels. The Program channel reconfiguration activities will destroy any mussel beds currently existing in the project areas. Mussel populations are likely already rare in Putah Creek and are in serious decline in the state. Channel modifications to a large fraction of the stream bed risk extirpating mussel populations entirely from Putah Creek. Channel scarification projects that seem on the surface less impactful, may also be targeting and harming mussel habitat.

26. The environmental assessment should include with a survey and mapping for mussels.

27. The Program should include a plan component to protect and even improve mussel populations and habitat.

Failure to Consider Suitable Alternatives

The PEIR has not considered the full range of feasible alternatives that would avoid potential significant effects, in part because it has neither considered the cumulative area affected or the full range of significant effects. In particular the draft PEIR does not consider the effect of the Program on groundwater movement, groundwater recharge, floodplain groundwater hydrology, riparian forest water supply, and the other effects cited in the preceding comments.

The proposed Program employs a heavy machinery approach to stream restoration. This heavy machinery approach results in a maximum of ecosystem disturbance and impacts. This approach brings with it a high potential for significant unintended and unidentified impacts.

28. The PEIR should consider a new alternative to avoid the potential significant effects of the Program as proposed. The new alternative should take a comparatively light-handed and bio-engineering approach to stream restoration, and avoid to the maximum extent the disturbance of the floodplain by heavy equipment. The approach could continue the vegetation management activities as currently proposed. This approach should consider maintaining the gravel pits for their groundwater recharge benefits. This approach could include instream work to augment salmon spawning habitat and thereby address one major limiting factor to salmon.

Comment Letter

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Attach.

Need to Consider New Mitigation Measures

New mitigation measures need to be considered for the previously unidentified, unassessed, impacts that are raised in the preceding comments.

Comment Letter G *Attach.*

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Attorneys for Petitioner
Friends of Putah Creek

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SOLANO

FRIENDS OF PUTAH CREEK Petitioner v. CENTRAL VALLEY FLOOD PROTECTION BOARD; AND DOES 1 THROUGH 21 Respondents SOLANO COUNTY WATER AGENCY; CITY OF WINTERS; and, DOES 21 through 100 Real Parties in Interest	**Case No. FCS 051040** **DECLARATION OF JEFF TENPAS IN SUPPORT OF REQUEST FOR TEMPORARY RESTRAINING ORDER** Judge: The Hon. D. Scott Daniels Dept. 6 Date Action Filed: June 18, 2018

I, JEFF TENPAS, declare as follows:

1. I am a resident of Winters at 24 East Main Street. I am by education, training, and experience a soil scientist, hydrologist, and watershed scientist. I have worked as a soil scientist and hydrologist for the US Forest Service for over 19 years. For eight years I was regional manager of the Forest Service's watershed restoration program for the 18 forests in California. For the last six years I have been regional soil scientist and manager of the burned area emergency response program. I am an expert in the soil-water interactions including the infiltration and movement of water into and through soil.

2. Based on my professional expertise, I conclude without a doubt that the Phase III and NAWCA 3 projects proposed by the SCWA will irreparably harm groundwater movement, floodplain groundwater conditions and riparian forest health, and groundwater aquifer recharge. This conclusion is supported by evidence of the harms that have already resulted from SCWA's Phase I and II projects in Winters, and the likeness between those earlier projects and the Phase III and NAWCA 3 projects. The conclusion is borne out by evidence of the structure of the floodplains and channel and analysis based on the science of soil water interactions.

3. Evidence of Phase I-II Harms. The evidence of Phase I-II harms includes dying trees, failed plantings, "deserts" in the floodplain, falling groundwater levels in monitoring wells, and stream gauge data that definitively shows less water is moving from the stream and into the groundwater aquifer.

4. Death of Riparian Cottonwoods. When the Phase I-II projects were implemented in 2011, some mature cottonwoods were spared. There trees were at that time mature, healthy, vigorous trees. Since the projects, these trees have been slowly dying. These trees are in the floodplain beside flowing water in a stream with a regulated flow that has not decrease, in fact it increased, so were unaffected by the recent drought in precipitation. They were affected by a loss of groundwater, which was cutoff when the nearby stream channel was narrowed, partially filled, and compacted.

5. Photo 1 - Dead and Distressed Cottonwoods in Phase I. The left photo shows the channel and floodplain alteration. The trees are to the right side. The left photo shows the cottonwoods after several years.

Comment Letter G *Attach.*

6. Greenline, Death of Plantings, and Floodplain Desert. The effect of the bank and floodplain alterations in Phase I-II is so severe at some points that only enough water penetrates the banks to support a thin green line of vegetation along the creek (Photo 2). This has resulted in multiple failures of plantings. This has resulted in virtual "desert" on the floodplain in some places where the project used such poor fill and made it so dense with earthmoving equipment that neither water nor plant roots can penetrate the soil material.

7. Photo 2 – Greenline along Putah Creek in Phase II. The green vegetation to the right of the photo is on the bank of the stream and about four feet wide. This four foot "greenline" is characteristic in Phase I and II. Streambed and bank alterations resulted in a lack of normal groundwater movement and causes "riparian desert" conditions further than four feet from the stream. The floodplain has been planted repeatedly without success.

8. Stream Gauge Data. Stream gauge data gives incontestable evidence of ground water recharge effects. The gauge data is reliable and quantitative, and confirms all the other lines of evidence. FOPC obtained the gauge data from SCWA for the water years 2008 to 2017. FOPC analyzed the data for the months of August and September when irrigation withdrawals are not permitted and rainfall and runoff are non-existent. FOPC looked at the loss of stream flow in the reach with the Phase I-II projects, between a gauge at the SCWA diversion dam and I-505. The measured loss of stream water is approximately equal to water that is going into groundwater recharge. A small part is due to evaporation from the stream and transpiration from the floodplain vegetation, but that remains constant between pre and post-project years. Any decline in water loss between pre and post-project years is therefore attributable to project impact on reducing groundwater recharge.

9. What the data show (Figures 1 & 2) are that the Phase I-II projects reduced the amount of stream water going into groundwater recharge by and average of 5.6 cfs. This is based on comparing the monthly average water loss pre and post the project implementation. To put this in perspective, 5.6 cfs on an annual basis is equal to 4,054 acre feet, about 2.7 times the total annual water use in the City of Winters, or enough to irrigate 1,350 acres of almonds.

Comment Letter G *Attach.*

10. The groundwater recharge effect will be permanent and cumulative. And the effect is showing up in a nearby monitoring well.

11. Figures 1 and 2– Stream Flow Data. After implementation of Phases I, II in 2011, significantly less water moves from the creek to recharge the groundwater aquifer.

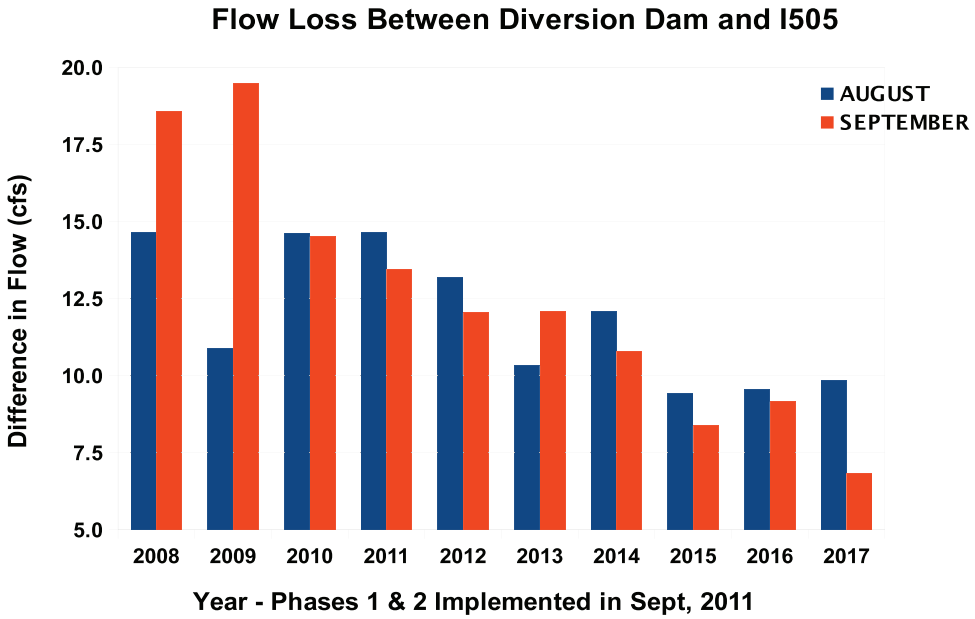
	AVERAGE DIFFERENCE (CFS)			
MONTH / YEAR	AUGUST	SEPTEMBER	2 MONTH AVERAGE	MULTI-YEAR AVERAGE
2008	14.6	18.6	16.6	
2009	10.9	19.5	15.2	15.5
2010	14.6	14.5	14.6	
2011	14.7	13.5	14.1	
2012	13.2	12.0	12.6	
2013	10.3	12.1	11.2	
2014	12.1	10.8	11.4	
2015	9.4	8.4	8.9	9.8
2016	9.5	9.2	9.4	
2017	9.8	6.8	8.3	
			DIFFERENCE	5.61

From City of Winters Water Use Report-2013: "The City of Winters, populat ion 6624, is served by 2041 water connect ions. Over 497 million gallons of water were supplied in 2013, the average per day use delivered per resident ial connect ion was 436 gallons and 1156 gallons for non-resident ial."

Summary: The potent ial annual aquifer water recharge loss of 1.32 billion gallons per year is approximately 2.66 t imes the total annual City of Winters annual water use of 497 million gallons or enough to irrigate 1,351 acres at 3 acre-f t per year.

Extrapolated annual recharge water loss

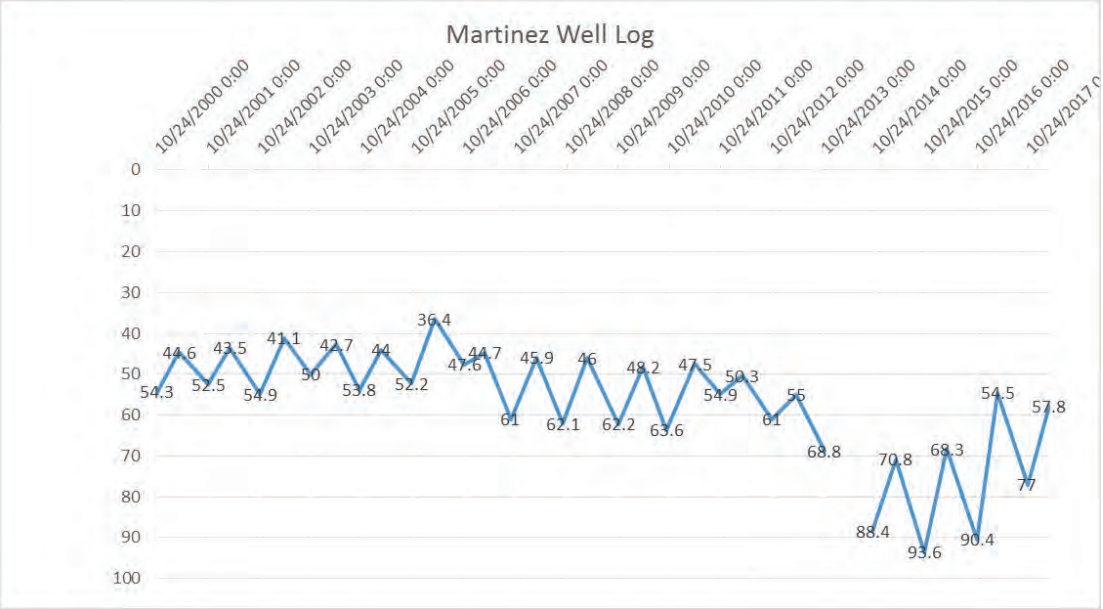
CF/YR	GAL/YR	AC-FT/YR
176,601,600	1,320,979,968	4,054



12. Monitoring Well Data. The effect of the decrease groundwater recharge is in evidence in the data from a groundwater monitoring well that is within several hundred feet from the Phase I-II projects on the Martinez Ranch. What the groundwater well data shows is a serious decline in groundwater levels that began concurrently with the Phase I-II projects (Figure 3).

While all the data is not shown, the lows of the last four years are below any other lows recorded since 1930.

13. Figure 3 – Groundwater Monitoring Well – Martinez Ranch. After the Phase I and II projects in 2011, groundwater levels in a monitoring well (within several hundred feet) dropped to historic lows.



14. Phases I-II and Phase III and NAWCA 3 Construction Methods. Phases I-II and Phase III and NAWCA 3 share in the same construction methods. The intent is to reduce the stream channel which is achieved by partial fills. The fill puts a low permeability barrier between the stream and the floodplain gravel layers. In other places, filling the floodplain blocks bodies of gravel that outcrop to the floodplain and valley sides. Constructing new channel and new banks destroys the layering and entry point for water at the new bank. Laying banks back to a 2 to 1 slope causes sedimentation and blockage in any gravels that might be exposed – in contrast the existing banks are undercut so that gravel layers remain open and free of sediment deposition. Use of heavy earthmoving equipment compacts all fill. Compaction

alone decreases soil permeability by a factor of 10. Clearing the floodplain of much of the mature vegetation is planned, destroying mature 50 year old trees.

15. How Construction Alters Groundwater. Water moves through soil according to Darcy's Law which says water flux is proportional to the permeability of the soil it is flowing through. In the case at hand, we are concerned with stream water that leaves the channel and flows through channel bank and then through the floodplain sediments. The rate of water leaving the stream is not equal all over, but varies by four or more orders of magnitude, being fast through the gravel layers and slow through silt layers that make up the floodplain. Given horizontal layering of the floodplain strata, flow is relatively faster horizontally in the gravel layers, with a gradual downward flow. This forms the typical mound of groundwater below the stream.

16. Stream and floodplain alteration such as in Phase I-II or Phase III and NAWCA 3 negatively impacts the potential for groundwater flow in numerous foreseeable ways, and positively impacts potential in no foreseeable way. The negative impacts are: reduction in the wetted perimeter of the stream, the compaction of bank and floodplain soils, importation of low permeability fill, mixing of high and low permeability layers, and most importantly by blockage or interruption of continuity of high permeability flow paths.

17. Photo 3 shows a trench in Phase II in fall 2017. The stratification of the natural floodplain is visible as well as the plug of fill at the stream end that blocks water from moving from the stream to the floodplain.

18. Photo 3 – Trench in Phase II. The left hand photo shows how dry is the stream bank end of a trench separated by just six to eight feet of soil from the stream. A plug of fill at the stream-end of the trench blocks the connection of the stream to high permeability layers in the floodplain. The remainder of the trench and the stratified structure of the floodplain are shown in the right hand photo. The entire trench was dry, no groundwater is reaching the floodplain due to the altered stream channel, banks, and floodplain.

19. SCWA Admission of Harms. SCWA has by its actions admitted the groundwater problems with Phase I-II. SCWA has been trying for years to revegetate the floodplains here without success, while the remnant of mature trees left were dying. FOPC has been pointing out the failures and advising that the cause lay in groundwater problems. SCWA admits problems with soils and water availability, and has since 2016 been experimenting with soil amendments to improve planting success. Soil amendments did not work to save plantings or the dying cottonwoods.

20. In 2017, SCWA hired consultants and implemented a project to restore groundwater conditions to the floodplain in Phase II. SCWA implemented the design by digging nine trenches, 3 feet wide, eight feet deep, and 40 to 100 feet long, that were dug across the floodplain and connecting to the stream. The trenches were intended to improve groundwater flow and supply water to a floodplain forest, and were partially filled with a gravel layer as a groundwater conduit.

21. Based on the very limited addition to floodplain permeability, it is readily calculable that this work in no way restored permeability to pre-project conditions. It is possible

that there will be enough groundwater to support trees planted on the trenches. This work did not by any stretch replace lost permeability enough to restore aquifer recharge.

22. This work was kept out of the public eye, was not reviewed under CEQA, was not permitted, did not have Clean Water Act Section 401 or Section 404 approval, and did not have a state Streambed Alteration Section 1600 permit.

23. Irreversibility of Project Impacts and Irreparable Harms. These projects are irreversible and irreparable in physical, political, and economic terms. Physically, the effect of the Phase III and NAWCA 3 projects will be to disrupt groundwater flow paths by filling the channel, blocking stream connection to high permeability layers, mixing layers into low permeability material, breaking the continuity of high permeability layers.

24. Earthmoving by its nature mixes material, making low permeability material out of it all, and breaks continuity of horizontal gravel layers laid down by flowing water. It is near impossible to undue mixing and resort the materials into gravels and silts, and to restore the floodplain layers. Only over thousands of years will the stream rework and resort the floodplains.

25. From a political perspective, there is political will now to go forward with more damaging work, not to slow down, or study the problems, and make a new plan. If there is no will to re-examine or change the methods now, there is no likelihood there will be the will to admit publicly and to funders the need to redo it later.

26. From an economic perspective, no funding is likely for a project area where $5 million was already spent on one mile of stream. Funding is unlikely for an expensive mitigation of a restoration.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 3rd day of September 2018, at Winters, California.

Jeff TenPas

Comment Letter

G

Attach.

Winters Putah Creek Nature Park Update
Jeff TenPas
September 5, 2019

The Streamkeeper gave a report on the last months work in Putah Creek. And SCWA has been doing a lot of earthwork and ground disturbance during August and September in the Phase II project area of Winters Putah Creek Nature Park. And it wasn't reported. How can the LPCCC or SCWA for that matter direct the operations of this work if it doesn't know the facts.

Why is there work now in Phase II? This area was "restored" and revegetated in 2011 and 2012.

SCWA is doing work because after eight years most of Phase II has not been successfully revegetated, and is not meeting the conditions of the CEQA Mitigation and Monitoring Plan, the Clean Water Act Section 404 permit, the state Water Quality Certification, or the Stream Alteration Permit.

An excavator and backhoe have been at work, digging deep holes, and creating new stream bank disturbances. On Wednesday September 4 I observed a trench, about 16 feet deep, about 20 feet from the creek. SCWA employees and contractors were there and observing the groundwater level, which was about 15 feet below ground, very low when so near the creek. Such a low groundwater level shows the floodplain groundwater is disconnected from the stream. The hydrologic disconnection between the floodplain and stream is an outcome of altering the natural stream bed and floodplain with fill and diesel power, altering and destroying the natural groundwater flow paths. That extremely low water table explains why past revegetation attempts have failed.

There were 25 to 30 fresh breaks in the stream banks by excavator. This is presumably part of an attempt by SCWA to restore groundwater. The trenches are backfilled now, and because the work was neither described in a permit application or disclosed to scientific review it is impossible to fully evaluate the possible effects. This work is a whitewash, trying to fix a problem, without notice. The trenches may or may not help a few trees to grow, but this further use of diesel geomorphology may just as easily further damage groundwater flow and make real substantive mitigation of groundwater recharge even more difficult.

After an eight year-long failure of revegetation efforts in Phase II, the evidence is clear, but you are not informed by staff. The type of stream alteration practiced here - using earthmoving, fill, and heavy machinery to drastically alter the stream and floodplain and below ground structure - has great potential for negative effects that were never considered in the project plans or in any environmental assessment before the work was started. It is clear this type of stream alteration needs careful review.

Comment Letter

G

Attach.

The problems in Phase II must not be repeated in future projects. But the LPCCC is already on a path to more of the same in new projects already planned. And again without the science and environmental assessment needed and required. I know you are not all scientists, but you do have staff resources. Please inquire into this, and please give science a chance. I would be honored to help.

Comment Letter
G
Attach.

Friends of Putah Creek

2736 Brentwood Place, Davis, CA 95618 - www.friendsofputahcreek.org

Memorandum

To: Max Stevenson (mstevenson@scwa2.com), Roland Sanford (sanford@scwa2.com)

From: Jeff TenPas, Friends of Putah Creek

Date: January 13, 2022

Re: Proposed *Nishikawa Chinook Salmon Restoration Project* on Putah Creek

Dear Max and Roland,

Please convey this correspondence to the LPCCC Board.

The purpose of the communication is to formally advise you and the LPCCC of significant shortcomings in the proposed *Nishikawa Chinook Salmon Restoration Project* on Putah Creek as submitted by the Solano County Water Agency (SCWA). The problems with the project are further described in the following report which summarizes the problems of a project of very similar design (the Winters Putah Creek Park project) located several miles upstream from the proposed Nishikawa project. The Winters Putah Creek Park project was also constructed by SCWA on a 1.25 mi long reach of Putah Creek through Winters, Ca in several phases beginning in 2010.

The problems of the Winters project are a reliable predictor of the outcomes to be expected of the proposed Nishikawa project. We therefore strongly believe that an independent technical review of the design of the Nishikawa project must occur before the grant is awarded and further damages to the creek occur under the guise of "restoration".

We believe this review should involve unaffiliated experts in riparian restoration, fish biology, and riparian hydrology who can objectively review the proposed project in light of the adverse results seen in the project in Winters and then advise as to the suitability of this design approach.

Toward that end, we are willing to assist in whatever manner in most appropriate and would like to schedule a Zoom meeting or conference call to discuss the possibilities. Please feel free to contact me if you have any questions or wish for any additional information.

Respectfully submitted,

Jeff TenPas

Comment Letter G

Attach.

Review of the Proposed *Nishikawa Chinook Salmon Restoration Project*

Part I – Description of the Proposed Project

The proposed *Nishikawa Chinook Salmon Restoration Project* is a radical experiment in stream alteration involving the bulldozing and removal of virtually the entire riparian forest in a ½ mile reach of Putah Creek. This is followed by complete realignment of the stream and complete alteration of floodplain contours and importation of tens of thousands of cubic yards of a foreign, non-native fill. The fill would be spread and compacted with massive earth-movers into a uniform planar surface over the entire floodplain.

SCWA's detailed grading plans (see Sheet 5 of the attached project proposal) for Nishikawa show an extreme cut and fill alteration of about 3,000 feet of Putah Creek and its floodplain using the following plan:

- Complete clearing of 11 acres of mature riparian forest save for a few trees
- Complete regrading of all 11 acres of existing floodplain to a uniformly planar and featureless floodplain
- Use of 22,000 cubic yards of non-native, off-site excavation spoils to fill in the old stream channel and cut a new man-made channel

The proposed design includes the following major shortcomings:

- The plan for massive alteration on the floodplain is completely misaligned with the project's stated objective – constructing instream spawning habitat
- The cost for clearing and earthmoving on the floodplain ($750,000) is much greater and disproportionate to the minor investment otherwise required for cobble and gravel to construct salmon spawning habitat
- The existing mature riparian forest is mostly native species and would be functionally completely destroyed by this stream alteration plan
- The proposed plan for diesel-geomorphology is completely contrary to Best Riparian Conservation Practices approved for Yolo Co by CDFW (see below)

Also note that most of the project area is free of invasive plants and does not need to be disturbed for their management as shown in the following figure from the Lower Putah Creek Watershed Management Action Plan.

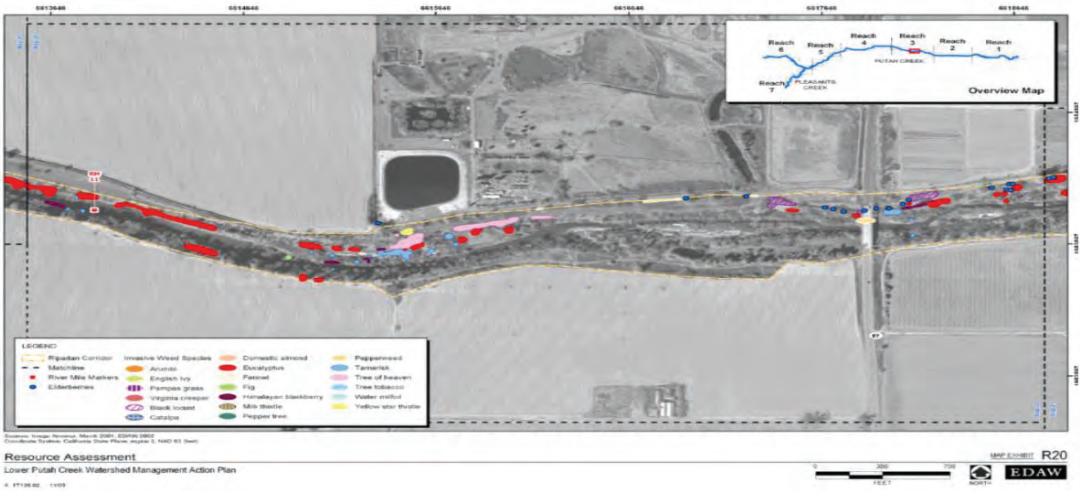


Figure 1. Invasive Plants in Nishikawa Project Area

Comment Letter G *Attach.*

The following figure shows the result of such a project as proposed for Nishikawa.

Figure 2. Winters Putah Creek Park in 2011. Floodplain cleared, filled, flattened, and compacted.

Part II – Conflict with Best Riparian Conservation Practices

Best Riparian Conservation Practices are identified in the Yolo County Resource Conservation Investment Strategy/Land Conservation Plan (RCIS-LCP, the "*Conservation Strategy*") as adopted by the Yolo Habitat Conservancy and approved by CDFW (see https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=157451&inline). The proposed Nishikawa project, with its extreme reliance on heavy machinery to remake the stream and floodplain, is in direct conflict with these established best practices in the following manner;

1) To attain the goal of "*Maintaining the integrity of natural communities*" the *Conservation Strategy* recommends using only native soils and specifically advises against the use of imported fill, soil disturbances and compaction. The Nishikawa project plans call for complete regrading of the floodplain and importing 22,000 cubic yards of excavation spoils to use as fill. The fill will be spread and highly compacted by large earthmovers to a uniform planar surface that will be nearly impermeable to water movement. This sharply contrasts with the naturally stratified and porous structure of the existing floodplain.

2) To attain the goal *"Improving dynamic hydrologic and geomorphic processes in watercourses and floodplains in a way that increases structural and habitat diversity*", the *Conservation Strategy* recommends:

- "*Creating secondary channels and overflow swales that add riverine and floodplain habitat values by allowing channels to meander and naturally laterally move through the floodplain;*
- *"Providing greater topographic and hydrologic diversity, recognizing that depressional features such as ponds and back channels and high ground provide important refugia for species such as western pond turtle and that higher ground in floodplains can serve as wildlife refugia from floodwaters."*

Instead the plan for the Nishikawa project calls for clearing almost the entire floodplain, making way for importing 22,000 cubic yards of fill, and grading the floodplain to a flat and featureless expanse.

3) To attain the goal of "*Maintaining fluvial equilibrium and protecting lacustrine/riverine systems supporting American beavers*", the *Conservation Strategy* recommends avoiding stream channelization, avoiding unnecessary vegetation removal, and targeting portions of streams that support American beavers for protection including protection of existing beaver dams.

Instead, the Nishikawa project would destroy existing beaver dams and dens, relocate the stream to a new narrower and shallower channel, decrease open water, fill ponds supporting beaver colonies, and replace high banks supporting occupied beaver dens with low shallow banks unsuitable for dens.

4) To attain the goal "*Maintaining and/or restoring and protecting stream processes and conditions*", the *Conservation Strategy* recommends maintaining subsurface flow, connecting groundwater hydrologically to stream flow, and expanding and protecting riparian vegetation. Instead the Project's proposed land-forming, fill, and earth-moving would destroy floodplain structure, disrupt and block groundwater flow paths, and disconnect the stream from the floodplain, as has occurred at Winters Putah Creek Park Project.

Part III – The Problems with the Winters Putah Creek Park Project

The proposed Nishikawa Project is almost identical in scope and design with the Winters Putah Creek Park Project which was designed and implemented by SCWA over the last 10 years. In the Winters project, the floodplain was almost completely cleared and graded to a planar surface sloped at 1-2% towards the stream, just as proposed for the Nishikawa project. The stream channel was almost completely altered to make it narrow and shallow, just as proposed for the Nishikawa project. And riffles were constructed for salmon spawning in Winters just as is planned for the Nishikawa project. According to the SCWA (TRPA, May 2020) "*Three existing riffles were augmented with additional gravel substrates and 14 new riffles were created at 200-foot intervals by importing 2,000 tons of salmon spawning gravel mix (Rich Marovich, personal communication).*"

The outcome is reviewed in the attached two documents that objectively present and discuss the Winters Putah Creek Park Project (see "*Winters Putah Creek Park - Part 1 - Case Study of a Failed Project_June-2018*" and "*Winters Putah Creek Park - Part 2 - Analysis of Project Failures_August-2019*"). We also strongly recommend a tour of the Winters project to gain first-hand understanding of the damaging impacts of the currently proposed project design.

1. Failure to create self-sustaining salmon spawning habitat. In Winters the remade channel and the 14 new manmade riffles with spawning gravels failed under the impact of natural fluvial geomorphic processes. Today, in the upper half mile (Phase 1) constructed in 2011 there is no measureable spawning habitat. In next reach (Phase 3) constructed in 2018, there are about 100 feet of spawning habitat but that is no measureable increase from pre-existing. In the next reach (Phase 2) there is fragmentary spawning habitat at stream edges and in the last reach (NAWCA 3) the small amount of spawning habitat was there before the Project. Riffles that were built were not resilient according to SCWA's own reports. Altogether there is an estimated 100 feet of spawning habitat that survives in the whole 6000 feet of altered stream. The 14 new riffles were scoured away or submerged by silt.

In the 2020 annual counts of fish on Putah Creek, the aquatic biologists reported, "*...the high flows associated with Lake Berryessa spills during the late winter and early spring of 2019 resulted in sand deposition throughout the Winters Park channel restoration area that filled in many of the pools and covered many of the gravel riffles and the upper weir site* " (see p. 15, "*Results of October 2020 Lower Putah Creek Fish Surveys*", June 10, 2021, by Tim Salamunovich, TRPA Fish Biologists).

Comment Letter G *Attach.*

In another report by a different consulting aquatic biologist to SCWA on the effectiveness of different strategies employed from 2003 to 2020 to enhance salmon habitat, projects were ranked from 0 (lowest effectiveness) to 5 (highest effectiveness). All of the Winters Putah Creek Park project phases were ranked 0 reflecting the overall ineffectiveness of massive stream alteration and channel realignment to improve salmon spawning habitat. (see p. 41, Report 6873, "*Lower Putah Creek Gravel Bed Scarification Final Report*" (Amended), April 30, 2021 by Ken Davis).

SCWA's attempts to build man-made spawning habitat were easily overridden by natural stream processes of scouring or silting. As stated in the widely read authoritative riparian restoration manual, "*Low-Tech Process-Based Restoration of Riverscapes: Design Manual"***,** *"The desire to reduce uncertainty and precisely predict restoration outcomes has led to practices that tend to emphasize the stability of channels. Constructed features and attributes such as plan-form, channel width, location of pools and riffles are designed in such a way that they do not change through time. The emphasis on stability requires detailed engineering designs, modeling, and heavy equipment, all of which contribute to the high cost of restoration… However, population level response of target species [e.g. salmon and steelhead] to these restoration actions is equivocal*."

2. Decrease in native fish and other wildlife populations. Native fish populations have declined in Winters Putah Creek Park over the past decade instead of gaining which was the whole intent of that project. Native fish counts in the Winters Putah Creek Park are typically less than in immediate upstream and downstream reaches of the Creek

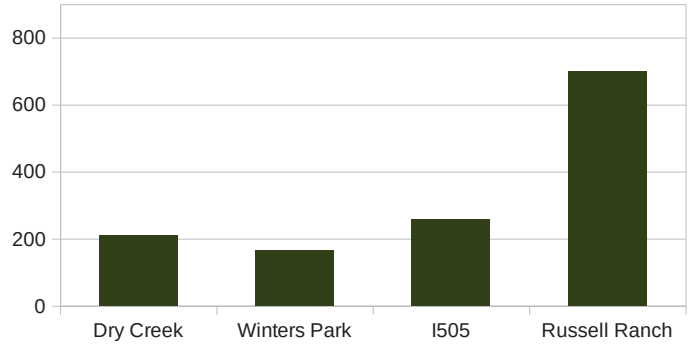


Figure 3. 2019 Fish Counts

Narrowing and reducing stream size likewise reduces in-stream habitat for fish – especially for small fry. Altering channels destroys undercut banks and replaces them with out-sloped banks lacking in cover for fish and this is reflected in the small number of salmon fry in the Winters Putah Creek Park compared to both upstream and downstream creek reaches.

Comment Letter G *Attach.*

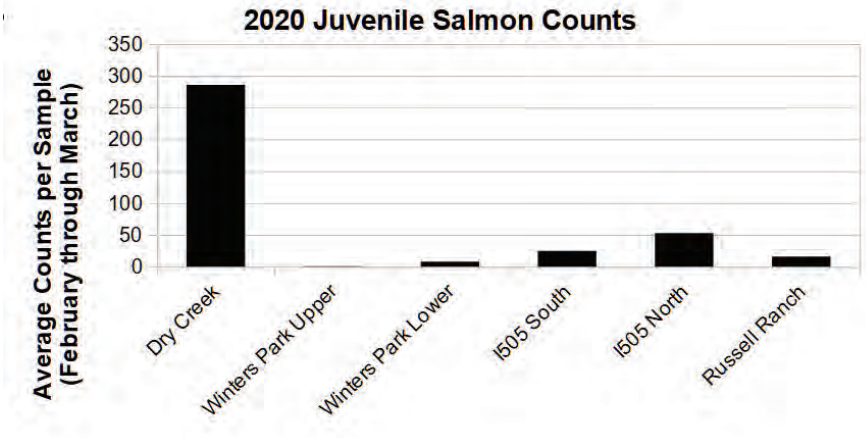


Figure 4. 2020 Juvenile Salmon Counts

There have also been noticeable drops in almost all other aquatic animals throughout the Winters Putah Creek Park since project completion including beavers and Western Pond turtles which are both indicative of a healthy creek ecosystem. This is entirely attributable to the extensive alteration and loss of stream and riparian habitat directly caused by the stream alteration project.

3. Riparian forest loss and failure in revegetation. Like the proposed Nishikawa Project, the Winters Project began with near total clearing of the floodplain, destroying a mature and mostly native riparian forest. A handful of mature native trees were spared, some perched on pedestals, others having endured heavy traffic pounding over the root zone. In subsequent years, the mature trees spared in the Project died as a result of the project. At the same time as the mature trees were dying, replantings were failing also. There are areas where trees have been replanted three times and still after 10 years remain almost barren save for weeds.

Figure 5 Winters Putah Creek Park – Phase 2 – 2019. Replanting again, eight years after "restoration", and two previous failed plantings.

Comment Letter G *Attach.*

Figure 6. Winters Putah Creek Park – Phase 3 - Trees Spared. Spared but perched on pedestals and dead or dying.

Figure 7. Winters Putah Creek Park – Phase 1 – Cottonwoods. Trees spared during construction, but cutoff from groundwater and dead.

4. Blockage of groundwater flow. Natural floodplains are stratified, with both coarse and fine layers, and the coarse sandy gravelly strata are highly permeable and carry groundwater laterally from the channel to the riparian forest. Earthmovers churn up these strata, destroy the structure of the floodplain, and build back massively compacted monolithic blocks of impervious fill. The fills block groundwater flow, deprive the riparian forest of groundwater, and block groundwater recharge.

Comment Letter G *Attach.*

The visible impacts of blocking the groundwater connection between channel and floodplain include the slow death of trees that were spared during the clearing (Figure 7), the failure of replantings (Figure 5), and a green line of vegetation about four feet wide at the streambank that is the visible indicator of the limit of available water (Figure 8).

Figure 8. The Greenline Effect – When a bank is nearly impermeable, there is only enough water penetrating the bank to water a thin greenline of vegetation.

The further result is a very significant drop (4000 acre feet annually) in groundwater recharge, evidenced by falling groundwater levels in a nearby monitoring well (Figure 9), and by stream gauge data that clearly shows a decrease in water loss from the stream. Finally, in 2017 SCWA investigated groundwater levels by digging a set of trenches which revealed groundwater levels had fallen more than 8 feet below the surface just 10 feet from the stream bank.

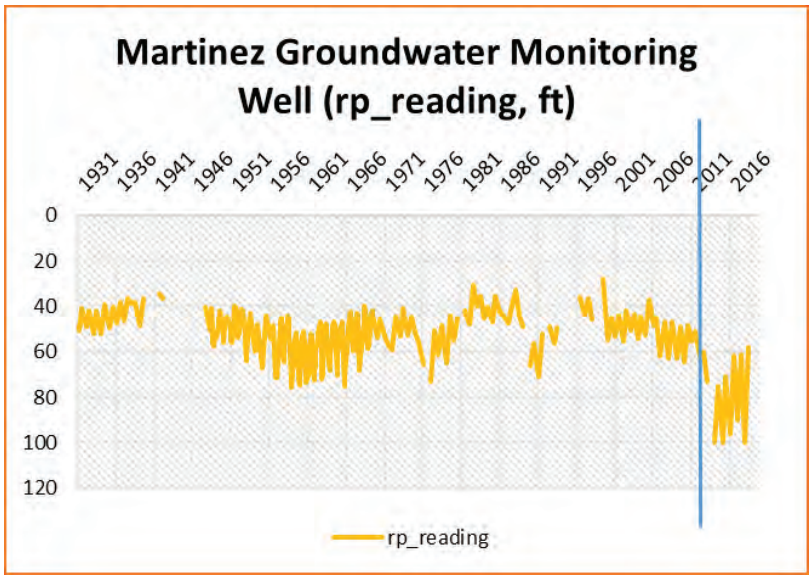


Figure 9. Groundwater Levels, Martinez Well, near Winters Putah Creek Park. Blue line indicates implementation date of Winters Project and the beginning of groundwater decline.

Comment Letter
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Attach.

Part IV- Conclusions and Recommendations

It would truly be a mistake and a waste of restoration dollars to repeat at Nishikawa the experiment that has failed in Winters on so many levels. Cutting a mature riparian forest and importing, spreading, and compacting massive amounts of foreign excavated spoils with earth-moving equipment is destructive, not restorative. As has been clearly demonstrated in Winters, the exact same type of man-made channels and riffles proposed for the Nishikawa project will prove similarly destructive to the stream's ecology.

Friends of Putah Creek alternatively recommends that all restoration projects in Putah Creek must follow Best Riparian Conservation Practices selected for the region and approved by CDFW. These include:

- To retain as much as possible of the existing floodplain native plant canopy and root structure, do not use bulldozing as a primary means of removal of native and non-native vegetation.
- To prevent disconnection between the groundwater with the stream and to maintain optimal water mobility for plant growth, avoid dislocation and alteration of the existing floodplain soil strata and structure by, grading and importing and compacting non-native fill.
- Avoid using heavy machinery wherever possible to avoid plant damage and soil compaction.
- Work with the flow characteristics and topography of the stream itself and only augment spawning gravel where the existing conditions (depth and velocity) are already suitable for a sustainable spawning reach.
- Restore the riparian forest by only removing invasive vegetation and replanting with appropriate native species.

Attachments:

Nishikawa Chinook Salmon Restoration Application
Winters Putah Creek Park - Part 1 - Case Study of a Failed Project_June-2018
Winters Putah Creek Park - Part 2 - Analysis of Project Failures_August-2019

LETTER G
Jeff Tenpas
Friends of Putah Creek

Response G-1: This comment on the 2016 Program EIR is noted. The comment states that the 2016 Program EIR does not provide data or information on groundwater levels or address the potential impacts of the Program on groundwater. This comment relates to the 2016 Program EIR, which has already been certified by SWCA. Groundwater infiltration was addressed in the 2016 Program EIR and in the Response to Comments Section of the Program EIR. This comment does not relate to the adequacy of the environmental analysis provided in the Draft Supplemental IS/MND. No response is required.

Response G-2: This comment re-states the analysis provided in the Draft Supplemental IS/MND and asserts that no data or facts are provided to support the conclusion that the proposed project would result in no new impacts related to groundwater. As described in Section 5.10.3 of the Draft Supplemental IS/MND, because the proposed project would not result in an increase in impervious surface or extract groundwater for project construction or operation, it would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Groundwater infiltration was addressed in the 2016 Program EIR and in the Response to Comments Section of the Program EIR. No change to the Draft Supplemental IS/MND is required.

Response G-3: This comment request information discovered in exploratory trenches dug for the proposed project, including groundwater levels and the structure/stratigraphy of the floodplain. Please see Responses G-1 and G-2.

Response G-4: This comment re-states the assertion that the 2016 Program EIR and the Draft Supplemental IS/MND fail to adequately address groundwater impacts. See Responses G-1 through G-3 and Responses G-5 through G-7.

Response G-5: This comment asserts that the proposed project will have new significant impacts on groundwater supplies based on evidence from the Winters Project. Please see Responses D-1, D-2, and G-2.

Response G-6: This comment asserts that the reverse French drains, included as part of the proposed project, should be identified as mitigation for groundwater impacts. As described in Section 3.3.3.2 of the Draft Supplemental IS/MND, the proposed project would include the installation of reverse drains to bring water from the design channel to new tree plantings associated with the proposed project. These features have been included in the proposed project to address impermeability associated with clay that underlies the project site. These features are part of the project design that have been

evaluated in the Draft Supplemental IS/MND. No change to the Draft Supplemental IS/MND is required.

Response G-7: This comment, which states that SWCA failed to disclose information related to the Winters Project when it certified the 2016 Program EIR and failed to disclose information related to groundwater as part of the Draft Supplemental IS/MND. As described in Section 5.10.3 of the Draft Supplemental IS/MND, because the proposed project would not result in an increase in impervious surface or extract groundwater for project construction or operation, it would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Please see Responses G-1 and G-2.

Response G-8: This concluding comment re-states that the proposed project would harm groundwater flows and supplies. See Responses G-1 through G-3 and Responses G-5 through G-7.

Comment Letter H

Comments Submitted for the IS/MND for the Nishikawa Project and the Underlying PEIR for Lower Putah Creek

by Friends of Putah Creek

I. Qualifications of the Commenter

Friends of Putah Creek (FOPC) is a California non-profit corporation founded in 2017 focused on the environmental and ecological health of Putah Creek. Previously active as a citizens' group known as Winters Friends of Putah Creek, our Board of Directors is comprised of scientists and environmentalists including riparian specialists with intimate knowledge of Putah Creek. Some have lived directly adjacent to the Creek for over 25 years and have first hand expertise on its vegetation, wild animal life, and hydrology. We and our members have been submitting extensive comments on various restoration projects performed by the Solano County Water Agency for well over a decade and have authored a number of papers on the failures of the Solano County Water Agency (SCWA) in prior restoration efforts on Putah Creek.

II. Disclosure and Assessment of Shortcomings of the IS/MND and PEIR

The IS/MND is deficient in terms of disclosure and assessment of potential adverse impacts on the environmental due to:

1) Incomplete Assessment of the Adverse Impacts on Biological Resources due to Failure of the Proposed Project to incorporate Best Management Practices Incorporated into Regional Conservation Plans.

2) Failure to Properly Analyze the Least Environmentally Damaging Alternative

Each of these deficiencies are also present in the *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program (PEIR for the 22-mile stretch of Lower Putah Creek and are discussed more thoroughly below*

H-1

1) Incomplete Assessment of the Adverse Impacts on Biological Resources due to Failure of the Proposed Project to incorporate Best Management Practices Incorporated into Regional Conservation Plans - The IS/MND's of the proposal's effects on biological resources correctly describes the analytical framework for compliance such as with the federal Endangered Species Act and the California Natural Community Conservation Planning Act, including consistency with regional Habitat Conservation Plan/Natural Communities Conservation Plans (HCP/NCCP).

However, the IS/MND is silent on compliance or consistency with other environmental and conservation concerns and regulatory framework including the Yolo County Resource Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP). RCIS/LCP is a conservation framework specifically intended to encompass the entire framework of conservation policies not covered by the HCP/NCCP. The Yolo County RCIS/LCP was approved by the Yolo County Board of Supervisors in August of 2020, and approved by the

H-2

California Department of Fish & Wildlife (CDFW) in October of 2020. The RCIS/LCP is part of a conservation framework that must also be considered by SCWA with respect to its approval processes, including CEQA reviews.

The RCIS is a framework for developing advanced mitigation planning approaches by interested parties (which may include state agencies, non-governmental organizations, or other private entities) that are consistent with the requirements of existing California law, as identified by AB 2087. The RCIS process is mandated to incorporate the substance of other California regulations and plans, including the adopted State Wildlife Action Plan (SWAP). The LCP is a conservation framework developed for the county and surrounding areas by the Yolo Habitat Conservancy, intended specifically (among other purposes) to encompass the policy framework not reflected in the HCP/NCCP.

Under the requirements of AB 2087, the RCIS/LCP is also fully consistent with, and does not adversely affect, the content or implementation of the HCP/NCCP. The RCIS/LCP, in conjunction with the HCP/NCCP, therefore represents a fusion of local, regional, and national conservation concerns in a single planning framework and essentially form a joint conservation planning framework for environmental resources that reflects all of the conservation priorities affecting different landscapes.

The Biological Resources section of the IS/MND and the PEIR on which the IS/MND is tiered does not includes an assessment of the proposed project(s) with respect to the RCIS/LCP framework including floodplain management and floodplain/riparian interactions, as well as effects on fish and other species and their habitats. Because such elements are indisputably applicable for the project(s), an assessment of the project's effect with respect to the RCIS/LCP framework should have been included in the IS/MND and the underlying PEIR, as the framework is directly relevant to the implementation of the project(s), as well as for state agencies that will participate in or review the project, including the Department of Water Resources (DWR) and the CDFW and the public. The failure to include such an assessment is a critical disclosure failure in both the IS/MND and the underlying PEIR on which the IS/MND is tiered.

H-2 cont.

For instance, in the introduction to Section 5.4 BIOLOGICAL RESOURCES (p.5-20) in the IS/MND, the following questions and responses were included.

> *"Would the project:*
>
> *b)Have a substantial adverse effect on any riparian habitat or other sensitive natural co mmunity identified in local or regional plans, policies, regulations or by the California De partment of Fish and Game or U.S. Fish and Wildlife Service? => **No New Impacts***
>
> *d)Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Commu nity Conservation Plan, or other approved local, regional, or state habitat conservation p lan? => **No New Impacts**"*

Both of the above statements are demonstrably false because the proposed project will certainly have material adverse impacts on the riparian habitat and conflict with best management practices for restoration of such similar riparian habitats as contained in the Yolo

Comment Letter H Cont.

Co RCIS/LCP and recognized expert authorities such as in *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* (Utah State University Restoration Consortium, 2019). The potential adverse impacts would be similar to those found in the most recent SCWA "restoration" project utilizing very similar geomorphological engineering practices in the Winters Putah Creek Park project.

Previous work on the Winters Putah Creek Park project has produced less than acceptable results as quantitatively documented in a previous report entitled *Winters Putah Creek Park – Part 1 – Case Study of a Failed Project* by Friends of Putah Creek (FOPC). This report was submitted to the SCWA Staff and Board of Directors and the Lower Putah Creek Coordinating Committee in 2018; a copy of which is attached and made part of these comments.

The noted failures included 1) a reduction in native fish populations in the "restored" section of the creek compared to upstream and downstream reaches of the creek, 2) a failure to reestablish a riparian forest in the floodplain, and 3) failure to lower stream temperatures in the affected project and downstream of the project.

Additionally FOPC has since submitted quantitative flow data showing that the placement of the impervious compacted layer of indurated soil over the entire floodplain substantially reduced inflow into the underground aquifer from the creek thus disconnecting the creek from underlying groundwater.

H-2 cont.

The many causes of these documented failures were additionally analyzed in a second report prepared Friends of Putah Creek entitled *Winters Putah Creek Park – Part 2 – Analysis of Project Failures* which report was also submitted to he SCWA Staff and Board of Directors and the Lower Putah Creek Coordinating Committee in 2019; a copy of which is attached and made part of these comments by reference.

That report reviews the project practices and poor outcomes and provides context through the lenses of conservation strategies and best management practices recommended by the Yolo County RCIS/LCP and other proper riparian restoration principles such as recommended in *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* (Utah State University Restoration Consortium, 2019).

a. Conflicts with Restoration Principles in the Yolo County Resource Conservation Investment Strategy/Local Conservation Plan (RCIS/LCP) - In particular, some of the restoration methods proposed by the Solano County Water Agency (SCWA) for Putah Creek in the PEIR and which are intended to be implemented in the Nishikawa project are compared to the best management practices in the RCIS/LCP as summarized in the following discussion

i) To meet the goal of "...*maintaining the integrity of natural communities in restoration projects"*, the RCIS-LCP specifically advises against soil compaction.

H-3

This recommendation was not discussed in either the PEIR or IS/MND which tiers off of the PEIR. These recommendations were ignored by SCWA in executing the Winters Putah Creek Park project wherein two to twelve feet of imported soil was deposited on the creek floodplain and then intentionally compacted to prevent washing away by future high water, high velocity flood events. SCWA similarly intends to compact the top-level

soil in the Nishikawa project to prevent removal in high water, high velocity events but does not mention any mitigation or other means to avoid the problems associated with such compaction in the PEIR or IS/MND.

iii) Under the goal of "...*improving dynamic hydrology and geomorphic processes in watercourses and floodplains in a way that avoids or minimizes impacts on terrestrial species habitat and increases structural diversity"*, the RCIS/LCP conservation strategy recommendations include:

- *Creating riparian management corridors that permit lateral channel migration;*
- *Creating secondary channels and overflow swales that add riverine and floodplain habitat values (e.g., resting or rearing areas for fish migrating downstream), allowing channels to meander naturally through the floodplain;*
- *Providing greater topographic and hydrologic diversity, recognizing that depressional features such as ponds and back channels that provide important refugia for species such as western pond turtle and that higher ground in floodplains that can serve as wildlife refugia from floodwaters.*

H-3 cont.

None of the recommendation in the RCIS/LCP are discussed in the PEIR or IS/MND. Instead, the new stream channel as engineered by SCWA is designed to be stable and self-maintaining. The floodplain as designed and constructed will be a functionally planar surface sloping at a uniform grade across the entire floodplain with little topographical diversity including ponds and high ground. Further, as discussed above, imported fill to be deposited on the top of the floodplain to form the new channel must be compacted so it does not all wash away during the first high velocity water event. This compaction will severally limit future lateral migration of the meandering form of the stream bed. SCWA has not proposed a proven mitigation measure to allow for such lateral mobility of the stream bed.

iii) Under the goal of "...*maintaining fluvial equilibrium and protecting lacustrine/riverine systems supporting American beavers"*, the conservation strategy recommendations include avoiding stream channelization, avoiding unnecessary vegetation removal, and targeting portions of streams that support American beavers for protection including protection of existing beaver dams.

None of the recommendation in the RCIS/LCP are discussed or analyzed in the PEIR or IS/MND. Instead, the proposed new channel will incorporate the same design considerations as in the Winters Putah Creek Park which provided for a highly channelized stream bed utilizing compacted soil. Just as in the failed Winters Putah Creek Park project, the majority of the vegetation in the existing Nishikawa floodplain will be removed by bulldozers, ponds that supported beaver colonies will be drained and filled, and high banks that can support beaver dens will be leveled. The once thriving beaver population in Winters was completely eliminated and the same processes are proposed for the Nishikawa project but are not adequately disclosed with proper mitigation proposed in either the PEIR or IS/MND.

H-4

iv) Under the goal of "...*maintaining and/or restoring and protecting stream processes and conditions"*, best conservation strategy recommendations in the RCIS/LCP include

H-5

maintaining subsurface flow, connecting groundwater hydrologically to streamflow in each watershed, and expanding and protecting riparian vegetation.

Instead, at Winters Putah Creek Park earth-moving and deposition of compacted fill imported by SCWA disconnected the stream from groundwater. Efforts by SCWA to remediate the loss of subsurface flows by testing "French Drain" type channels were unsuccessful in reestablishing native growth in much of that reach of the Creek. Similar processes are proposed to be be employed at the Nishikawa project but the associated risks and past failures of implementing such restoration techniques are not disclosed and discussed nor mitigations proposed in either the PEIR or IS/MND.

H-5 cont.

v) Under the goal of "...*increasing the area of shaded riverine aquatic habitat for focal fish species and increasing the amount of large wood material in the stream"*, recommended conservation strategies include enhancing the biomass of overhanging or fallen branches and in-stream plant material to support the aquatic food web, restoring vegetation along stream-banks, increasing input of large woody material to streams, and installing large woody material directly into streams and along stream banks as a component of restoration or enhancement projects.

At Winters Putah Creek Park, all overhanging vegetation was removed when the floodplain was bulldozed and the stream channel was moved, and the majority of woody biomass was eliminated. The compacted earth fill created a dense, root-restricting soil strata that permanently retarded or prevented growth of woody riparian plants. Similar processes are proposed in the Nishikawa project and the adverse impacts of such processes are not adequately disclosed and discussed nor mitigations proposed and discussed in either the IS/MND or the underlying PEIR.

H-6

b. Conflicts with Restoration Principles in *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* (Utah State University Restoration Consortium, 2019)

The *Low-Tech Process-Based Restoration of Riverscapes: Design Manual* is specifically intended to assist restoration professionals to achieve successful restoration of stream and riparian ecological health in ecosystems degraded by man-made structures and impacts. It provides the underlying design philosophy and tools enabling restoration scientists and practitioners to produce remarkable results in restoring salmon habitat, as referenced in a recent *Science* article (*Science*, June 8, 2018, Vol 360 - Issue 6393), by the use of low cost beaver dam analogs and other natural structures costing approximately $10,000 per mile of restored stream. This compares with the equivalent costs of almost $6,000,000 per mile spent on the Winters Putah Creek Park project which has yet to produce evidence that any salmon spawned in the creek are returning as a result of the project. It is apparent that there are substantial differences between the low tech and low-cost methods used by experienced professional restoration ecologists versus the unproven practices employed by SCWA on Putah Creek yet these differences are not disclosed or discussed in the IS/MND and underlying PEIR.

H-7

The Winters Putah Creek Park project engineering philosophy conflicts with the proven and cost-effective restoration strategies discussed in this design manual, which uses low-cost structures of natural materials and beavers themselves to add complexity and diversity to

floodplains. This is inherently less expensive (by at least 2 orders of magnitude) than floodplain-damaging techniques that rely on massive earth moving machinery to create a constrained stream bed as was done at Winters Putah Creek Park and which techniques are planned to be employed in the Nishikawa project.

For instance, great effort was expended in the Winters Putah Creek Park project to obtain a "stable" and "self-maintaining" Creek form. Such a stable Creek form is also advocated for the Nishikawa project. But, as explained by the *Low-Tech Process-Based Restoration of Riverscapes: Design Manual*, these attempts are self-defeating. Quoting the manual, "*Stability is not a hallmark of healthy riverscapes. The desire to reduce uncertainty and precisely predict restoration outcomes has led to practices that tend to emphasize the stability of channels and in-stream structures. In the context of stream restoration, stability has often meant static. Constructed features and attributes such as plan-form, channel width, location of pools and riffles are designed in such a way that they do not change through time.* ***The emphasis on stability requires detailed engineering designs, modeling, and heavy equipment, all of which contribute to the high cost of restoration….However, population level response of target species [e.g., salmon and steelhead] to these restoration actions is equivocal***." (Emphasis added)

Certainly, the desired outcome of the work in Winters Putah Creek Park has been questionable. Despite a cost of over $7,000,000 to alter only 1 1/4 mile of Creek, there have been no quantifiable benefits to wildlife. After eight years some areas are still devoid of native vegetation despite extensive planting and replanting efforts and hundreds of replanted trees and shrubs have not survived. The loss of pools, undercut banks, and overhanging vegetation caused by the bulldozing of the original Creek channel and floodplain has compromised the kind of habitat that allows native fish populations to thrive.

H-7 cont.

Fish populations have consequently plummeted in the affected areas according to SCWA's own data and salmon fry are noticeably lower in the Winters Putah Creek Park because all refugia such as provided by pools with over-hanging vegetation were removed without suitable replacement of other habitat. There have also been noticeable drops in mammal, bird, and amphibian populations in this Winters Putah Creek Park project.

The target species that was supposed to benefit the most from the Winters Putah Creek Park project was fall-run salmon. Despite 2,000 tons of imported spawning gravel and carefully timed supplemental flow releases, after ten years following completion of the first two phases of the project there is still no evidence that salmon from eggs hatched in the creek have returned to spawn.

Indeed, a recent survey of all gravel-filed riffles installed during the construction of the Winters Putah Creek Park project showed that *all those riffles were filled with silt and unusable by salmon for spawning purposes*. As stated in the Memorandum authored by TRPA Fish Biologists to SCWA entitled, "*Results of October 2020 Lower Putah Creek Fish Surveys*" (June, 2021),

"*...the high flows associated with Lake Berryessa spills during the late winter and early spring of 2019 resulted in sand deposition throughout the Winters Park channel restoration area that filled in many of the pools and covered many of the gravel riffles and the upper weir site*."

In fact, the most recent inspection of the riffles by a representative of FOPC and reported to the LPCCC and SCWA Staff showed that ***all*** of the riffles constructed as part of the Winters Putah Creek Park project had been silted and rendered useless as salmon spawning habitat. Additional gravel actually had to be brought in and placed in new areas of the Creek that were naturally developed as suitable for spawning purposes by fluvial geomorphology rather than in riffle areas created by the diesel-powered morphology utilized in the Winters Putah Creek Park project.

H-7 cont.

According to the above design manual, "*A central premise of process-based restoration is that restoration of natural systems (e.g., rivers streams, their floodplains and watersheds) is best achieved by 'letting the system do the work'. Process-based restoration recognizes that to restore ecologically functional riverscapes, we need to restore the physical and ecological processes responsible for creating and maintaining those conditions.*"

Friends of Putah Creek fully agrees with the basic premise of this gentle restoration approach in which the return of natural systems is facilitated by invasive plant removal and native plantings rather than by employing brute diesel force to reshape the ecosystem, as has been the hallmark of SCWA's methods. As Jared McKee, an environmental engineer with the US Fish and Wildlife Service and expert in riparian systems and habitat restoration appropriately asked:

"What if restoration was about stream power doing the work, not diesel power?"

Unfortunately, these considerations were not taken into account in the design of the Nishikawa project which instead will rely on wholesale reformation of the floodplain by massive earth-movers without adequate discussion of the potential adverse environmental impacts nor mitigations proposed in either the IS/MND nor the underlying PEIR. Nor is this reflected in the discussion of possible alternatives to the projects(s) in either the PEIR or draft IS/MND.

H-8

Further, one of SCWA's primary aquatic consultants for the past decade, Ken Davis, issued a report to SCWA in 2020 in which he rated the long-term effectiveness of different strategies in terms of providing suitable salmon-spawning habitat on Putah Creek. In that report he rated the usefulness of fixed stream bed channelization by SCWA, such as employed at the Winters Putah Creek Park project and planned to be employed at the Nishikawa project as a 0 (zero) on a scale of 1-5 in terms of relative effectiveness n creating salmon spawning habitat on Putah Creek while noting that such efforts only lasted a few years (as we reported to the LPCCC – see above). None of this information was reported or discussed in the IS/MND or in the PEIR when it was updated and recertified in November, 2022 as is otherwise required for disclosure under CEQA regulations.

Indeed, the advantages of using fluvial, stream-based geomorphology to create a dynamic adaptive stream channel structure and features compared to the fixed profile wrought by diesel-powered geomorphology actually had been recently recognized by the Lower Putah Creek Coordinating Committee as a future planned restoration philosophy and design consideration when they stated the following in the December 2022 minutes of the LPCCC, *"The concept of Process Based Restoration (PBR) was also discussed. PBR projects used less diesel and allow the power of water itself to do the work of changing channel geometries*

in a more natural approach that also turn out to be less expensive.". None of this information was reported or discussed in the draft IS/MND or in the underlying PEIR as a project design alternative as is otherwise required for disclosure under CEQA regulations.

Finally, we note that the current Nishikawa Project Manager himself has questioned the effectiveness of the restoration strategies employed in the past in the Winters Putah Creek Park when he stated in a cover memo announcing the release of the IS/MND on March 8, 2023, "*Previously, specifically in The Winter's Putah Creek Park project, a big concern that Friends of Putah Creek have in regards for the environmental impact concerning these restoration projects was in the over-compaction of floodplain fill material. While this CEQA document doesn't cover specific details of construction, we are taking precautions not to create an impervious ground layer that impairs planting regrowth with plans to implement periodic trenches filled with a drainage friendly mulch/gravel mix and possible ground ripping/soil mixing where clay is present at the designed floodplain level. Additionally, the majority of earth-moving activities will be cutting material from high floodplains and minimal fill volume deposition with that fill material being primarily a sandy gravel mix taken from deposits on the floodplain as opposed to a more fine/clayey soil sourced externally. I hope this alleviates some concerns with the project, as we hope to continue improving riparian habitat on Putah Creek* ***while learning from mistakes made in the past***". (Emphasis added)

H-8 cont.

While we are certainly hopeful that past mistakes will not be repeated in future projects and the apparent mindfulness of such past mistakes on the part of the new Staff at SCWA is encouraging, none of this information regarding the past deficiencies and "mistakes" in the Winters Putah Creek Park project was reported or discussed in the PEIR when it was updated and recertified in November, 2022 nor is it disclosed in the current IS/MND for the Nishikawa project as is otherwise required for full and proper disclosure as a mitigation or project alternative under CEQA regulations.

2. <u>Failure to Properly Analyze the Least Environmentally Damaging Alternative</u>

The Draft IS/MND correctly states that the project will require review by the US Army Corps of Engineers (ACE) pursuant to section 404 of the Clean Water Act (CWA), which by law invokes a review by the California Water Boards under CWA section 401. The ACE requires that a proposed project be the least environmentally damaging alternative [CWA section 404(B)(1)] under a rebuttable presumption that a less-damaging alternative exists; it's the applicant's responsibility to rebut the presumption with a suitable analysis. The 'wetland procedures' adopted as policy by the State Water Resources Control Board (SWRCB) in 2020 have established a similar requirement for CWA section 401 reviews pursuant to the state's Porter-Cologne Act.

H-9

While these are separate permit approval processes from the CEQA review, subject to their own environmental documentation requirements, the identification and consideration of alternatives that avoid or minimize environmental effects is a subject for which local (such as SCWA) and state agency proponents (such as the DWR) are responsible pursuant to CEQA (e.g., PRC §21002; CCR §15002; many others). This is a basic substantive requirement of CEQA, and applies without respect to the use of a Negative Declaration or an Environmental Impact Report (EIR) to meet CEQA's procedural requirements.

Comment Letter H Cont.

Given the fact that the possible adverse environmental outcomes of the diesel geomorphology methodology employed by SCWA in the Nishikawa project are a viable concern based on the lack of prior success of SCWA in performing such radical stream alterations in the Winters Putah Creek Project, we believe it is imperative that a range of alternatives be considered to the radical stream realignment proposed for the Nishikawa project We also note that there is no substantial evidence that such a stream alteration methodology is successful without adverse environmental consequences and we have otherwise presented substantial evidence that the current approach selected by SCWA is likely to have substantial adverse environmental impacts as discussed earlier in this comment letter.

Unfortunately, there has not been an adequate analysis of alternative designs other than the proposed "fixed" meandering stream form using diesel-powered geomorphology which does not account for the dynamics and natural consequences of fluvial geomorphology. Alternative project approaches that address the hydraulic issues at the site might be a more cost-effective and less environmentally damaging long-term solution. That kind of consideration is, in fact, the specific reason that the Legislature directed lead agencies to consider alternatives in the CEQA process, and the reason that the CWA and the Porter-Cologne Act require alternatives assessments.

Specifically, it's not clear why SCWA is not considering an alternative design (or more than one) that could include, for example, using fluvial geomorphology to obtain a dynamic stream bed channel instead of the fixed bed channel design formed by diesel-powered geomorphology. The current proposal already includes all of the area that would be affected by such an alternative in the project footprint and the difference between the proposed project and such an alternative is primarily in the project design and the construction and mitigation installation processes. Such alternative design and construction considerations should have clearly been addressed in both the PEIR and the IS/MND as is required by CEQA guidelines.

H-9 cont.

Finally we note a rather large discrepancy between the fixed and immutable design stream bed channel width of 28-30 ft employed in the entirety of the Winters Putah Creek Park project and which was claimed to be derived from an analysis of the flow characteristics of the Creek. It was claimed this width was required to maintain its structure and function during future normal and high flow events in the Creek. However, the current maximum stream channel width in the Nishikawa project is only 18 ft wide along the entirety of the length of the project.

This channel width discrepancy and design ambiguity is not explained anywhere in the IS/MND and seemingly conflicts with the supposedly fixed and immutable design principles espoused in the earlier Winters Putah Creek Park project and the PEIR. In as much as the supposedly stable "proper form and function" of the stream bed channel is an integral part of the Nishikawa project, these discrepancies should have been disclosed and discussed In the IS/MND. and should have been discussed and analyzed in the IS/MND.

H-10

Conclusions

The IS/MND and the PEIR critically suffer from 1) significant and critical lapses in terms of the disclosure and discussion of potential inadequacies of the proposed stream channel design and construction and its compliance with regional conservation land use plans and 2) in terms of analysis of possible project alternatives. As such, the documents are deficient with respect to required public disclosure and analysis under CEQA guidelines and should be remedied before certification and filing of a Notice of Determination.

H-11

LETTER H
Friends of Putah Creek

Response H-1: This introductory comment asserts that the Draft Supplemental IS/MND is deficient in terms of disclosure of potential adverse impacts on the environment and introduces the more detailed comments included in the letter, which are responded to in Responses H-2 through H-10, below.

Response H-2: The comment states that the Draft Supplemental IS/MND fails to disclose and discuss compliance with regional land use plans, specifically, the Yolo RCIS/LCP adopted by Yolo County in 2020 and fails to disclose the environmental effects of the Winters Project. Please see Responses C-10, D-1 and D-2.

Response H-3: This comment, which asserts that the proposed project does not address the Yolo RCIS/LCP recommendation against soil compaction nor was this recommendation addressed in the 2016 Program EIR or the Draft Supplemental IS/MND, is noted. A discussion of soil compaction in floodplain restoration projects can be found in the 2016 Program EIR. Please see Response G-13 in the Response to Comments document of the 2016 Program EIR.

Response H-4: This comment, which asserts that the proposed project does not address the Yolo RCIS/LCP recommendation to protect lacustrine/riverine systems supporting American beavers nor was this recommendation addressed in the 2016 Program EIR or the Draft Supplemental IS/MND, is noted. Please see Response F-12.

Response H-5: This comment, which asserts that the proposed project does not address the Yolo RCIS/LCP recommendation to maintain subsurface flow nor was this recommendation addressed in the 2016 Program EIR or the Draft Supplemental IS/MND, is noted. Please see Response G-6.

Response H-6: This comment, which asserts that the proposed project does not address the Yolo RCIS/LCP recommendation to increase the area of shaded riverine habitat for fish species nor was this recommendation addressed in the 2016 Program EIR or the Draft Supplemental IS/MND, is noted. Please see Response E-5.

Response H-7: This comment, which asserts that the proposed project conflicts with the restoration principles identified in *Low-Tech Process-Based Restoration of Riverscapes: Design Manual*, is noted. The comment also references the outcomes associated with the Winters Project. This comment, which addresses the merits of the proposed project and not the adequacy of the information or analysis contained in the Draft Supplemental IS/MND, is noted. This comment will be considered by SCWA decision-makers prior to

making a determination regarding project approval. Please see Responses D-1 and D-2.

Response H-8: This comment, which asserts that the proposed project does not implement a gentle restoration approach, is noted. This comment, which addresses the merits of the proposed project and not the adequacy of the information or analysis contained in the Draft Supplemental IS/MND, is noted. This comment will be considered by SCWA decision-makers prior to making a determination regarding project approval.

The commenter asserts that the 2016 Program EIR and Draft Supplemental IS/MND fail to adequately disclose the environmental impacts of the failure of the proposed project to incorporate this approach or address this approach as a project alternative. The comment also references the outcomes associated with the Winters Project. An alternatives analysis is not required for preparation of an MND, since mitigation measures can be adopted to reduce all significant impacts to a less-than-significant level. Fluvial geomorphology practices are discussed in the 2016 Program EIR and the Response to Comments document of the 2016 Program EIR. Please see Responses D-1 and D-2.

Response H-9: This comment, which asserts that the Draft Supplemental IS/MND fails to identify and consider alternatives to the proposed project, is noted. Please see Response H-8.

Response H-10: This comment, which notes a discrepancy between the fixed and immutable design stream bed channel width of 28-30 feet employed at the Winters Project and the current 18-foot channel width of the Nishikawa reach, is noted. The commenter asserts that this discrepancy should have been disclosed and discussed in the Draft Supplemental IS/MND. The 28- to 30-foot width references bankfull measurements, whereas the 18-foot width referenced for the proposed project is the low-flow channel width set within the bankfull channel width. No change to the Draft Supplemental IS/MND is required.

Response H-11: This concluding comment re-states the prior comments. See Responses H-1 through H-10.

ADDITIONAL TEXT REVISIONS

In addition to the revisions identified above, this section presents specific changes to the mitigation measures identified in the Draft Supplemental IS/MND that are being made to reflect revisions made as part of the Final 2016 Program EIR. In no case do these revisions result in a greater number of impacts or impacts of a greater severity than those set forth in the Draft Supplemental IS/MND. These measures would further ensure that potential impacts are reduced to a less-than-significant level. These revised measures represent refinements to the MMRP to be considered with adoption of the Draft Supplemental IS/MND and have already been adopted when the 2016 Program EIR was certified by SWCA.

The Applicable Mitigation Measures identified in Section 5.4, Biological Resources, of the Draft Supplemental IS/MND (pp. 5-24 through 5-33) are revised as follows:

Mitigation Measure 3.4-1: **Worker Environmental Awareness Program (WEAP).** During construction of individual projects under the Program, ~~Project,~~ before any work occurs on the Project site, including grading, vegetation removal and equipment staging, all construction personnel shall participate in an environmental awareness training regarding special-status species and sensitive habitats present on the Project site. Any additional construction personnel that are employed following the initial start of construction shall receive the mandatory training before starting work. As part of the training, an environmental awareness handout shall be provided to all personnel that describes and illustrates sensitive resources (i.e., special-status species and habitat, nesting birds/raptors) to be avoided during proposed Project construction and lists measures to be followed by personal for the protection of biological resources. Such measures shall include, but are not limited to:

- Procedures to follow if a special-status species is found within the work area. Haul trucks shall maintain at least 2 feet of freeboard.
- Checking under equipment and staging areas for wildlife species each morning prior to work.
- Staying within designated work areas.
- Maintaining exclusion/silt fencing.
- Reduced Project speed limits.
- No pets or firearms on-site.

- Contain trash/food waste and remove daily to avoid encouraging predators onto the Project site.

- Following Project Best Management Practices (BMPs).

Mitigation Measure 3.4-2: **Western Pond Turtle Avoidance.** The western pond turtle shall be protected from ~~Project Area~~ restoration project staging and operations areas through monitoring by a qualified biologist. For individual restoration projects, ~~T~~the project work area shall be inspected daily for the presence of turtles. If necessary, with consultation with CDFW, barriers shall be used when needed to direct the turtles and move them to an area of suitable habitat outside of the construction activity.

Mitigation Measure 3.4-4: **Valley Elderberry Longhorn Beetle (VELB) Avoidance.** Blue elderberry plants (with stems greater than 1-inch diameter at ground level) occurring within the ~~Project~~ Program Area shall be avoided and, if avoidance is not possible, relocated to a designated location. Where Project impacts to elderberry shrubs cannot be avoided, or where shrubs are located within 30.5 meters (100 feet) of ~~Project Area~~ project-specific restoration activities, activities shall be conducted according to USFWS Conservation Guidelines for VELB (1999), or other VELB guidance as updated by the USFWS.

VELB habitat shall be considered directly affected if Project construction requires the removal of elderberry shrubs or if ground-disturbing activities would occur within 6.1 meters (20 feet) of the dripline of ~~the~~an elderberry shrub. The species would be considered indirectly affected if Project construction would disturb the ground between 6.1 and 30.5 meters (20 and 100 feet) from the dripline of the shrub (USFWS, 1999). Transplantation or temporary removal of the affected shrubs may be necessary as prescribed by the guidelines, but plants that are extremely difficult to remove may be exempted. Planting of additional seedlings or cuttings may be required under the Project or program USFWS Biological Opinion, depending on the number of elderberry shrubs with emergence holes present in the Project Area.

A monitoring plan of any mitigation measures in the Project Area shall be implemented as required under the Biological Opinion, including monitoring the general condition of ~~the mitigation Project~~ individual project sites and/or the entire Program Area and the condition of the elderberry plantings for up to ten consecutive years. The plan shall describe monitoring responsibilities, intervals, intensity, and success rates. The monitoring plan shall further

include requirements for reporting observations and findings to the applicable agency, for example, for VELB observations, to USFWS.

Mitigation Measure 3.4-5: **Swainson's Hawk Avoidance.** For any construction activities initiated between March 15 and September 1, surveys for nesting Swainson's hawk shall be conducted within 0.5-mile of areas of disturbance for this species as described in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000). The recommended minimum survey protocol is completion of surveys for at least the two survey periods immediately prior to a project's initiation. Survey periods correspond to typical migration, courtship, and nesting behavior and defined as follows:

Survey Period	Survey Dates	Survey Time	Number of Surveys
1	January 1 to March 20	All day	1
2	March 20 to April 5	Sunrise to 1000 or 1600 to sunset	3
3	April 5 to April 20	Sunrise to 1200 or 1630 to sunset	3
4	April 21 to June 10	All day; Monitoring known nests only	Ongoing
5	June 10 to July 30	Sunrise to 1200 or 1630 to sunset	3

If surveys determine that the species is present and nesting within ~~this area~~ a restoration project site, a buffer zone of 0.5-mile shall be established and coordination with CDFW shall be required prior to any work in this buffer zone during the nesting season. Work within 0.5-mile may be permitted with CDFW approval if a qualified biologist monitors the nest when Project disturbance activities occur within 0.5-mile of the nest. If the monitor determines that construction may result in abandonment of the nest, all construction activities within 0.5-mile shall be halted until the nest is abandoned or all young have fledged. The monitor shall continue monitoring the nest until construction within 0.5-mile of the nest is

completed, or until all chicks have completely fledged and are no longer dependent on the nest.

Mitigation Measure 3.4-7: **Avoid and Minimize Impacts to Special-Status Bats.** In areas where suitable habitat occurs and there is potential for special-status bat species to be present, specific mitigation measure(s) will be developed in consultation with CDFW. Specific measures may vary depending on the project reach and project activities, and may include the following:

A pre-construction bat survey shall be conducted by a qualified biologist to establish the presence or absence of roosting bats prior to May 1st in order to put exclusionary measures into place before the active season of this species (no exclusionary efforts should be conducted during May 1 to August 31 of the construction year). If no roosting bats are found, no further mitigation shall be necessary; however, it is recommended that exclusionary measures be conducted prior to May 1st of each construction year to prevent bats from utilizing the riparian corridor.

If pallid bats, western red bats, or other bat species are detected within a roost at the time of the survey, excluding any bats from roosts, if possible, will be accomplished by a qualified biologist prior to the removal of roost trees. The timing and other methods of exclusionary activities will be developed by the qualified biologist in consultation with CDFW in order to reduce the stress on the bats to the extent feasible. Exclusionary devices, such as plastic sheeting, plastic or wire mesh, may be used to allow for bats to exit but not re-enter any occupied roosts, if applicable. A qualified biologist will also be notified and present during any tree removal or tree trimming.

Mitigation Measure 3.4-8: **Avoid and Minimize Impacts to Rare Plants.** Before the initiation of any vegetation removal or ground-disturbing activities, in areas that provide suitable habitat for special-status plants, the following measures shall be implemented:

- A qualified botanist shall conduct appropriately timed surveys for special-status plant species, in all suitable habitats that would be potentially disturbed by the Project.
- Surveys shall be conducted following CDFW- or other approved protocol.
- If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter to the lead

agency, and other appropriate agencies as needed, and no further mitigation will be required.

- If special-status plants are found during focused surveys, the following measures shall be implemented:
    - Information regarding the special-status plant population shall be reported to the CNDDB.
    - If the populations can be avoided during Project implementation, they shall be clearly marked in the field by a qualified botanist and avoided during construction activities. Before ground clearing or ground disturbance, all on-site construction personnel shall be instructed as to the species' presence and the importance of avoiding impacts to this species and its habitat.
    - If special-status plant populations cannot be avoided, consultations with CDFW and/or USFWS would be required. If allowed under the appropriate regulations, the plants shall be mapped, photographed, and then transplanted to a suitable location by a qualified botanist. If required by the relevant agency, a plan to compensate for the loss of special-status plant species, detailing appropriate replacement ratios, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures that would be implemented if the initial mitigation fails; the plan would be developed in consultation with the appropriate agencies prior to the start of ~~local~~ construction activities.
    - If mitigation is required, the Project proponent shall maintain and monitor the mitigation area for 5 years following the completion of construction and restoration activities. Monitoring reports shall be submitted to the resource agencies at the completion of restoration and for 5 years following restoration implementation. Monitoring reports shall include photo-documentation, planting specifications, a site layout map, descriptions of materials used, and justification for any deviations from the mitigation plan. Additional mitigation, monitoring may be required or modified by the administering agency, and those requirements would supersede this section.

Mitigation Measure 3.4-10: **Implement Aquatic Habitat Protection.** Aquatic habitat shall be protected during ~~Project A~~Program activities by limiting the amount of in-channel work and implementing aquatic habitat protection

measuresacquiring proper permits for work done within aquatic habitats. A fenceSilt fencing and other BMPs shall be installed to the extent necessary to prevent the unintended discharge of excavated material and/or turbid water. The fencing Protective fencing and other measures shall be checked regularly and maintained until construction is complete. If neededIf portions of the channel are isolated , dewatered or bypassed, fish salvage shall be performed under the direct supervision of an approved biologist to avoid incidental take from Project activities. Following installation of any water diversion structures, and prior to placement of any fill, the approved biologist shall perform surveys for any fish in the Project Area, collect, and transfer native fish, including Pacific lamprey, to the nearest suitable habitat to the work area. During holding and transportation, fish would be held in stream water collected from the Project reach.

- Before removal and relocation begins, the approved biologist, in consultation with the appropriate agencies, shall identify the most appropriate release location(s). Release locations should offer ample habitat for Pacific lamprey and other native fish and should be selected to minimize the likelihood of fish reentering the work area.

- Relocation activities shall be performed during the morning when temperatures are coolest. Air and water temperatures would be periodically measured during dewatering activities to ensure native fish that may be present are protected.

- If Pacific lamprey native fish are relocated, the following procedure shall be used:

    1. Handling of fish would be minimized. However, when handling is necessary, hands and nets would be wetted prior to handling.

    2. Any handled fish would be immediately placed in an aerated container with a lid in cool, shaded water. Aeration would be provided with a battery powered external bubbler. Fish would not be held more than 30 minutes.

    3. All handled fish would be moved directly to the nearest suitable habitat in the creek, as identified above.

Mitigation Measure 3.4-11: **Native or Migratory Fish or Wildlife Species Avoidance.** ~~The~~ Native or ~~M~~migratory ~~F~~fish and ~~W~~wildlife ~~S~~species, such as North American beaver, North American otter, and other ~~protected~~ wildlife species shall be protected from ~~Project~~ construction staging and operations impacts through monitoring by a qualified biologist. Prior to construction, the ~~Project Area~~ construction work area shall be inspected for the presence of these species. If necessary, with consultation with CDFW, appropriate measures shall be taken to avoid and minimize Project impacts to these species. Additional specific measures to protect native or migratory wildlife species, may be required by CDFW under the 1600 series permit for the Project and shall be adhered to by the Project proponent.

Mitigation Measure 3.4-12: **Implement Herbicide Protective Actions.** During all ~~Project~~ Program activities, herbicides shall only be used by a licensed applicator and shall be applied only to target plants. Herbicides shall not be used within 100 feet of blue elderberry plants.

In order to avoid and minimize impacts related to herbicide use, use any herbicides during ~~Project~~ Program activities in accordance with all directions and protective actions listed on the product label of the herbicide being applied.

In addition, take the following actions to ensure protection of fish, plant, and bird life during use of the herbicides listed below:

Glyphosate:

a. Implement the following US EPA recommendations during Project activities:

i. For non-aquatic uses, do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters and rinsate.

ii. For aquatic uses, only end-use products that are registered for aquatic uses. Do not contaminate water when disposing of equipment washwaters and rinsate. Treatment of aquatic weeds can result in oxygen loss from decomposition for dead plants. This loss can cause fish kills.

Triclopyr:

a. As recommended by US EPA, avoid spray drift to prevent toxicity to non-target plants during ~~Project~~Program activities.

b. Do not apply to open water or wetland areas to prevent toxicity to freshwater fish.

Imazapyr:

a. Implement the following US EPA recommendations during Project activities:

i. If groundborne application is performed, take the following precautions to minimize potential risk to non-target terrestrial plants, aquatic vascular plants, and threatened and endangered species:

- Use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size. (ASABE S572) or, if specifically using a spinning atomizer nozzle, use a volume mean diameter (VMD) of 385 microns or greater.
- Do not apply with wind speeds greater than 10 mph.
- Do not apply into temperature inversions.

b. To minimize potential risk to aquatic vascular plants, do not apply to bodies of water or portions of bodies of water where emergent and/or floating weeds do not exist.

Aminopyralid:

a. In addition to following all directions and protective actions listed on the product label, apply aminopyralid using hand-spray and spot treatments only.

Chlorsulfuron:

a. To minimize potential harm to non-target plants, implement the following US EPA recommendations during ~~Project~~ Program activities:

i. Employ measures to control spray drift.

ii. Restrict use to only one application per growing season.

Dithiopyr:

a. Do not apply dithiopyr in or near water due to its toxicity to fish.

b. To minimize potential harm to non-target plants, implement the following US EPA recommendations during Project activities:

i. Do not apply dithiopyr aerially.

Isoxaben:

a. To minimize exposure to fish and aquatic invertebrates, implement the following actions:

i. Do not apply directly to water, to areas where surface water is present, to wetlands, or to intertidal areas below the mean high-water mark.

ii. Employ measures to control spray drift.

iii. Do not contaminate water when disposing of equipment wash waters and rinsate.

APPENDIX C

MIITGATION MONITORING AND REPORTING PROGRAM

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MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) is formulated based upon the findings of the Supplemental Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the Lower Putah Creek Restoration Project, Nishikawa Reach (project). The MMRP, which is found in Table A, lists mitigation measures recommended in the Supplemental IS/MND for the proposed project, including the applicable measures identified in the *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program*[1] (2016 Program EIR) and the *Consolidated Final Restoration Project Statewide Order Program Environmental Impact Report*[2] (Statewide Order EIR) upon which the Supplemental IS/MND is tiered.

This MMRP has been prepared to comply with the requirements of State law (Public Resources Code Section 21081.6). State law requires the Lead Agency to adopt an MMRP when mitigation measures are required to avoid significant impacts. The MMRP is intended to ensure compliance with the mitigation measures identified in the Supplemental IS/MND during implementation of the project.

The MMRP is organized in a matrix format. The first column identifies the recommended mitigation measures. The second column, entitled *Implementation Actions*, refers to the actions taken by the party responsible for oversight to ensure compliance. The third column, entitled *Timing Requirements,* refers to when the monitoring will occur to ensure that the mitigating action is completed. The fourth column, entitled *Monitoring/Reporting Responsibility* refers to the party responsible for oversight or ensuring that the mitigation measure is implemented. The fifth column, entitled *Verified By and Date*, refers to the party and date the action was verified as complete.

1 Solano County Water Agency. 2016. *Program Environmental Impact Report for the Lower Putah Creek Restoration Project – Upper Reach Program.* May.

2 California Water Boards. 2022. *Consolidated Final Restoration Project Statewide Order Program Environmental Impact Report*. August 16.

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Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
AGRICULTURAL RESOURCES				
2016 Program EIR				
Mitigation Measure 3.8-1: Coordinate with Adjacent Landowners and Implement Access Restrictions. The following measures shall be implemented to reduce impacts of restoration on adjacent agricultural lands: • The Project sponsor shall coordinate with adjacent landowners providing access and/or storage areas for project construction activities and materials. Access and construction work area plans acceptable to all parties shall be developed prior to the start of any construction abutting potentially affected lands. • In locations where post-construction access to private agricultural lands by the public may be facilitated by restoration efforts, the Project shall provide warning signage (i.e., Private Property - No Trespassing) and wildlife-friendly fencing along the creek as needed.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	Solano County Water Agency (SCWA) is responsible for coordinating with adjacent landowners and providing warning signage and fencing.	
Statewide Order EIR				
Mitigation Measure AG-1: Minimize and Avoid Loss of Special Designation Farmland. The following measures shall be implemented before and during construction of restoration projects permitted under the Order to minimize and avoid loss of Special Designation Farmland, as applicable. Restoration projects shall be designed to minimize, to the greatest extent feasible, the loss of agricultural land with the highest values. • Restoration projects that will result in permanent conversion of Special Designated Farmland shall preserve other Special Designation Farmland in perpetuity by acquiring an agricultural conservation easement, or by contributing funds to a land trust or other entity qualified to preserve Special Designation Farmland in perpetuity (at a target ratio of 1:1, depending on the nature of the conversion and the characteristics of the Special Designated Farmland to be converted, to compensate for the permanent loss).	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to and during construction activities.	SCWA is responsible for compliance with this measure.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Based upon the cost and availability of farmland, whether the landowner is sponsoring the project, recent (within 5 years) and ongoing farmland viability, and other factors, the CEQA lead agency for the individual restoration project should consider whether a 1:1 ratio is appropriate and feasible on a case-by-case basis. For example, contributions to a program such as the California Farmland Conservancy Program, which establishes conservation easements to preserve existing farmland in California, may be prohibitively expensive at a 1:1 ratio where there is a significant amount of affected Special Designated Farmland because it is based on a farm real estate average value per acre. For example, the farm real estate average value per acre in 2019 was $10,000 [USDA 2019]. • Restoration project features shall be designed to minimize fragmentation or isolation of Special Designation Farmland. Where a project involves acquiring land or easements, the remaining non project area shall be of a size sufficient to allow viable farming operations. The project proponents shall be responsible for acquiring easements, making lot line adjustments, and merging affected land parcels into units suitable for continued commercial agricultural management. • Any utility or infrastructure serving agricultural uses shall be reconnected if it is disturbed by project construction. If a project temporarily or permanently cuts off roadway access or removes utility lines, irrigation features, or other infrastructure, the project proponents shall be responsible for restoring access as necessary to ensure that economically viable farming operations are not interrupted. • Where applicable to a project site, buffer areas shall be established between restoration projects and adjacent agricultural land. The buffers shall be sufficient to protect and maintain land capability and flexibility in agricultural operations. Buffers shall be designed to protect the feasibility of ongoing agricultural operations and reduce the effects of construction-				

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
related or operational activities (including the potential to introduce special-status species in the agricultural areas) on adjacent or nearby properties. Buffers shall also serve to protect restoration areas from noise, dust, and the application of agricultural chemicals. The width of each buffer shall be determined on a project-by-project basis to account for variations in prevailing winds, crop types, agricultural practices, ecological restoration, or infrastructure. Buffers can function as drainage swales, trails, roads, linear parkways, or other uses compatible with ongoing agricultural operations				
AIR QUALITY				
2016 Program EIR				
Mitigation Measure 3.5-1: Implementation of Construction Best Management Practices. Project construction activities should implement as feasible and necessary to control dust, the Best Management Practices for construction identified in Section 6.1 of the YSAQMD 2007 CEQA Handbook. Best Management Practices identified to reduce dust emissions include: • Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure. • Haul trucks shall maintain at least 2 feet of freeboard. • Cover all trucks hauling dirt, sand, or loose materials. • Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed area. • Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days). • Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land. • Plant vegetative ground cover in disturbed areas as soon as possible.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Cover inactive storage piles. • Sweep streets if visible soil material is carried out from the construction site. • Treat accesses to a distance of 100 feet from the paved road with a 6-to-12-inch layer of wood chips or mulch. • Treat accesses to a distance of 100 feet from the paved road with a 6- inch layer of gravel.				
Statewide Order EIR				
Mitigation Measure AIR-1: Minimize Conflicts with Applicable Air Quality Plans. Proponents of restoration projects permitted under the Order and their construction contractors shall implement the following measures to minimize conflicts between project construction and applicable air quality plans: • Use equipment and vehicles that comply with CARB requirements and emission standards for on-road and off-road fleets and engines. New engines and retrofit control systems should reduce NOX and PM emissions from diesel-fueled on-road and off-road vehicles and equipment. • Minimize idling times, either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure, Title 13, Section 2485 of the California Code of Regulations). Clear signage should be posted for construction workers at all entrances to the site. • Maintain all equipment in proper working condition according to the manufacturer's specifications. • Use electric equipment when possible. Use lower emitting alternative fuels to power vehicles and equipment where feasible. • Use low–volatile organic compound (VOC) coatings and chemicals; minimize chemical use.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Mitigation Measure AIR-2: Minimize Construction Air Pollutant Emissions. Air quality analyses prepared for future restoration projects shall evaluate human health risks from potential exposures of sensitive receptors to substantial pollutant concentrations from the projects. The need for a human health risk analysis should be evaluated using approved screening tools and discussed with the local air quality management district or air pollution control district during the preparation of the air quality analysis. If the project's health risk is determined to be significant, control measures should be implemented to reduce health risks to levels below the applicable air district threshold. Implementation of one or more of the following requirements, where feasible and appropriate, would reduce the effects of construction: • Use equipment with diesel engines designed or retrofitted to minimize DPM emissions, usually through the use of catalytic particulate filters in the exhaust. • Use electric equipment to eliminate local combustion emissions. • Use alternative fuels, such as compressed natural gas or liquefied natural gas. • If the restoration project would result in significant emissions of airborne, naturally occurring asbestos, or metals from excavation, hauling, blasting, tunneling, placement, or other handling of rocks or soil, a dust mitigation and air monitoring plan shall identify individual restoration project measures to minimize emissions and ensure that airborne concentrations of the TACs of concern do not exceed regulatory or risk-based trigger levels	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	
BIOLOGICAL RESOURCES				
2016 Program EIR				

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Mitigation Measure 3.4-1: Worker Environmental Awareness Program (WEAP). During construction of individual projects under the Program, before any work occurs on the Project site, including grading, vegetation removal and equipment staging, all construction personnel shall participate in an environmental awareness training regarding special-status species and sensitive habitats present on the Project site. Any additional construction personnel that are employed following the initial start of construction shall receive the mandatory training before starting work. As part of the training, an environmental awareness handout shall be provided to all personnel that describes and illustrates sensitive resources (i.e., special-status species and habitat, nesting birds/raptors) to be avoided during proposed Project construction and lists measures to be followed by personal for the protection of biological resources. Such measures shall include, but are not limited to: • Procedures to follow if a special-status species is found within the work area. Haul trucks shall maintain at least 2 feet of freeboard. • Checking under equipment and staging areas for wildlife species each morning prior to work. • Staying within designated work areas. • Maintaining exclusion/silt fencing. • Reduced Project speed limits. • No pets or firearms on-site. • Contain trash/food waste and remove daily to avoid encouraging predators onto the Project site. • Following Project Best Management Practices (BMPs).	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to ground disturbing activities and throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and ensuring compliance. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure 3.4-2: Western Pond Turtle Avoidance. The western pond turtle shall be protected from restoration project staging and operations areas through monitoring by a qualified biologist. For individual restoration projects, the project work area shall be inspected daily for the presence of turtles. If necessary,	Include measure as Condition of Approval.	Prior to and throughout the construction period.	SWCA is responsible for ensuring compliance.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
with consultation with CDFW, barriers shall be used when needed to direct the turtles and move them to an area of suitable habitat outside of the construction activity.	Implementation actions are outlined in the measure.		The qualified biologist is responsible for monitoring and constructing barriers, if needed.	
Mitigation Measure 3.4-3: Giant Garter Snake Avoidance. In areas that provide suitable habitat for giant garter snake, construction shall only occur during the active period for the snake, between May 1 and October 1. During the active period for giant garter snake direct mortality is lessened because snakes are expected to actively move and avoid danger. Preconstruction surveys for the giant garter snake shall occur within 24 hours prior to ground disturbing activities. A survey of the Project Area should be repeated if a lapse in construction activity of two weeks or greater has occurred. SWCA shall consult with the California Department of Fish and Wildlife to develop project specific avoidance measures for giant garter snake. If development and implementation of avoidance measures is not feasible and take of giant garter snake cannot be avoided by the proposed project, SWCA shall obtain an Incidental Take Permit from CDFW pursuant to the California Endangered Species Act prior to construction and shall comply with the ITP.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for ensuring compliance, consulting with CDFW and obtaining an ITP, if required. The qualified biologist is responsible for conducting preconstruction surveys.	
Mitigation Measure 3.4-4: Valley Elderberry Longhorn Beetle (VELB) Avoidance. Blue elderberry plants (with stems greater than 1-inch diameter at ground level) occurring within Program Area shall be avoided and, if avoidance is not possible, relocated to a designated location. Where Project impacts to elderberry shrubs cannot be avoided, or where shrubs are located within 30.5 meters (100 feet) of project-specific restoration activities, activities shall be conducted according to USFWS Conservation Guidelines for VELB (1999), or other VELB guidance as updated by the USFWS. VELB habitat shall be considered directly affected if Project construction requires the removal of elderberry shrubs or if	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to and during construction activities.	SWCA is responsible for ensuring that blue elderberry plants are avoided, that activities are conducted according to USFWS guidance, and implementing any replacement planting, as needed.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
ground-disturbing activities would occur within 6.1 meters (20 feet) of the dripline of an elderberry shrub. The species would be considered indirectly affected if Project construction would disturb the ground between 6.1 and 30.5 meters (20 and 100 feet) from the dripline of the shrub (USFWS, 1999). Transplantation or temporary removal of the affected shrubs may be necessary as prescribed by the guidelines, but plants that are extremely difficult to remove may be exempted. Planting of additional seedlings or cuttings may be required under the Project or program USFWS Biological Opinion, depending on the number of elderberry shrubs with emergence holes present in the Project Area. A monitoring plan of any mitigation measures in the Project Area shall be implemented as required under the Biological Opinion, including monitoring the general condition of individual project sites and/or the entire Program Area and the condition of the elderberry plantings for up to ten consecutive years. The plan shall describe monitoring responsibilities, intervals, intensity, and success rates. The monitoring plan shall further include requirements for reporting observations and findings to the applicable agency, for example, for VELB observations, to USFWS.				
Mitigation Measure 3.4-5: Swainson's Hawk Avoidance. For any construction activities initiated between March 15 and September 1, surveys for nesting Swainson's hawk shall be conducted within 0.5-mile of areas of disturbance for this species as described in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000). The recommended minimum survey protocol is completion of surveys for at least the two survey periods immediately prior to a project's initiation. Survey periods correspond to typical migration, courtship, and nesting behavior and defined as follows:	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to and during construction activities.	SWCA is responsible for incorporating this measure into contract specifications and ensuring compliance. A qualified biologist is responsible for conducting surveys, establishing buffers, and monitoring nest activity during construction.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
<table><tr><th>Survey Period</th><th>Survey Dates</th><th>Survey Time</th><th>Number of Surveys</th></tr><tr><td>1</td><td>January 1 to March 20</td><td>All day</td><td>1</td></tr><tr><td>2</td><td>March 20 to April 5</td><td>Sunrise to 1000 or 1600 to sunset</td><td>3</td></tr><tr><td>3</td><td>April 5 to April 20</td><td>Sunrise to 1200 or 1630 to sunset</td><td>3</td></tr><tr><td>4</td><td>April 21 to June 10</td><td>All day; Monitoring known nests only</td><td>Ongoing</td></tr><tr><td>5</td><td>June 10 to July 30</td><td>Sunrise to 1200 or 1630 to sunset</td><td>3</td></tr></table> If surveys determine that the species is present and nesting within a restoration project site, a buffer zone of 0.5-mile shall be established and coordination with CDFW shall be required prior to any work in this buffer zone during the nesting season. Work within 0.5-mile may be permitted with CDFW approval if a qualified biologist monitors the nest when Project disturbance activities occur within 0.5-mile of the nest. If the monitor determines that construction may result in abandonment of the nest, all construction activities within 0.5-mile shall be halted until the nest is abandoned or all young have fledged. The monitor shall continue monitoring the nest until construction within 0.5-mile of the nest is completed, or until all chicks have completely fledged and are no longer dependent on the nest.			The Construction Contractor is responsible for keeping work out of the buffers (if necessary).	
Mitigation Measure 3.4-6: Nesting Bird Avoidance. A pre-construction survey by a qualified biologist for nesting birds shall be required if construction activities are scheduled to occur during the breeding season (February 1 to August 31) for raptors and other migratory birds, including special-status bird species. The survey shall be conducted within 7 days prior to ground disturbing activities and shall cover 500-foot radius surrounding the construction zone. If active nests are found, actions typically include, but are not limited to, monitoring by agency-approved biologists,	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	If nesting season avoidance is not feasible, the survey shall be conducted no more than 7 days prior to scheduled vegetation removal. Buffers, if necessary, shall be maintained	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. A qualified biologist is responsible for conducting a pre-	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
establishment or refinement of species-specific buffers, reduction or elimination of the use of loud equipment, reducing foot traffic and remaining in the vehicles, and the maintenance of visual screens. Migratory birds shall be protected from Project Area staging and operations through the use of a buffer established based on the bird's sensitivity and response to the potential activity. Baseline behavior of the bird should be established to inform the buffer size. The qualified biologist may start with a 100-foot nest buffer or a 250-foot nest buffer for raptors but may adjust the buffer size based of the reaction of the bird to the activity. If there is a potential for nest abandonment due to intrusion into the buffer zone, as established by the qualified biologist, then CDFW and the USFWS shall be consulted. If a lapse in Project-related work of 7 days or longer occurs, another focused survey, and if required, consultation with CDFW and the USFWS shall be performed before Project work can resume.		throughout the construction period.	construction survey of the project site, determining an appropriate buffer zone, and monitoring the buffers during construction (if necessary). The Construction Contractor is responsible for keeping work out of the buffers (if necessary).	
Mitigation Measure 3.4-7: Avoid and Minimize Impacts to Special-Status Bats. In areas where suitable habitat occurs and there is potential for special-status bat species to be present, specific mitigation measure(s) will be developed in consultation with CDFW. Specific measures may vary depending on the project reach and project activities, and may include the following: A pre-construction bat survey shall be conducted by a qualified biologist to establish the presence or absence of roosting bats prior to May 1st in order to put exclusionary measures into place before the active season of this species (no exclusionary efforts should be conducted during May 1 to August 31 of the construction year). If no roosting bats are found, no further mitigation shall be necessary; however, it is recommended that exclusionary measures be conducted prior to May 1st of each construction year to prevent bats from utilizing the riparian corridor. If pallid bats, western red bats, or other bat species are detected within a roost at the time of the survey, excluding any bats from	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to initiation of construction activities.	SWCA is responsible for incorporating this measure into contract specifications and ensuring compliance. A qualified biologist is responsible for conducting the survey of the project site and implementing exclusion measures.	

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roosts, if possible, will be accomplished by a qualified biologist prior to the removal of roost trees. The timing and other methods of exclusionary activities will be developed by the qualified biologist in consultation with CDFW in order to reduce the stress on the bats to the extent feasible. Exclusionary devices, such as plastic sheeting, plastic or wire mesh, may be used to allow for bats to exit but not re-enter any occupied roosts, if applicable. A qualified biologist will also be notified and present during any tree removal or tree trimming.				
Mitigation Measure 3.4-8: Avoid and Minimize Impacts to Rare Plants. Before the initiation of any vegetation removal or ground-disturbing activities, in areas that provide suitable habitat for special-status plants, the following measures shall be implemented: • A qualified botanist shall conduct appropriately timed surveys for special-status plant species, in all suitable habitats that would be potentially disturbed by the Project. • Surveys shall be conducted following CDFW- or other approved protocol. • If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter to the lead agency, and other appropriate agencies as needed, and no further mitigation will be required. • If special-status plants are found during focused surveys, the following measures shall be implemented: • Information regarding the special-status plant population shall be reported to the CNDDB. • If the populations can be avoided during Project implementation, they shall be clearly marked in the field by a qualified botanist and avoided during construction activities. Before ground clearing or ground disturbance, all on-site construction personnel shall be instructed as to the species'	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to initiation of construction activities.	SWCA is responsible for incorporating this measure into contract specifications, ensuring compliance during construction, and implementing mitigation, if needed. A qualified biologist is responsible for conducting a special-status plant survey of the project site, documenting findings, identifying species in the field, and consulting with CDFW and/or USFWS, if needed.	

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presence and the importance of avoiding impacts to this species and its habitat. • If special-status plant populations cannot be avoided, consultations with CDFW and/or USFWS would be required. If allowed under the appropriate regulations, the plants shall be mapped, photographed, and then transplanted to a suitable location by a qualified botanist. If required by the relevant agency, a plan to compensate for the loss of special-status plant species, detailing appropriate replacement ratios, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures that would be implemented if the initial mitigation fails; the plan would be developed in consultation with the appropriate agencies prior to the start of construction activities. • If mitigation is required, the Project proponent shall maintain and monitor the mitigation area for 5 years following the completion of construction and restoration activities. Monitoring reports shall be submitted to the resource agencies at the completion of restoration and for 5 years following restoration implementation. Monitoring reports shall include photo-documentation, planting specifications, a site layout map, descriptions of materials used, and justification for any deviations from the mitigation plan. Additional mitigation, monitoring may be required or modified by the administering agency, and those requirements would supersede this section				
Mitigation Measure 3.4-9a: Lake Streambed Alteration (LSA) Notification and other Regulatory Agency Permits. Prior to commencement of project construction, SCWA shall notify the California Department of Fish and Wildlife pursuant to Section 1600 et. seq. of the California Fish and Game Code using the Environmental Permit Information Management System for project activities affecting lakes or streams, associated riparian, or otherwise hydrologically connected habitat, and any connected wetlands, and shall comply with the LSA Agreement, if issued.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to initiation of construction activities.	SWCA is responsible for obtaining the necessary regulatory permits.	

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SWCA shall also obtain and comply with applicable permits from the Regional Water Quality Control Board (RWQCB) and U.S. Army Corps of Engineers (USACE) pursuant to the Clean Water Act and Porter-Cologne Water Quality Control Act**.**				
Mitigation Measure 3.4-9b: Monitor Riparian Habitat. In advance of construction of each individual project under the Program, a Riparian Revegetation and Monitoring Plan shall be prepared Each plan will describe the thresholds of revegetation success, monitoring and reporting requirements, and a description of the site-specific planting plan. The Plan will be submitted to the appropriate regulatory agencies for review and approval. Monitoring Plans shall include the following, subject to modification based upon regulatory agencies review and approval. Monitoring shall commence immediately following construction of each project implemented under the Program. Monitoring shall be performed for a period of at least five years and may be extended if contingency measures were required beyond the third year, and/or if the final success criteria are not met at the end of five years. In this event, monitoring shall continue until such time as all disturbed areas and restoration plantings are established and the long-term viability of the target replacement habitat is assured, as determined in consultation with the permitting agencies. *Monitoring Methods.* Monitoring shall be performed by a qualified biologist, horticulturist, or ecologist with appropriate credentials and demonstrated experience in native habitat restoration. The project monitor shall provide oversight of maintenance operations to ensure high quality project maintenance, which conforms to standards established in the restoration plan for each individual project, and to immediately address any unanticipated problems. The monitor shall be in direct contact with SCWA/LPCCC, via regular telephone reports of maintenance activities and periodic site visits.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to, during and following project construction.	SWCA is responsible for preparing and implementing the Riparian Revegetation and Monitoring Plan.	

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Recording of As-Built Conditions. Accurate plans shall be prepared depicting the finished grades, locations of any grade control or hydraulic structures, erosion control measures, and species, quantities and locations of all planted materials. Methods of construction and planting, as well as any significant problems or unexpected conditions encountered, shall also be recorded. As-built plans shall include surveyed cross-sections of the restored creek channel. Cross-section locations shall be permanently marked in the field. Permanent photo stations shall be established and depicted on the as-built plans. Baseline information shall be incorporated into a written report describing the as-built status of the restoration project and submitted with the as-built drawings to the permitting agencies within 6 weeks of completion of construction activities. *Monitoring Schedule.* Monitoring visits shall be conducted monthly for the first year and at least quarterly thereafter, as determined necessary by the relative success of the project plantings in the first year. *Monitoring Protocol.* During the monitoring visits, detailed records shall be made of the conditions existing at the restoration site. In order to maintain continuity and ensure comparable assessments, standardized data sheets shall be used to record monitoring data. A copy of the as-built planting plan shall be attached to the data sheets for each monitoring visit, so that monitoring data and observations may be tied to exact locations on the restoration site. Sample channel cross-sections, quadrats, and permanent photo stations shall be permanently marked in the field using rebar stakes. Channel cross-sections shall be surveyed in the field to record the condition of the channel and banks, and any changes occurring as a result of natural geomorphic adjustment or other causes (e.g. possible vandalism, or human activity in the channel, wildlife trails/laydown areas, etc.).				

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Quadrat sampling methods shall be used to record data for selected areas of the restoration site. Required monitoring data would include: • Percent survival and average height of all trees planted (with the exception of willows and cottonwoods, which shall be evaluated based upon aerial cover); • Overall cover, percent cover by species (dominant as well as incidental species present shall be recorded), and natural recruitment of native and invasive species; • Mortality and other problems such as insect damage, erosion, or other soil problems shall be noted and documented with photographs; and • General health and vigor of restoration plantings. Photographs showing overall views of the restoration site shall be taken at established photopoints during each visit. The following is a description of specific monitoring data to be collected for the restoration site. Vegetation: Riparian vegetation. Riparian vegetation planted on the restoration site shall consist of liner and one-to two-gallon materials. As-built planting plans shall identify the locations and species of each planting. During monitoring visits, the percent cover, species diversity and natural recruitment (both by native and invasive species) within these areas shall be assessed. Existing riparian trees retained within the project site. The general conditions and health of these trees and seedlings shall be documented during monitoring visits. Any natural recruitment of native tree and shrub species in these areas shall be noted. *Success Criteria.* The restoration prescribed for individual restoration projects under the Program shall be considered successful if, at the end of the 5-year monitoring period,				

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
restoration objectives are achieved, the channel morphology is stable, planted areas are self-sustaining, and plant survivorship and vigor are adequate to assure a viable, high-quality wildlife habitat. The section below provides proposed minimum success criteria for the different vegetation types within the individual project sites. Success criteria presented below may be modified based upon site specific conditions and subject to review and approval of regulatory stakeholders and permitting agencies. Plantings in each restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met. Non-native cover includes plant species that are non-native, but not considered invasive. To measure this success criteria, Invasive plants are defined as having a moderate or high rating by the California Invasive Plant Council (Cal-IPC). Maintenance and/or replanting shall be performed as necessary to achieve these standards. If significant numbers of replacement plantings are required after the third year, the applicant shall consult with the permitting agencies to determine whether the monitoring period should be extended. Vegetation Success Criteria: Plantings in the restoration site shall be considered successful if, at the end of the 5-year monitoring period, the following criteria have been met: Riparian trees and shrubs • 80 percent cover of the planted area, as indicated on as-built plans submitted to the regulatory agencies. All revegetated areas within the restoration site • Percent cover by invasive plants not to exceed 5 % Maintenance and/or replanting necessary to achieve these standards shall be performed as required. If significant numbers of				

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
replacement plantings are required after the third year, the applicant shall consult with the CDFW and other regulatory agencies, as appropriate, to determine whether the monitoring period should be extended. *Annual Reports.* Annual monitoring reports shall be submitted by LPCCC/SCWA to the Corps, CDFW and other appropriate agencies and stakeholders. The first annual report for each project shall be delivered by December 31 of the year following the first growing season after planting, and by December 31 of each year thereafter. The reports shall include analyses of all quantitative monitoring data, prints of monitoring photographs, and maps identifying monitoring transects and/or quadrats, monitoring photo points, and restoration plantings by vegetation type and height class, and provide discussion of the implications of monitoring data for site evolution, and comparison to the success criteria. The reports shall discuss problems and successes encountered, any replacement planting or other remedial measures taken, and shall recommend steps to ensure continued success (or remediation of problems encountered) of the restoration project.				
Mitigation Measure 3.4-10: Implement Aquatic Habitat Protection. Aquatic habitat shall be protected during Program activities by limiting the amount of in-channel work and implementing aquatic habitat protection measures. Silt fencing and other BMPs shall be installed to prevent the unintended discharge of excavated material and/or turbid water. Protective fencing and other measures shall be checked regularly and maintained until construction is complete. If portions of the channel are isolated, dewatered or bypassed, fish salvage shall be performed under the direct supervision of an approved biologist to avoid incidental take from Project activities. Following installation of any water diversion structures, and prior to placement of any fill, the approved biologist shall perform surveys for any fish in the Project Area, collect, and transfer native fish, including Pacific lamprey, to the nearest suitable habitat. During holding and	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to and during construction activities.	SWCA is responsible for limiting in-channel work and obtaining necessary permits. A qualified biologist is responsible for placing and monitoring fencing, conducting surveys, and transferring fish, if needed.	

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transportation, fish would be held in stream water collected from the Project reach. • Before removal and relocation begins, the approved biologist, in consultation with the appropriate agencies, shall identify the most appropriate release location(s). Release locations should offer ample habitat for Pacific lamprey and other native fish and should be selected to minimize the likelihood of fish reentering the work area. • Relocation activities shall be performed during the morning when temperatures are coolest. Air and water temperatures would be periodically measured during dewatering activities to ensure native fish that may be present are protected. • If native fish are relocated, the following procedure shall be used: o Handling of fish would be minimized. However, when handling is necessary, hands and nets would be wetted prior to handling. o Any handled fish would be immediately placed in an aerated container with a lid in cool, shaded water. Aeration would be provided with a battery powered external bubbler. Fish would not be held more than 30 minutes. o All handled fish would be moved directly to the nearest suitable habitat in the creek, as identified above.			The Construction Contractor is responsible for keeping work out of fenced areas.	
Mitigation Measure 3.4-11: Native or Migratory Fish or Wildlife Species Avoidance. Native or migratory fish and wildlife species, such as North American beaver, North American otter, and other wildlife species shall be protected from construction staging and operations impacts through monitoring by a qualified biologist. Prior to construction, the construction work area shall be inspected for the presence of these species. If necessary, with consultation with CDFW, appropriate measures shall be taken to avoid and minimize Project impacts to these species. Additional specific measures to protect native or migratory wildlife species,	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The qualified biologist is responsible for monitoring during	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
may be required by CDFW under the 1600 series permit for the Project and shall be adhered to by the Project proponent.			construction activities and implementing appropriate measures to minimize impacts to these species.	
Mitigation Measure 3.4-12: Implement Herbicide Protective Actions. During all Program activities, herbicides shall only be used by a licensed applicator and shall be applied only to target plants. Herbicides shall not be used within 100 feet of blue elderberry plants. In order to avoid and minimize impacts related to herbicide use, use any herbicides during Program activities in accordance with all directions and protective actions listed on the product label of the herbicide being applied. In addition, take the following actions to ensure protection of fish, plant, and bird life during use of the herbicides listed below: Glyphosate: • Implement the following US EPA recommendations during Project activities: o For non-aquatic uses, do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters and rinsate. o For aquatic uses, only end-use products that are registered for aquatic uses. Do not contaminate water when disposing of equipment washwaters and rinsate. Treatment of aquatic weeds can result in oxygen loss from decomposition for dead plants. This loss can cause fish kills. Triclopyr: • As recommended by US EPA, avoid spray drift to prevent toxicity to non-target plants during Program activities.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Do not apply to open water or wetland areas to prevent toxicity to freshwater fish. Imazapyr: • Implement the following US EPA recommendations during Project activities: o If groundborne application is performed, take the following precautions to minimize potential risk to non-target terrestrial plants, aquatic vascular plants, and threatened and endangered species: ▪ Use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size. (ASABE S572) or, if specifically using a spinning atomizer nozzle, use a volume mean diameter (VMD) of 385 microns or greater. ▪ Do not apply with wind speeds greater than 10 mph. ▪ Do not apply into temperature inversions. • To minimize potential risk to aquatic vascular plants, do not apply to bodies of water or portions of bodies of water where emergent and/or floating weeds do not exist. Aminopyralid: • In addition to following all directions and protective actions listed on the product label, apply aminopyralid using hand-spray and spot treatments only. Chlorsulfuron: • To minimize potential harm to non-target plants, implement the following US EPA recommendations during Program activities: o Employ measures to control spray drift. o Restrict use to only one application per growing season. Dithiopyr:				

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Do not apply dithiopyr in or near water due to its toxicity to fish. • To minimize potential harm to non-target plants, implement the following US EPA recommendations during Program activities: o Do not apply dithiopyr aerially. Isoxaben: • To minimize exposure to fish and aquatic invertebrates, implement the following actions: o Do not apply directly to water, to areas where surface water is present, to wetlands, or to intertidal areas below the mean high-water mark. o Employ measures to control spray drift. o Do not contaminate water when disposing of equipment wash waters and rinsate.				
Statewide Order EIR				
Mitigation Measure TERR-1: Coordinate with CDFW, USFWS, and Permittees Regarding HCPs, NCCPs, and Other Conservation Plans. If the site for a restoration project permitted under the Order is within the planning area for any adopted HCP, NCCP, or similar conservation plan, the CEQA lead agency for the project shall consult with the plan permittee(s), CDFW and/or USFWS, as applicable, to identify any potential conflicts with the plan's goals, objectives, or conservation measures. As part of this consultation, the CEQA lead agency shall seek input regarding potential design features, conservation measures, or other mitigation strategies to avoid potential conflicts and achieve substantial conformance with the objectives of the HCP, NCCP, or similar conservation plan. The CEQA lead agency shall implement these elements as applicable to ensure that the restoration project conforms to applicable goals and policies set forth in the adopted conservation plan.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to initiation of construction activities.	SWCA is responsible for coordinating with CDFW, USFWS and Permittees regarding HCPs, NCCPs, and Other Conservation Plans.	
Project-Specific Measures				

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Mitigation Measure BIO-1: Monarch Butterfly Avoidance. Preconstruction surveys shall be conducted during the monarch breeding season (March 16 through November 30) to determine if milkweed is present on the site and, if present, is being used for monarch breeding. Surveys shall be conducted by a qualified biologist no more than 14 days prior to ground or vegetation disturbance activities. The biologist shall search for evidence of monarch eggs, caterpillars, chrysalises, and adults. If active monarch breeding is identified, the milkweed stand shall be avoided until the applicant develops and implements a salvage and relocation plan that has been reviewed and approved by SCWA and the applicable Resource Agencies.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to and during construction.	SWCA is responsible for ensuring compliance. A qualified biologist is responsible for conducting pre-construction surveys and developing a salvage and relocation plan, if needed. The Construction Contractor is responsible for avoiding milkweed stands.	
Mitigation Measure BIO-2: Pollinator Habitat Restoration. To limit any potential adverse effects on pollinators, all herbaceous vegetation removal activities shall be conducted from September 1 through February 28, including any vegetation control with herbicides (refer to Mitigation Measure 3.4-12 of the 2016 Program EIR). When using herbicides, application shall be implemented by a person holding a Qualified Applicator License from the State of California. Any application of pesticides shall be completed in a manner that avoids drift and contamination of non-target plants and areas. Ecologically invasive weeds shall be treated with spot spraying of an approved herbicide only. Targeted application of herbicides may be used in conjunction with removal of nonnative invasive weeds. Restoration of floodplain habitat shall include establishing native seed mixes containing a diversity of native wildflowers, including milkweed, as appropriate. Native seed mixes should be applied in bare soil areas, including those recently cleared, graded, or disturbed. Nesting needs of ground nesting bees and bumble bees should be taken into consideration	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to and during construction.	SWCA is responsible for ensuring compliance. The Construction Contractor is responsible for complying with this measure.	

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when restoring this habitat. Snags and other resources should be left for wood nesting bees.				
CULTURAL RESOURCES				
2016 Program EIR				
Mitigation Measure 3.11-2: If Unrecorded Cultural Resources are Encountered. If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, glass, ceramics, structure/building remains, dark soil deposits and charcoal, stone implements and flakes, etc.) is made during Project-related construction activities, ground disturbances in the area of the find shall be halted and a qualified professional archaeologist will be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant per the CRHR and develop appropriate mitigation to protect the integrity of the resource and ensure that no additional resources are impacted. Mitigation could include, but not necessarily be limited to preservation in-place, archival research, subsurface testing, or contiguous block unit excavation and data recovery	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. A qualified archaeologist is responsible for determining the appropriate treatment of the discovery (if necessary). The Construction Contractor is responsible for cooperating with the qualified archaeologist if resources are discovered.	
Mitigation Measure 3.11-3: Human Remains. The county sheriff/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 the NAHC by phone within 24	Include measure as Condition of Approval.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications, ensuring compliance during construction, and	

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hours of making that determination (Health and Safety Code Section 7050[c]). Following the coroner's findings, the property owner, contractor or Project proponent, an archaeologist, and the NAHC-designated MLD shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.9. The landowner shall ensure that the immediate vicinity (according to generally accepted cultural or archaeological standards and practices) is not damaged or disturbed by further development activity until consultation with the MLD has taken place. The MLD shall have 48 hours to complete a site inspection and make recommendations after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. Assembly Bill (AB) 2641 suggests that the concerned parties may extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. AB 2641(e) includes a list of site protection measures and states that the landowner shall comply with one or more of the following: • Record the site with the NAHC or the appropriate Information Center; • Utilize an open-space or conservation zoning designation or easement; and/or • Record a document with the county in which the property is located. The landowner or their authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to	Implementation actions are outlined in the measure.		coordinating with the County sheriff/coroner, the property owner, the qualified archaeologist, and the MLD. The landowner is responsible for ensuring that the immediate vicinity of the site is not damaged until consultation with the MLD has occurred. The MLD is responsible for making a site inspection and recommendations. The Construction Contractor is responsible for compliance with this measure.	

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further subsurface disturbance if the NAHC is unable to identify a MLD or the MLD fails to make a recommendation within 48 hours after being granted access to the site. The landowner or their authorized representative may also re-inter the remains in a location not subject to further disturbance if they reject the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to the landowner.				
Statewide Order EIR				
Mitigation Measure CUL-2: Conduct Inventory and Significance Evaluation of Archaeological Resources. Before implementation of any project permitted under the Order that includes ground disturbance, an archaeological records search and sensitivity assessment, inventory and significance evaluation of archaeological resources identified in the C-APE shall be conducted. The inventory and evaluation should be done by or under the direct supervision of a qualified archaeologist, defined as one who meets the U.S. Secretary of the Interior's Professional Qualifications Standards for Archeology, and shall include the following: • Map(s) and verbal description of the project C-APE for cultural resources that delineates both the horizontal and vertical extents of where a project could result in impacts, including both direct and indirect, on cultural resources. • A records search at the appropriate repository of the California Historical Resources Information System (CHRIS) for the C-APE and vicinity (typically areas within 0.25 or 0.5 mile, based on setting) to acquire records on previously recorded cultural resources in the C-APE and vicinity and previous cultural resources studies conducted for the C-APE and vicinity. This task can be performed by either the qualified archaeologist or the appropriate local CHRIS center staff. • Outreach to the California Native American Heritage Commission, including a request of a search of the Sacred Lands	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for conducting the study, consulting with Native American groups, and implementing avoidance/protection measures, if needed. The qualified archaeologist is responsible for conducting the cultural resources study.	

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File for the C-APE, to determine if any documented Native American sacred sites could be affected by the project. • Consultation with California Native American Tribes pursuant to PRC Section21080.3 to determine whether any indigenous archaeological resource or tribal cultural resources could be affected by the project. Project proponents shall submit a Sacred Lands File & Native American Contacts List Request to the Native American Heritage Commission (NAHC) at the initial stages of project development (or as early as practicable) to determine if a project would have an impact on Native American cultural resources. The project proponent shall coordinate with the approving Water Board or other CEQA lead agency, if applicable, as soon as possible whenever tribes that are traditionally and culturally affiliated to a project area are identified. Any tribe identified by the NAHC will require notification of the proposed project by the lead agency as soon as practicable during early design. Tribes will be consulted if a request is received after initial notification. Consultation will include discussion regarding project design, cultural resource survey, protocols for construction monitoring, and any other tribal concern. Construction of the project will not commence until the approving Water Board or other CEQA lead agency achieves compliance with the California Environmental Protection Agency Tribal Consultation Protocol (April 2018). • If the C-APE is in or adjacent to navigable waterways, outreach to the California State Lands Commission to request a search of their Shipwrecks Database, to determine whether any submerged archaeological resources may be present in the C-APE. • Background research on the history, including ethnography and indigenous presence, of the C-APE and vicinity. • An archaeological sensitivity analysis of the C-APE based on mapped geologic formations and soils, previously recorded				

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archaeological resources, previous archaeological studies, and Native American consultation. • If an archaeological study is not warranted based on the above review, a summary of the assessment and justification of the determination will be prepared. If the CEQA lead agency agrees with the determination, no further study is needed. If a study is warranted, as a result of these archival studies and consultations, an archaeological field survey of the C-APE will be conducted. The field survey shall include, at a minimum, a pedestrian survey. If the archaeological sensitivity analysis suggests a high potential for buried archaeological resources in the C-APE, a subsurface survey shall also be conducted. If previous archaeological field surveys no more than two years old have been conducted for the C-APE, a new field survey is not necessary, unless their field methods do not conform to those required above (e.g., no subsurface survey was conducted but C-APE has high potential for buried archaeological resources). Any archaeological resources identified in the C-APE during the survey shall be recorded on the appropriate California Department of Parks and Recreation 523 forms (i.e., site record forms). • An evaluation of any archaeological resources identified in the C-APE for California Register eligibility (i.e., as qualifying as historical resources, as defined in State CEQA Guidelines Section 15064.5) as well as whether they qualify as unique archaeological resources, pursuant to PRC Section 21083.2. Such evaluation may require archaeological testing (excavation), potentially including laboratory analysis, and consultation with relevant Native American representatives (for indigenous resources). • An assessment of potential project impacts on any archaeological resources identified in the C-APE that qualify as historical resources (per State CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2). This shall include an analysis of whether the				

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
project's potential impacts would materially alter a resource's physical characteristics that convey its historical significance and that justify its inclusion (or eligibility for inclusion) in the California Register or a qualified local register. • A technical report meeting U.S. Secretary of the Interior's Standards for archaeological technical reporting. This report will document the mitigation measures taken and any study results, and, following CEQA lead agency review and approval, completes the requirements of this mitigation measure. If potentially significant impacts on archaeological resources that qualify as historical resources (per State CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2) are identified, develop, before project implementation and in coordination with interested or consulting parties (e.g., Native American representatives [for indigenous resources], historical societies [for historic-era resources], local communities) an approach for reducing such impacts. If any such resources are on or in the tide and submerged lands of California, this process. shall also include coordination with the California State Lands Commission. Typical measures for reducing impacts include: • Modify the project to avoid impacts on resources. • Plan parks, green space, or other open space to incorporate the resources. • Develop and implement a detailed archaeological resources management plan to recover the scientifically consequential information from archaeological resources before any excavation at the resource's location. Treatment for most archaeological resources consists of (but is not necessarily limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the project.				

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Develop and implement interpretive programs or displays and conduct community outreach.				
Mitigation Measure CUL-3: Implement Measures to Protect Archaeological Resources during Project Construction or Operation. If archaeological resources are encountered during project construction or operation of any project permitted under the Order, all activity within 100 feet of the find shall cease and the find shall be flagged for avoidance. The lead agency and a qualified archaeologist, defined as one meeting the U.S. Secretary of the Interior's Professional Qualifications Standards for Archeology, shall be immediately informed of the discovery. The qualified archaeologist shall inspect the discovery and notify the lead agency of their initial assessment. If the qualified archaeologist determines that the resource is or is potentially indigenous in origin, the lead agency shall consult with culturally affiliated California Native American Tribes to assess the find and determine whether it is potentially a tribal cultural resource. If the lead agency determines, based on recommendations from the qualified archaeologist and culturally affiliated California Native American Tribes, that the resource is indigenous, that the resource may qualify as a historical resource (per State CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074), then the resource shall be avoided if feasible. If avoidance of an identified indigenous resource is not feasible, the lead agency shall consult with a qualified archaeologist, culturally affiliated California Native American Tribes, and other appropriate interested parties to determine treatment measures to minimize or mitigate any potential impacts on the resource pursuant to PRC Section 21083.2 and State CEQA Guidelines Section 15126.4. If any such resources are on or in the tide and submerged lands of California, this process shall also include coordination with the California State Lands Commission. Once treatment measures have been determined, the lead agency shall prepare and implement an	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications, ensuring compliance during construction, and contacting the affiliated Native American Tribes, if a resource is discovered. A qualified archaeologist is responsible for determining the appropriate treatment of the discovery (if necessary). The Construction Contractor is responsible for cooperating with SWCA, and the qualified archaeologist if resources are discovered.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
archaeological (and/or tribal cultural) resources management plan that outlines the treatment measures for the resource. Treatment measures typically consist of the following steps: • Determine whether the resource qualifies as a historical resource (per State CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074) through analysis that could include additional historical or ethnographic research, evaluative testing (excavation), or laboratory analysis. • If it qualifies as a historical resource (per State CEQA Guidelines Section15064.5) and/or unique archaeological resource (per PRC Section 21083.2), implement measures for avoiding or reducing impacts such as the following: o Modify the project to avoid impacts on resources. o Plan parks, green space, or other open space to incorporate resources. o Recover the scientifically consequential information from the archaeological resource before any excavation at the resource's location. This typically consists of (but is not necessarily limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the project. o Develop and implement interpretive programs or displays. • If it qualifies as a tribal cultural resource (per PRC Section 21074) implement measures for avoiding or reducing impacts such as the following: o Avoid and preserve the resource in place through measures that include but are not limited to the following: ▪ Plan and construct the project to avoid the resource and protect the cultural and natural context.				

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
▪ Plan greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria. o Treat the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, through measures that include but are not limited to the following: ▪ Protect the cultural character and integrity of the resource. ▪ Protect the traditional use of the resource. ▪ Protect the confidentiality of the resource. o Implement permanent conservation easements or other interests in real property, with cultural appropriate management criteria for the purposes of preserving or using the resource or place.				
Mitigation Measure CUL-4: Implement Measures to Protect Human Remains during Project Construction or Operation. If human remains are encountered during construction or operation and maintenance of any project permitted under the Order, all work shall immediately halt within 100 feet of the find and the lead agency shall contact the appropriate county coroner to evaluate the remains and follow the procedures and protocols set forth in State CEQA Guidelines Section 15064.5(e)(1). If human remains encountered are on or in the tide and submerged lands of California, the lead agency shall also contact the California State Lands Commission. If the coroner determines that the remains are Native American in origin, the appropriate county shall contact the California Native American Heritage Commission, in accordance with California Health and Safety Code Section 7050.5(c) and PRC Section 5097.98. Per PRC Section 5097.98, the project's lead agency shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications, ensuring compliance during construction, and coordinating with the County sheriff/coroner, the property owner, the qualified archaeologist, and the MLD. The MLD is responsible for making a site inspection and recommendations.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
is not damaged or disturbed by further development activity until the lead agency has discussed and conferred, as prescribed PRC Section 5097.98, with the most likely descendants and the property owner regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.			The Construction Contractor is responsible for compliance with this measure.	
GEOLOGY AND SOILS				
Statewide Order EIR				
Mitigation Measure GEO-1: Include Geotechnical Design Recommendations. To minimize potential impacts from seismic events and the presence of adverse soil conditions, lead agencies shall ensure that geotechnical design recommendations are included in the design of facilities and construction specifications. Recommended measures to address adverse conditions shall conform to applicable design codes, guidelines, and standards.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for incorporating geotechnical design recommendations into the project design.	
Mitigation Measure GEO-3: Conduct Individual Restoration Project Geotechnical Investigation and Report. When a restoration project involves potentially significant grading activities and warrants consideration of geotechnical factors and/or constraints (e.g., work on flood control levees, work in areas with certain soil types subject to liquefaction), the project proponent shall conduct and prepare a geotechnical report to address potential issues and concerns. The geotechnical report shall include a quantitative analysis to determine whether excavation or fill placement would result in a potential for damage due to soil subsidence during and/or after construction. Project designs shall incorporate measures to reduce the potential damage to a less-than-significant level. Measures shall include but not be limited to: • Removal and recompaction of existing soils susceptible to subsidence • Ground improvement (such as densification by compaction or grouting, soil cementation)	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for preparing a geotechnical report and incorporating measures into the project design.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Reinforcement of structural components to resist deformation due to subsidence. The assessment of subsidence for specific projects shall analyze the individual restoration projects potential for and severity of cyclic seismic loading. A geotechnical investigation shall also be performed by an appropriately licensed professional engineer and/or geologist to determine the presence and thickness of potentially liquefiable sands that could result in loss of bearing value during seismic shaking events. Project designs shall incorporate measures to mitigate potential damage to a less-than-significant level. Measures shall include but not be limited to: • Ground improvement (such as grouting or soil cementation) • Surcharge loading by placement of fill, excavation, soil mixing with non-liquefiable finer-grained materials, and replacement of liquefiable materials at shallow depths. • Reinforcement of structural components to resist deformation due to liquefaction. An analysis of individual restoration projects probable and credible seismic acceleration values, conducted in accordance with current applicable standards of care, shall be performed to provide for a suitable project design. Geotechnical investigations shall be performed, and geotechnical reports shall be prepared in the responsible care of California licensed geotechnical professionals including professional civil engineers, certified geotechnical engineers, professional geologists, certified engineering geologists, and certified hydrogeologists, all of whom practice within the current standards of care for such work.				
Mitigation Measure GEO-4: Adhere to International Building Code. Constructed facilities shall be required to adhere to the current approved version of the International Building Code (IBC), and to comply with the IBC for critical structures (e.g., levees).	Include measure as Condition of Approval.	Prior to construction activities.	SWCA is responsible for ensuring that the proposed project adheres to the IBC.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
	Implementation actions are outlined in the measure.			
Mitigation Measure GEO-5: Conduct Expansive Clay Investigation. In areas where expansive clays exist, a licensed professional engineer or geologist shall perform a hydrogeological/geotechnical investigation to identify and quantify the potential for expansion, particularly differential expansion of clayey soils caused by leakage and saturation beneath new improvements. Measures could include but are not limited to removing and recompacting problematic expansive soils, stabilizing soils, and/or reinforcing the constructed improvements to resist deformation from expansion of subsurface soils.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for conducting an expansive clay investigation and incorporating measures into the project design.	
Mitigation Measure GEO-6: Implement Measures for Waterway Construction Activities. For projects that involve the engineered subsurface structural components (e.g., of surface impoundments, levees, bridge footings/abutments) project design shall provide for protection from leakage to the subsurface. Measures could include but are not limited to rendering concrete less permeable by specifying concrete additives such as bentonite, designing impermeable liner systems, designing leakage collection and recovery systems, and constructing impermeable subsurface cutoff walls. For restoration projects that could cause subsurface seepage of nuisance water onto adjacent lands, the following measures shall be implemented: • Perform seepage monitoring studies by measuring the level of shallow groundwater in the adjacent soils, to evaluate baseline conditions. Continue monitoring for seepage during and after project implementation.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for ensuring that the project design addresses potential subsurface seepage.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Develop a seepage monitoring plan if subsurface seepage constitutes nuisance water on the adjacent land. • If it is determined that seepage from the restoration project is responsible for making adjacent lands not usable, implement seepage control measures, such as installing subsurface agricultural drainage systems to avoid raising water levels into crop root zones. Cutoff walls and pumping wells can also be used to mitigate the occurrence of subsurface nuisance water.				
Mitigation Measure GEO-7: Implement Measures for Levee Construction and Other Fill Embankment Designs. For projects that involve the construction of setback levees, surface impoundments, and other fill embankments, the project design shall place fill in accordance with state and local regulations and the prevailing standards of care for such work. Measures could include but are not limited to blending the soils most susceptible to landsliding with soils that have higher cohesion characteristics; installing slope stabilization measures; designing top-of-slope berms or v-ditches, terrace drains, and other surface runoff control measures; and designing slopes at lower inclinations.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for ensuring that the project design includes specifications for appropriate placement of fill.	
Mitigation Measure GEO-8: Assess the Presence of Highly Organic Soils. For projects that would result in a significant or potentially significant risk to structures because of the presence of highly organic soils, the lead agencies shall require a geotechnical evaluation before construction to identify measures to mitigate organic soils. The following measures may be considered: • Over-excavation and import of suitable fill material. • Structural reinforcement of constructed works to resist deformation. • Construction of structural supports below the depth of highly organic soils into materials with suitable bearing strength.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for ensuring a geotechnical evaluation is prepared to address and mitigate organic soils.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Mitigation Measure GEO-9: Conduct a General Project-Level Analysis. Restoration projects implemented by other public proponents under the Order would be required to do a desktop search on whether the project site would be located in a paleontological sensitive unit. If the project site was determined to be located on a paleontological sensitive unit, then Mitigation Measure GEO-9 (and Mitigation Measure GEO-10, below, as applicable) would be implemented. If restoration projects implemented under the Order fall outside a paleontological sensitive unit, GEO-9 (and Mitigation Measure GEO-10, below) would be not required. During project development and project-level analysis, a paleontological resource monitoring and recovery plan shall be developed and implemented for all actions determine by the project proponent to be located on a paleontological sensitive unit. The plan shall include protocols for paleontological resources monitoring in areas where construction-related excavation would affect sediment with moderate to high paleontological sensitivity. The paleontological resource monitoring and recovery plan shall provide guidelines for the establishment of a yearly or biannual monitoring program led by a qualified paleontologist to determine the extent of fossiliferous sediment being exposed and affected by erosion and determine whether paleontological resources are being lost. If the loss of scientifically significant paleontological resources is documented, then a recovery program should be implemented.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for ensuring compliance with this measure. A qualified paleontologist is responsible for developing the paleontological resource monitoring and recovery plan.	
Mitigation Measure GEO-10: Conduct Worker Training. For projects that are determined to have moderate to high paleontological sensitivity, before the start of any ground-disturbing activity (e.g., excavation or clearing), a qualified paleontologist shall prepare paleontological resources sensitivity training materials for use during project worker environmental training or equivalent. This training shall be conducted by a qualified environmental trainer under the supervision of the	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for ensuring compliance with this measure. A qualified paleontologist is responsible for developing the training	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
qualified paleontologist. For restoration projects that involve construction crew phases, additional trainings shall be conducted for new construction personnel. The paleontological resource sensitivity training shall focus on the types of resources that could be encountered within the individual restoration project site and the procedures to follow if they are found. Project proponents and/or project contractors shall retain documentation demonstrating that all construction personnel attended the paleontological resource sensitivity training before the start of work on the site and shall provide documentation to the project manager upon request.			materials and conducting the worker training.	
GREENHOUSE GAS EMISSIONS				
Statewide Order EIR				
Mitigation Measure AIR-3: Minimize GHG Emissions. Restoration projects permitted under the Order shall implement the GHG mitigation measures listed in the most recent air district guidance documents (e.g., CAPCOA 2010; BAAQMD 2011), as appropriate for the project site and conditions. Current versions of such guidance documents list the following for construction of projects: • Use alternative fuels for construction equipment. • Use electric and hybrid construction equipment. • Limit construction equipment idling beyond regulatory requirements. • Institute a heavy-duty off-road vehicle plan. • Implement a construction vehicle inventory tracking system. • Use local building materials for at least 10 percent of total materials. • Recycle or reuse at least 50 percent of construction waste or demolition materials. In addition, the California Attorney General's Office has developed a list of measures and strategies to reduce GHG emissions at the individual project level. As appropriate, the measures can be	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
included as design features of a restoration project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees). The measures are examples; the list is not intended to be exhaustive. The following are best management practices to consider and implement (as applicable) during design, construction, and O&M of project facilities. Transportation and Motor Vehicles • Limit idling time for commercial vehicles, including delivery and construction vehicles. • Use low- or zero-emission vehicles, including construction vehicles. • Institute a heavy-duty off-road vehicle plan and a construction vehicle inventory tracking system for construction projects. • Promote ridesharing. • Provide the necessary facilities and infrastructure to encourage the use of low- or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations). • Provide a shuttle service to public transit/work sites. • Provide information on all options for individuals and businesses to reduce transportation-related emissions. SmartWay Truck Efficiency This strategy involves requiring existing trucks/trailers to be retrofitted with the best available "SmartWay Transport" and/or CARB-approved technology. Technologies that reduce GHG emissions from trucks include devices that reduce aerodynamic drag and rolling resistance. Aerodynamic drag may be reduced using devices such as cab roof fairings, cab side gap fairings, cab side skirts, and on the trailer side, skirts, gap fairings, and trailer tail. Rolling resistance can be reduced using single wide tires or				

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
low-rolling resistance tires and automatic tire inflation systems on both the tractor and the trailer. Tire Inflation Program The strategy involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications. Blended Cements The strategy to reduce CO2 emissions involves the addition of blending materials such as limestone, fly ash, natural pozzolan, and/or slag to replace some of the clinker in the production of Portland cement. Anti-Idling Enforcement The strategy guarantees emissions reductions as claimed by increasing compliance with anti-idling rules, thereby reducing the amount of fuel burned through unnecessary idling. Measures include enhanced field enforcement of anti-idling regulations, increased penalties for violations of anti-idling regulations, and restriction on registrations of heavy-duty diesel vehicles with uncorrected idling violations.				
HAZARDS AND HAZARDOUS MATERIALS				
2016 Program EIR				
Mitigation Measure 3.2-1: Procedures to Prevent Contamination from Construction Equipment. In order to prevent contamination from vehicle or equipment leaks during Project activities, the Project Applicant shall implement the following actions: • Vehicles shall be maintained and operated in a leak-free condition. • Project vehicles shall not park or stored on impervious surfaces. • No fueling or maintenance of vehicles or equipment shall occur in the channel or floodplain. The exception would be if	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
equipment that cannot be readily relocated (e.g., pumps and generators). • All off-site fueling sites (e.g., on access roads above the top-of-bank) shall be equipped with secondary containment and avoid a direct connection to underlying soil, surface water, or the storm drainage system. • For any stationary equipment (e.g., pumps and generators) that must be fueled on-site, secondary containment, such as a drain pan, drop cloth or booms, shall be provided in such a manner to prevent accidental spill of fuels to underlying soil, surface water, or the storm drainage system. • Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials shall not be allowed to enter receiving waters or the storm drainage system. • Waste disposal containers shall be covered when they are not in use.			implementing this measure.	
Mitigation Measure 3.7-1: Procedures if Hazardous Materials Discovered. If evidence of hazardous materials is discovered during Project activities, the Applicant shall notify the appropriate County Environmental Health Services. The Applicant shall test and analyze the materials following proper protocols to determine the presence of hazardous substances prior to making arrangements for off-site reuse/recycling or disposal. Testing shall be performed according to one of the following methods: • The method recommended by the County Environmental Health Services in the county in which the materials are located. • If the County Environmental Health Services does not specify a method, then the potentially hazardous material shall be tested as follows: o Conduct representative sampling of the material in accordance with procedures specified in Section One of "Test	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	

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Methods for Evaluating Solid Waste, Physical/Chemical Methods" SW-846, 3rd Edition, US EPA. o Arrange for testing of the material by a laboratory following the analytical procedures outlined in CCR Title 22, Division 4.5. The laboratory performing the testing shall be certified to perform the specific waste analysis by the State of California Department of Environmental Health. o Deliver samples to the testing laboratory with a "Chain of Custody" type document which indicates the sample type, date and time sample was taken, sample size, source of the waste, quantity of the waste, the type of sample container, place and address of collection, and the name and signature of collector. • If testing indicates the presence of contamination, then the contaminated materials shall be excavated and disposed of in a permitted off-site disposal facility prior to completion of construction.				
Mitigation Measure 3.7-2: Fire Prevention Measures. The following fire prevention measures shall be implemented: • All earthmoving and portable equipment with internal combustion engines shall be equipped with spark arrestors. • Work crews shall have appropriate fire suppression equipment available at the work site. • On days when the fire danger is high and a burn permit is required (as issued by the Yolo-Solano Air Quality Management District), flammable materials, including flammable vegetation slash, shall be kept at least 10 feet away from any equipment that could produce a spark, fire, or flame.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	
Statewide Order EIR				
Mitigation Measure HAZ-1: Prepare and Implement a Health and Safety Plan and Provide Qualified Oversight of Fill Removal Related to Earthmoving Activities. The following measures shall	Include measure as Condition of Approval.	Prior to and during construction.	SCWA is responsible for preparing the Health and Safety Plan and for	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
be implemented before and during construction of any restoration project permitted under the Order: A health and safety plan for the project shall be developed and implemented. This plan shall clearly notify all workers of the potential to encounter hazardous materials during ground-disturbing work and other construction activities. The plan shall identify proper handling and disposal procedures for contaminants expected to be on-site and shall provide maps and phone numbers for local hospitals and other emergency contacts. Construction workers shall comply with all protocols outlined in the health and safety plan throughout project implementation. Any hazardous materials being stored in the project area and not needed for construction activities shall be removed and disposed of at appropriately permitted locations before construction. A qualified professional (e.g., geologist or engineer) shall oversee fill excavation activities and work in potential project areas that contain abandoned underground storage tanks requiring removal, to properly identify any contaminated soils that may be present. Excavation of underground storage tanks must comply with county ordinances and policies. If contaminated soils are found, Mitigation Measure HAZ-2 shall be implemented.	Implementation actions are outlined in the measure.		ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure HAZ-2: Notify Appropriate Federal, State, and Local Agencies If Contaminated Soils Are Identified, and Complete Recommended Remediation Activities. The following measures shall be implemented before construction of any restoration project permitted under the Order if contaminated soils are found on the project site: • The appropriate federal, state, and local agencies shall be notified if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater) is encountered during construction activities. Any contaminated areas shall be cleaned up in accordance with the	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for notifying the appropriate agencies and preparing the site plan for remediation.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
recommendations of the RWQCB, DTSC, or other appropriate federal, state, or local regulatory agencies. • A site plan shall be prepared for the remediation activities appropriate for the proposed land uses, including excavation and removal of on-site contaminated soils, and needed redistributions of clean fill material on the study area. The plan shall include measures to ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the site. If ground-disturbing activities encounter contaminated groundwater, the construction contractor shall report the contamination to the appropriate agencies, dewater the area, and treat the groundwater to remove the contaminants before discharge into the sanitary sewer system. The construction contractor shall comply with the plan and applicable federal, state, and local laws. The plan shall outline specific procedures for handling and reporting of hazardous materials, and for disposing of hazardous materials removed from the site at an appropriate off-site facility.				
Mitigation Measure HAZ-3: Notify Appropriate Federal, State, and Local Agencies If Accidental Discharges of Hazardous Materials. Following an accidental discharge of a reportable quantity of a hazardous material or an unknown material, the appropriate federal, state, and local agencies shall be notified. Any contaminated areas shall be cleaned up in accordance with the recommendations of the RWQCB, DTSC, or other appropriate federal, state, or local regulatory agencies	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for notifying the appropriate agencies and cleaning up hazardous materials in accordance with regulatory requirements.	
Mitigation Measure HAZ-4: Establish Airport Operation Area Buffer Zones. Restoration projects permitted under the Order shall avoid creating hazardous wildlife attractants within a distance of 10,000 feet of a designated Airport Operations Area	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SCWA is responsible for ensuring compliance with this measure.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Mitigation Measure HAZ-5: Coordinate with Applicable Federal, State, and Local Agencies and Districts. Before construction, project proponents implementing restoration projects permitted under the Order shall coordinate with the appropriate federal, state, and local government agencies, districts, and emergency response agencies regarding the timing of construction projects that would occur near the project sites. Specific measures to mitigate potentially significant impacts shall be determined during the interagency coordination, and shall include measures to achieve the following performance standards: • Reduce potential traffic impacts so that no more than 30 trucks per hour will be added to any road (e.g., by scheduling construction truck trips and designating alternate haul routes to disperse truck trips). • Reduce potential traffic safety impacts (e.g., by employing flaggers to manage traffic flow at conflict locations). • Provide outreach and community noticing (e.g., via the web, utility bill inserts, and other methods) for locations where multiple projects will create construction traffic simultaneously.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for coordinating with the appropriate agencies and implementing the necessary measures.	
Mitigation Measure HAZ-6: Prepare and Implement a Vector Management Plan. The following measures shall be implemented by restoration projects permitted under the Order to prevent public health hazards posed by vector habitat as applicable (e.g., restoration projects that result in standing water and are located near populated areas): • Freshwater habitat management shall include management of water control structures, vegetation management, mosquito predator management, drainage improvements, and other best management practices. The agency implementing the restoration project shall coordinate with the California Department of Fish and Wildlife and local mosquito and vector control agencies regarding these strategies and specific techniques to help minimize mosquito production.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SCWA is responsible for ensuring the appropriate vector control measures are implemented as part of the project design.	

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• Permanent ponds shall be maintained to increase the diversity of waterfowl yet decrease the introduction of vectors through constant circulation of water, vegetation control, and periodic draining of ponds. • The project shall avoid ponding in tidal marsh habitat or in areas within the waterside of setback levees. Restoration projects shall be designed with methods to reduce mosquito breeding				
HYDROLOGY AND WATER QUALITY				
2016 Program EIR				
Mitigation Measure 3.1-2: Standards for Modification or Replacement of Storm Drains. In the event roadway or agricultural storm drains need to be modified or replaced as a result of the channel alignment or other Project activities, such modification or replacement will be done in a manner to bring the drain(s) up to current standards. The Project would replace or upgrade the facility to applicable standards in consultation with property owner. Depending on the funding source or location for a given Project activity, the improvements would be conducted be under city, county, state, or federal standards. For drains in Solano County, the Project would rely on the Solano County Public Works specifications. For portions of the Project occurring exclusively within Yolo County (Mace Road to Road 106A Reach and Road 106A to the YBWA) replacement drains would rely on the Yolo County Public Works specifications. In the event that roadway or agricultural storm drains within flood levees need to be modified or replaced as a result of Project activities, such modification or replacement shall be performed in strict consultation with the Central Valley Flood Protection Board (CVFPB) and according to CVFPB standards and requirements.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SCWA is responsible for ensuring the storm drains are replaced consistent with applicable regulations. The Construction Contractor is responsible for implementing this measure.	
NOISE				
Statewide Order EIR				

Table A: Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Mitigation Measure NOISE-1: Minimize Noise Conflicts. The following measures shall be implemented during construction of any restoration project permitted under the Order: • Noise-generating activities shall follow the applicable general plan and/or noise ordinances for the jurisdiction located within the vicinity of the project. • Construction equipment shall be located away from sensitive receptors to the extent feasible, to reduce noise levels below applicable local standards. • Construction equipment shall be maintained to manufacturers' recommended specifications, and all construction vehicles and equipment shall be equipped with appropriate mufflers and other approved noise-control devices. • Idling of construction equipment shall be limited to the extent feasible to reduce the time that noise is emitted. • An individual traffic noise analysis of identified haul routes shall be conducted and mitigation, such as reduced speed limits, shall be provided at locations where noise standards cannot be maintained for sensitive receptors. • The project shall incorporate the use of temporary noise barriers, such as acoustical panel systems, between construction activities and sensitive receptors if it is concluded that they would be effective in reducing noise exposure to sensitive receptors.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure NOISE-2: Minimize Operations and Maintenance Noise Conflicts. The following measures shall be implemented during O&M activities for any restoration project permitted under the Order: • Noise-sensitive receptors in the vicinity of project activities shall be identified and projects shall be designed to minimize exposure of sensitive receptors to long-term, operational noise	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
sources (for example, water pumps) to reduce noise levels below applicable local standards. • The hours of operation at noise generation sources near or adjacent to noise-sensitive areas shall be limited, wherever practicable, to reduce the level of exposure to meet applicable local standards.			responsible for implementing this measure.	
Mitigation Measure NOISE-3: Prepare Preconstruction Safety Plans. To reduce potential impacts on people residing or working in the vicinity of a private airstrip, an airport land use plan, or where such a plan has not been adopted within 2 miles of a public airport or public use airport, construction contracts shall include requirements for the contractor to prepare a construction safety plan. The plan shall be developed before construction activities begin, in collaboration with aviation base personnel, to coordinate construction activities including a schedule, coordination of personnel with aviation radios, and notice requirements. Furthermore, the contractor shall coordinate with emergency service personnel.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance prior to and during construction. The Construction Contractor is responsible for implementing this measure.	
PUBLIC SERVICES				
2016 Program EIR				
Mitigation Measure 3.10-1 Provide Alternate Access to High-Use Recreational Sites. The following measures shall be implemented as feasible to reduce impacts of construction access: • Where feasible, provide alternate trail and creek access where such access would be eliminated due to Project construction. • Stage restoration work in high-use areas to permit continued access to parts of reaches that are not undergoing active construction activities. • Minimize construction work limits. • To the maximum extent feasible, store equipment and soil stockpiles within the active construction zone.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	

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• If necessary, provide alternate access to picnic areas and formal trails/pathways that avoid the active construction zone. • Provide an alternative canoe take out above the Olmo-Hammond-UCD site when boat take-out at that site is interrupted.				
RECREATION				
Statewide Order EIR				
Mitigation Measure REC-1: Minimize Impairment, Degradation, or Elimination of Recreational Resources. If restoration projects permitted under the Order result in the substantial impairment, degradation, or elimination of recreational facilities, replacement facilities of equal capacity and quality shall be developed and installed.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Following construction activities.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure REC-2: Minimize Impacts on Existing Recreational Resources. If a restoration project results in substantial temporary or permanent impairment, degradation, or elimination of recreational facilities that causes users to be directed toward other existing facilities, the project proponent shall coordinate with affected public and private recreation providers to direct the displaced users to underused recreational facilities. The project proponent shall conduct additional operations and maintenance work at existing facilities to prevent them from deteriorating. If possible, temporary replacement facilities shall be provided. If the increase in use is temporary, once use levels have decreased back to existing conditions, the degraded facilities shall be rehabilitated or restored.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for coordinating with other recreation facilities and conducting additional operations and maintenance work, as needed.	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Where impacts on existing facilities are unavoidable, the project proponent shall compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.				
TRANSPORTATION				
Statewide Order EIR				
Mitigation Measure TRA-1: Prepare Construction Traffic Management Plan. Before construction begins, the construction manager shall have a qualified professional prepare a construction traffic management plan. The plan shall provide the appropriate measures to reduce potential traffic obstructions or service level degradation at affected traffic facilities. The scope of the construction traffic management plan will depend on the type, size, and duration of the specific qualifying restoration project under the Order. The plan could include such measures as construction signage, flaggers for lane closures, and construction schedule and/or delivery schedule restrictions. The plan shall be submitted to the local public works department and implemented as appropriate throughout construction.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure TRA-2: Prepare Waterway Traffic Control Plan. A waterway traffic control plan shall be prepared before project construction begins. The plan shall be followed throughout construction to ensure that vessels can navigate safely and efficiently during construction. The plan shall identify vessel traffic control measures to reduce congestion and navigation hazards to the extent feasible. Construction zones in waterways shall be barricaded or guarded by readily visible barriers or other effective measures to warn boaters of their presence and restricted access. Warning devices and signage shall comply with the California Uniform State Waterway Marking System and shall be operational during nighttime hours and periods of dense fog.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure TRA-3: Develop Channel Closure Plan for Affected Facilities. Before construction begins in areas where	Include measure as Condition of Approval.	Prior to construction	SWCA is responsible for incorporating this	

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temporary partial waterway closure is necessary, a temporary channel closure plan shall be developed. The plan shall identify alternative detour routes and procedures for notifying boaters of construction activities and partial closures including coordination with the U.S. Coast Guard, local boating organizations, and marinas. The channel closure plan shall be implemented as appropriate throughout construction.	Implementation actions are outlined in the measure.		measure into contract specifications and for ensuring compliance. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure TRA-4: Reduce Project Effects on Boat Passage and Transit Facilities. To the extent feasible, the following actions shall be implemented to reduce impacts of project construction on boat passage and transit facilities: • To the extent feasible, ensure that safe boat access to public launch and docking facilities, businesses, and residencies is maintained. • Coordinate with transit system operators, as appropriate, to establish alternative transit system routes to be rerouted during construction. • Provide boat passage as an integral component of operable gate facilities and design such facilities to provide uninterrupted boat passage when the gates are in the "up" position. Floating docks with mooring bits shall be provided along the shoreline on both sides of the boat passage facilities for boaters to use while waiting. • Before construction begins in areas where bridge closure may be necessary, develop a traffic plan that identifies traffic control measures to reduce congestion and provide alternative routes.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	During construction activities	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure TRA-5: Minimize Effects on Trails and Bicycle and Pedestrian Circulation and Identify Alternatives. To minimize potential impacts of project construction on trails and	Include measure as Condition of Approval.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance.	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
bicycle and pedestrian circulation, the following actions shall be taken when feasible: • Minimize closure of paths. • Provide for temporary or permanent relocation of the trails and bicycle pedestrian circulation locations to the extent feasible. • Consult with the appropriate public works department to determine the most feasible alignment for facility relocation.	Implementation actions are outlined in the measure.		The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure TRA-6: Reduce Emissions. To comply with State CEQA Guidelines Section 15064.3(b), the following measures shall be taken to reduce effects associated with increased VMT: • Limit idling time for commercial vehicles, including delivery and construction activities. • Use low- or zero-emissions vehicles, including construction vehicles. • Institute a heavy-duty off-road vehicle plan and a construction vehicle inventory tracking system for construction projects. • Promote ridesharing. • Provide the necessary facilities and infrastructure to encourage the use of low- or zero-carbon emissions vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations). • Increase the cost of driving and parking private vehicles, such as by imposing tolls and parking fees. • Provide a shuttle service to public transit and worksites. • Provide information on all options for individuals and businesses to reduce transportation-related emissions.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance. The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure TRA-7: Conduct Routine Inspections. An inspection and operation plan shall be developed and implemented, where applicable. The plan shall include procedures for routine inspections and facility operation to allow safe	Include measure as Condition of Approval.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance.	

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navigation should the facility become damaged or malfunctions. This plan shall include the following specific components: Routine inspections and correction procedures to ensure that facility safety features are in good working order. • Routine inspections and correction procedures for navigational hazards around facilities, including floating or submerged debris and the formation of shoals. • Increase the cost of driving and parking private vehicles, such as by imposing tolls and parking fees. • Provide a shuttle service to public transit and worksites. • Provide information on all options for individuals and businesses to reduce transportation-related emissions.	Implementation actions are outlined in the measure.		The Construction Contractor is responsible for implementing this measure.	
Mitigation Measure TRA-8: Repair Damaged Roadways and Trails Following Construction. If damage to roads, sidewalks, trails, and/or medians occur, the construction contractor shall coordinate with the affected project proponents to ensure that any impacts are adequately repaired in accordance with applicable agency standards. Roads and/or driveways disturbed by construction activities or construction vehicles shall be properly restored to ensure long-term protection of road surfaces. Roadside drainage structures and road drainage features (e.g., rolling dips) shall be protected by regrading and reconstructing roads to drain properly. The construction contractor shall work with the applicable agencies to document preconstruction conditions of road features before the start of construction.	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to and following completion of construction activities.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance. The Construction Contractor is responsible for implementing this measure.	
TRIBAL CULTURAL RESOURCES				
Statewide Order EIR				
Mitigation Measure TCR-1: Conduct Inventory and Significance Evaluation of Tribal Cultural Resources with Tribes that are Culturally and Geographically Affiliated with the Project Vicinity. Before implementation of any project permitted under the Order, the following shall be conducted: consultation with California	Include measure as Condition of Approval.	Prior to construction activities.	SWCA is responsible for consulting with the Native American Tribes and avoiding/mitigating impacts to tribal	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
Native American Tribes pursuant to PRC Section 21080.3; a cultural resources records search; a California Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search; and an inventory and significance evaluation of tribal cultural resources identified that could be impacted by the project. These tasks shall be conducted as follows. • Project proponent shall submit an NAHC SLF & Native American Contacts List Request at the initial stages of project development (or as early as practicable) to determine if a project would have an impact on tribal cultural resources. • Project proponent shall coordinate with the approving Water Board or other CEQA lead agency, if applicable, as soon as possible to identify California Native American Tribes that are traditionally and culturally affiliated to a project area. The CEQA lead agency shall then conduct Tribal consultation, pursuant to PRC Section 21080.3, and as soon as practicable during early design, with such Tribes to determine whether any tribal cultural resources could be affected by the project. Consultation will include discussion regarding project design, cultural resources surveys, identification of tribal cultural resources, protocols for construction monitoring, and any other Tribal concerns. Construction of the project will not commence until the approving Water Board or other CEQA lead agency achieves compliance with the California Environmental Protection Agency Tribal Consultation Protocol (April 2018) and consultation pursuant to PRC Section 21080.3 has been concluded. If potential tribal cultural resources that may be impacted by the project are identified through consultation with California Native American Tribes that are traditionally and culturally affiliated to a project area, the following shall be conducted: o Documentation of any tribal cultural resources identified in the project area which may require additional tasks such as ethnographic research and interviews.	Implementation actions are outlined in the measure.		cultural resources in accordance with tribal recommendations.	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
• If tribal cultural resources are identified in a project area, develop, before project implementation and in coordination California Native American Tribes that are traditionally and culturally affiliated to a project area, an approach for reducing such impacts. If any such tribal cultural resources are on or in the tide and submerged lands of California, this process shall also include coordination with the California State Lands Commission.				
Mitigation Measure TCR-2: Implement Measures to Protect Tribal Cultural Resources during Project Construction or Operation. These measures include, but are not limited to, those outlined in PRC Section 21084.3. If tribal cultural resources or indigenous archaeological resources that may qualify as tribal cultural resources are encountered during project construction or operation of any project permitted under the Order, all activity within 100 feet of the find shall cease and the find shall be flagged for avoidance. The lead agency, a qualified archaeologist, defined as one meeting the U.S. Secretary of the Interior's Professional Qualifications Standards for Archeology, and California Native American Tribes that are traditionally and culturally affiliated to a project area shall be immediately informed of the discovery. The qualified archaeologist and representatives from the notified Native American Tribes shall inspect the discovery and notify the lead agency of their initial assessment. If the lead agency determines, based on recommendations from the qualified archaeologist and California Native American Tribes that are traditionally and culturally affiliated to a project area, that the resource may qualify as a tribal cultural resource (per PRC Section 21074), then the resource shall be avoided if feasible. If avoidance of the resource is not feasible, the lead agency shall consult California Native American Tribes that are traditionally and culturally affiliated to a project area to determine treatment measures to minimize or mitigate any potential impacts on the	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Throughout the construction period.	SWCA is responsible for incorporating this measure into contract specifications, ensuring compliance during construction, and contacting the affiliated Native American Tribes, if a resource is discovered. A qualified archaeologist is responsible for determining the appropriate treatment of the discovery (if necessary). The Construction Contractor is responsible for cooperating with SWCA, and the qualified archaeologist	

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resource pursuant to PRC Section 21083.2 and State CEQA Guidelines Section 15126.4. If any such resources are on or in the tide and submerged lands of California, this process shall also include coordination with the California State Lands Commission. Once treatment measures have been determined, the lead agency shall prepare and implement a tribal cultural resources management plan that outlines the treatment measures for the resource. Treatment measures typically consist of the following steps: • Determine whether the resource qualifies as a tribal cultural resource (per PRC Section 21074) through analysis that could include additional ethnographic research, archaeological investigations, or laboratory analysis. • If it qualifies as a tribal cultural resource (per PRC Section 21074) implement measures for avoiding or reducing impacts such as the following: o Avoid and preserve the resource in place through measures that include but are not limited to the following: ▪ Plan and construct the project to avoid the resource and protect the cultural and natural context. ▪ Plan greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria. o Treat the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, through measures that include but are not limited to the following: ▪ Protect the cultural character and integrity of the resource. ▪ Protect the traditional use of the resource. ▪ Protect the confidentiality of the resource.			if resources are discovered.	

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Mitigation Measure	Implementation Actions	Timing Requirements	Monitoring/Reporting Responsibility	Verified By and Date
o Implement permanent conservation easements or other interests in real property, with cultural appropriate management criteria for the purposes of preserving or using the resource or place.				
UTILITIES AND SERVICE SYSTEMS				
2016 Program EIR				
Mitigation Measure 3.14: Locate and Avoid Buried Pipelines. In accordance with State Government Code Section 4216 et seq. and guidance issued by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA), the Project applicant and excavator will contact the regional notification center at least two working days, but not more than 14 calendar days, prior to commencing that excavation. If practical, the excavator shall delineate the area to be excavated with white paint or other suitable markings. The regional notification center for the Project Area is Underground Service Alert of Northern/Central California and Nevada. Contact shall be made with the regional notification center either by phone by dialing 811 or 1-800-227-2600 or through the center's website at http://usanorth811.org/ (Common Ground Alliance, 2015; USA North 811, 2015). In accordance with Government Code Section 4216.4, if consultation with the regional notification center indicates a Project excavation is near a pipeline, then the excavator shall determine the exact location of the pipeline by excavating with hand tools before using any power-operated or power-driven excavating or boring equipment. However, power-operated, or power-driven equipment may be used for the removal of any existing pavement if there are no subsurface installations contained in the pavement. If documented notice of the intent to use vacuum excavation devices, or power-operated or power-driven excavating or boring equipment has been provided to the pipeline operator, and it is mutually agreeable with the operator and the excavator, the	Include measure as Condition of Approval. Implementation actions are outlined in the measure.	Prior to construction activities.	SWCA is responsible for incorporating this measure into contract specifications and for ensuring compliance during construction. The Construction Contractor is responsible for implementing this measure.	

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excavator may utilize vacuum excavation devices, or power-operated or power-driven excavating or boring equipment within the approximate location of a pipeline. If the exact location of the pipeline cannot be determined by hand excavating, the excavator shall request the pipeline operator to provide additional information, to enable the excavator to determine the exact location of the installation. (The contact phone number of the subsurface installation operator may be obtained from the regional notification center.) In the event Project activities discover damage or cause damage to a pipeline installation, including all breaks, leaks, nicks, dents, gouges, grooves, or other damage, to lines, conduits, coatings, or cathodic protection, the Project applicant and excavator shall immediately notify the pipeline operator. If a pipeline is damaged and the operator cannot be contacted, the excavator shall call 911 emergency services.				