Rector Reservoir Bypass Valve Project

Draft Environmental Impact Report

CEQA Lead Agency:

California Department of Veterans Affairs

And

California Department of General Services
Real Estate Services Division

July 2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Draft
Environmental Impact Report

Rector Reservoir Bypass Valve Project

Napa County, California

SCH No. TBD

CEQA Lead Agency:

California Department of Veterans Affairs

1227 O Street
Sacramento, California 95814

And

California Department of General Services
Real Estate Services Division

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July 2021

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ES-1 EXECUTIVE SUMMARY

ES-1.1 INTRODUCTION

This Executive Summary has been prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123(b), which states that an Environmental Impact Report (EIR) should contain a brief summary of the proposed project and its consequences, and should identify the following:

1. Each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect;
2. Areas of public controversy known to the lead agency, including issues raised by the agencies and the public; and
3. Issues to be resolved, including the choice among alternatives and how to mitigate the significant effects.

The California Department of Veterans Affairs (CalVet) operates Rector Dam and Reservoir to supply drinking water to the Veterans Home of California in Yountville, the Napa State Hospital, the California Department of Fish and Wildlife's (CDFW) Bay-Delta Region office, the Town of Yountville, and several local wineries. CalVet also supplies untreated water to the CDFW Silverado Fisheries Base (Fisheries Base), which includes a hatchery located along Rector Creek downstream of the dam, and to the California Department of Forestry and Fire Protection (CAL FIRE) training facility, located at the base of Rector Dam. Rector Dam is located on Rector Creek, approximately 2.5 miles northeast of the Town of Yountville on Silverado Trail, in Napa County between Napa and St. Helena. Rector Creek crosses Silverado Trail approximately 700 feet downstream of the dam's spillway. Vehicle access to the reservoir and the water treatment plant (WTP) is through the gate at 7300 Silverado Trail.

The State Water Resources Control Board License to operate Rector Dam does not include specific instream flow release requirements; however, California Fish and Game Code 5937 requires the owner or operator of any dam to allow sufficient flow to pass through or over the dam to keep fish downstream of the dam in good condition. The proposed project (Project) addressed in this Draft EIR (DEIR) would implement an interim schedule for minimum environmental releases to Rector Creek below Rector Dam to meet Code 5937 requirements. To facilitate these releases, CalVet proposes to construct new facilities below Rector Dam to convey, monitor and release stored water from the reservoir to Rector Creek. These facilities include a bypass valve at the base of Rector Dam and a raw water pipeline connecting the valve to a proposed outfall structure on Rector Creek downstream of the dam. A detailed description of the proposed interim environmental release schedule and proposed facilities construction and operation is presented in Section 2 of this DEIR.

CalVet with support from the California Department of General Services/Real Estate Services Division (DGS/RESD) will serve as the CEQA Lead Agency for this Project. An Initial Study was conducted to determine the Project's potential for any significant environmental impacts. Based in part on the results of that study, CalVet determined preparation of an Environmental Impact Report (EIR) was appropriate to meet its obligation for environmental review under CEQA. A Notice of Preparation (NOP) for the EIR was circulated for public review, along with the Initial Study, in July 2020. CEQA requires that the Lead Agency consider the information contained in the EIR prior to taking any discretionary action on the Project. This DEIR may also be used by other public agencies that must make discretionary actions related to the Project.

ES-1.2 PROJECT LOCATION AND SETTING

Rector Creek Dam and Reservoir are located at approximately 38°26'28.91"N, 122°20'50.85"W at the base of the Howell Mountains in Napa County (see Figure ES-1). As noted, the dam and reservoir are approximately 2.5 miles northeast of the Town of Yountville on Silverado Trail, in Napa County between Napa and St. Helena.

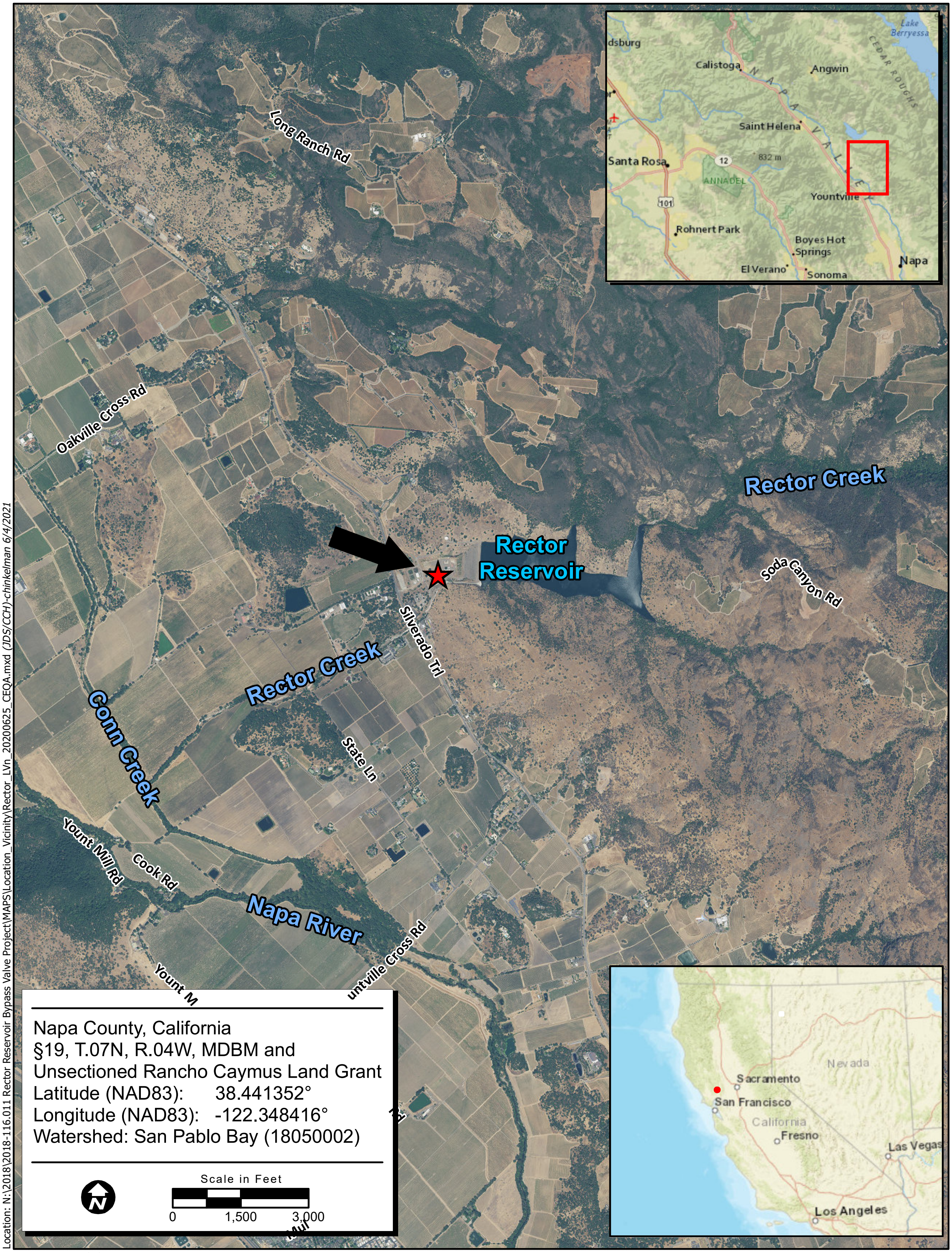
Three main tributaries contribute to Rector Reservoir storage: North Fork Rector Creek; mainstem Rector Creek and South Fork (known locally as LeRette Creek). The drainage area contributing to Rector Reservoir encompasses about 11 square miles or roughly 6,971 acres (Barber 2017). The watershed boundary around Rector's contributing drainage area extends upstream easterly 4.7 miles to Atlas Peak Mountain. Rector Canyon is steep and narrow and is bounded by the wide plateau, which continues to be developed for wine grape agriculture. Rector Creek, downstream of the dam, runs west to its confluence with Conn Creek, a tributary to the Napa River approximately 1.7 miles downstream of Rector Dam.

Proposed Project facilities, i.e., the bypass valve, 12-inch-diameter water pipeline, Rector Creek outfall structure, underground electrical/communications conduit, and Rector Creek erosion control measures, would be constructed immediately downstream of Rector Dam on CalVet property (see Figure ES-2). A CAL FIRE training facility and the reservoir water treatment plant are immediately north and west of the Project site. A Department of Fish and Game facility (CDFW Fisheries Base) is also further west, on the west side of Silverado Trail. The Napa County Yountville Maintenance Facility is located southwest of the Project site on both sides of Rector Creek just east of Silverado Trail. There are a number of vineyards and wineries in close proximity to the Project site including Vine Cliff Winery to the north, Vyborny Vineyard Management to the west, Perata Vineyard and Paraduxx to the southwest, and Gemstone Vineyard and Clos Valmi to the south. Numerous other vineyards are located north and south of the Project site along Silverado Trail.

ES-1.3 PROJECT SUMMARY

As noted above and shown in Figure ES-2, Project facilities to be constructed include a bypass valve, 12-inch-diameter water pipeline, Rector Creek outfall structure, underground electrical/communications conduit, and Rector Creek erosion control measures. Specifically, the key components of the proposed Project include the following:

- Diversion pipeline to convey water from the existing 30-inch water line at the base of Rector Dam to the proposed bypass valve and from the bypass valve to Rector Creek;
- Bypass valve and flow meter;
- Underground electrical line and conduit between the bypass valve and CalVet WTP;



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Map Date: 6/4/2021

Sources: ESRI, National Geographic, NAIP (2018)

Figure ES-1. Project Location and Vicinity

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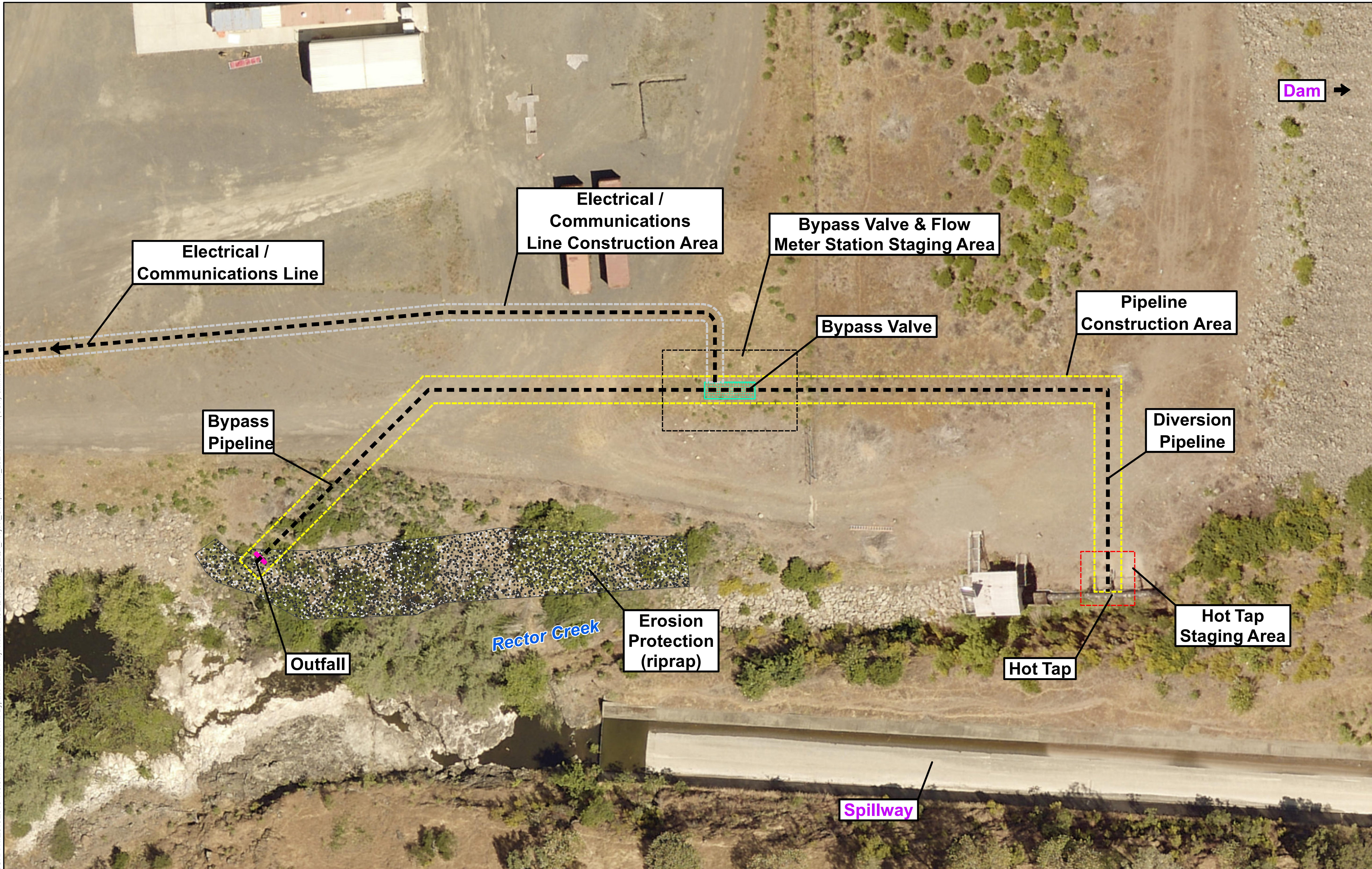
2018-116.011 Rector Reservoir Bypass Valve Project



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Map Date: 4/30/2021 Photo Source: USGS Topo; ESRI Base Imagery

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Scale in Feet
0 40

Figure ES-2. Project Components

2018-116.011 Rector Reservoir Bypass Valve Project

- Twelve-inch-diameter underground water pipeline between the bypass valve and proposed Rector Creek outfall; and
- Rector Creek outfall structure at the terminal end of that pipeline in Rector Creek and streambank erosion controls.

Upon completion of the bypass valve facilities described above, CalVet will implement minimum environmental releases to Rector Creek in accordance with the recommendations presented in the *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment* (see *Appendix 3.3-C* of this DEIR) prepared by Stillwater Sciences and dated July 2019. The data, considerations and methodology used in the development of the interim flow schedule recommendations are described in detail in that report and summarized in Sections 2.7.1 and 2.7.2 of this DEIR. The interim release schedule to be implemented by the Project is shown in Table ES-1 below:

Table ES-1. Proposed interim environmental flow release schedule for outflows below Rector Creek Dam

Water-Year Type1	Minimum Environmental Flow Releases2 (cfs)														
	Oct	Nov	Dec 1-15	Dec 16-31	Jan	Feb 1-15	Feb 16-30	Mar 1-15	Mar 16-31	Apr	May	Jun	Jul	Aug	Sep
Wet	0.8	0.8	1.5	2.5	3.5	4.0	4.0	4.5	4.5	2.5	2.5	1.0	0.8	0.8	0.8
Above Normal	0.7	0.7	1.3	1.3	3.5	4.0	4.0	4.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Below Normal	0.7	0.7	1.3	1.3	2.5	2.5	4.0	3.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Dry	0.25	0.50	1.0	1.0	2.0	2.5	2.5	3.0	3.0	2.5	1.5	1.0	0.25	0.25	0.25
Critical	0.25	0.50	1.0	1.0	2.0	2.2	2.2	2.8	2.8	2.5	1.0	0.5	0.25	0.25	0.25

Note: Flows shown shaded in blue represent the increased flow levels for winter and spring migration and spawning. These proposed interim flows reflect the combined releases through both the proposed bypass and the CDFW Fisheries Base.

In developing the interim release schedule presented above, Stillwater Sciences noted that multiple data limitations related to hydrology, fish condition, and instream flow conditions were encountered in the modeling of the reservoir storage and the development of the interim release schedule flows. These data limitations need to be addressed to better quantify the available water for releases downstream of Rector Reservoir and ultimate benefit to fisheries resources. Additional long-term studies are currently ongoing to provide these data. Upon completion of these studies, a permanent environmental flow schedule will be proposed, at which time supplemental environmental review may be conducted if warranted.

ES-1.4 PROJECT OBJECTIVES

CEQA Guidelines Section 15124(b) requires that an EIR provide a description of the basic objectives of the proposed project and includes the following reasoning:

> (b) A statement of the objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project and may discuss the project benefits.

With implementation of the Project, CalVet seeks to develop a flow regime with two stated objectives:

1. Compliance Goal: To allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition, and prevent unlawful take of federally or state designated protected species; and

2. Water Management Goal: To maintain the other purposes of the dam's operations while accomplishing the Compliance Goal, specifically to reduce or avoid adverse water supply impacts to all lawful users of water sourced from Rector Creek that may result from environmental flow releases.

ES-1.5 PROJECT ALTERNATIVES

CEQA requires an evaluation of the comparative effects of a reasonable range of alternatives to the Project that would feasibly attain most of the project's basic objectives and that would avoid or substantially lessen any of the significant impacts of the Project. For purposes of this DEIR, three alternatives to the Project, including the No Project Alternative, were selected for detailed analysis. In addition, several other alternatives were considered but eliminated from further analysis as allowed under CEQA.

The alternatives selected for comparative analysis in this EIR include the following and each is described below:

- No Project Alternative;
- Alternative 1: Alternate Pipeline Alignment and Outfall Location; and
- Alternative 2: Enhanced Interim Environmental Release Schedule.

ES-1.6 INITIAL STUDY AND PROJECT SCOPING

ES-1.6.1 NOP/Initial Study

In accordance with CEQA Guidelines Section 15082, CalVet circulated an NOP for the EIR and Project Initial Study for public review for a period of 30 days beginning on July 1, 2020. The documents were distributed to responsible agencies and stakeholders, and the review period concluded on July 31, 2020. The State Clearinghouse number assigned to the Project is SCH No. 2020070017.

The Initial Study determined that the Project would have a less than significant impact or no impacts on the following Initial Study impact areas:

Aesthetics	Public Services
Agriculture and Forest Resources	Recreation
Land use and Planning	Transportation
Mineral Resources	Utilities (except for water facilities and water supply)
Population and Housing	Wildfires

The NOP and Initial Study are provided in *Appendix 1.1-A* of this DEIR.

ES-1.6.2 Scoping Meeting

On July 21, 2020, DGS/RESD held an online scoping meeting from 6:00 p.m. to 8:00 p.m. in order to allow early public/agency input and comments about the Project, Initial Study, and future environmental review. DGS/RESD and the Project's environmental consultant (ECORP Consulting, Inc.) presented a description of the Project and an overview of the upcoming environmental review process. During the scoping session, no attendees signed in and no comments from the public were presented.

ES-1.7 AREAS OF CONTROVERSY

CEQA requires the EIR to identify areas of controversy or public interest. As noted, an NOP for this DEIR was circulated for review on July 1, 2020 to Responsible and Trustee Agencies, the State Clearinghouse, and other interested parties for a 30-day scoping period. One comment letter on the NOP/Initial Study was received during the review period. That letter was submitted by the CDFW (Bay-Delta Region) and is included in *Appendix 1.1-A* of this DEIR. In summary, concerns presented in the letter included the following issues related to project facilities construction activities:

- Maintenance of minimum flows in Rector Creek during Project construction;
- Potential for "take" (California Fish and Game Code, § 86) of special-status species;
- Locations and acreage of encroachment into riparian habitat and other sensitive areas;
- Loss or modification of breeding, nesting, dispersal and foraging habitat, including vegetation removal, alteration of soils and hydrology, and removal of habitat structural features (e.g., snags, roosts, overhanging banks);
- Permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic, or human presence; and

- Impacts to rare and special-status plant species and their habitat.

CDFW also recommended that the DEIR address the following concerns regarding long-term project operations, specifically, the implementation of the proposed interim reservoir release schedule:

- How will adequate flows be maintained to CDFW's Silverado Fisheries Base (SFB) to avoid interruptions?
- How will habitat between the dam and Silverado Fisheries Base be affected by the Project?
- How will CalVet ensure that the Project will not have an adverse impact on existing water demands and priorities for the use of Rector Reservoir water?

ES-1.8 ISSUES TO BE RESOLVED BY THE LEAD AGENCY

The major issues to be resolved by CalVet as Lead Agency include the following:

- Whether the Draft EIR adequately describes the environmental impacts of the Proposed Project;
- Whether the recommended mitigation measures should be modified/adopted;
- Which among the Proposed Project and its Alternatives should be selected for approval.

ES-1.9 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table ES-2 presents a summary of environmental impacts analyzed in this Draft EIR, the mitigation measures proposed for those impacts (if required), and the level of significance after mitigation.

Table ES-2. Summary of Impacts and Mitigation Measures

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
NI = No Impact, S=Significant, LTS = Less than Significant, SU = Significant and Unavoidable, LCC = Less Than Considerable Contribution to Cumulative Impacts, CC = Cumulatively Considerable			
Air Quality			
Impact 3.2-1: The Project could conflict with or obstruct implementation of an applicable air quality plan.	NI	None required	NI
Impact 3.2-2: Implementation of the Project could result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	LTS	None required	LTS
Impact 3.2-3: Implementation of the Project could expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs).	LTS	None required	LTS
Impact 3.2-4: Implementation of the Project could result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	NI	None required	NI
Impact 3.2-5: Implementation of the Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard.	LCC	None required	LCC
Biological Resources			
Impact 3.3-1: Project construction activities could adversely affect, either directly or through habitat modifications, species	S	**BIO-1:** ***Protect Water Quality and Minimize Sedimentation Runoff in Wetland and Non-Wetland Waters***	LTS

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
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identified as a candidate, sensitive, or special-status wildlife species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.		CalVet and its contractors shall ensure that the Project will comply with all construction site BMPs specified in the Storm Water Pollution Prevention Plan (if required) and/or Mitigation Measure HYD-1 to minimize the introduction of construction-related contaminants and mobilization of sediment in wetlands and non-wetland waters in and adjacent to the Project Study Area. These BMPs shall address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-stormwater management, and waste management practices. The BMPs shall be based on the best conventional and best available technology. **BIO-2:** ***Install Fencing and/or Flagging to Protect Sensitive Biological Resources*** Prior to construction, CalVet and its contractor shall install high-visibility orange construction fencing and/or flagging, as appropriate, along the perimeter of the work area where adjacent to Environmentally Sensitive Areas (e.g., any special-status species habitat and/or active bird nests that may be identified during per-construction surveys). CalVet shall ensure that the final construction plans show the locations where fencing will be installed. The plans also will define the fencing installation procedure. CalVet and the contractor (at the discretion of CalVet) shall ensure that fencing is maintained throughout the duration of the construction period. If the fencing is removed, damaged, or otherwise compromised during the construction period, construction activities will cease until the fencing is repaired or replaced. Project construction specifications shall provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within Environmentally Sensitive Areas. All temporary fencing shall be removed upon completion of construction. **BIO-3:** ***Conduct Environmental Awareness Training for Construction Personnel*** Before any work occurs within the project limits, including equipment staging, grading, and tree and/or vegetation removal (clear and grub), CalVet and its contractors shall retain a qualified biologist (familiar with the resources in the area) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training shall be provided to all construction personnel (contractors and subcontractors) prior to beginning	

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		construction to brief them on the need to avoid effects on sensitive biological resources adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist shall inform all construction personnel about the life history and habitat requirements of special-status species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of any resource agency permit or approval. The environmental training shall also cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction. **BIO-4:** ***Conduct Preconstruction Surveys for California Red-legged Frog and Mitigate Impacts*** CalVet and its contractors shall retain a qualified biologist to conduct a CRLF assessment according to the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005). The USFWS will provide guidance, based on the initial assessment, whether field surveys are appropriate, where the field surveys should be conducted, and whether incidental take authorization should be obtained through Section 7 consultation or a Section 10 permit pursuant to the ESA. **BIO-5:** ***Conduct Preconstruction "Clearance" Surveys for Foothill Yellow-Legged Frog and Mitigate Impacts*** CalVet and its contractors shall retain a qualified biologist to perform a preconstruction survey within 24 hours prior to the initiation of construction to confirm the site is clear of FYLF. Should FYLF be detected during survey, and impacts cannot be avoided or minimized, a qualified biologist with a scientific collecting permit shall relocate frogs to suitable nearby habitat that would not be disturbed by Project construction. **BIO-6:** ***Conduct Northwestern Pond Turtle Surveys and Mitigate Impacts*** CalVet and its contractors shall retain a qualified biologist to conduct a pre-construction Northwestern pond turtle survey within 24 hours prior to the initiation of construction activities and retain a qualified biologist to survey immediately prior to ground-disturbing activities in suitable habitat. If Northwestern pond turtle is	

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		found, consultation with CDFW shall be undertaken and a relocation plan shall be developed for Northwestern pond turtle encountered during construction. **BIO-7:** ***Conduct Vegetation Removal during the Non-breeding Season, Conduct Preconstruction Surveys for Nesting Migratory Birds, other Special Status Birds and Raptors and Avoid Impacts*** CalVet and its contractors shall conduct vegetation removal, where required to construct project features, during the non-breeding season for migratory birds and raptors (generally between September 16 and January 31) to the extent feasible. For Project activities that begin between February 1 and September 15, including tree and other vegetation removal, CalVet and its contractors shall retain a qualified biologist to conduct preconstruction surveys for white-tailed kite and other raptors to identify active nests on and within 500 feet of the Project site. For other special status birds and/or other nesting migratory birds, a qualified biologist shall conduct preconstruction nesting bird surveys on and within 100 feet of the Project site. These surveys shall be conducted within 14 days before the beginning of any construction activities between February 1 and September 15. CalVet and its contractors shall avoid impacts to active raptor nests and any special-status bird and MBTA bird nests by establishing appropriate buffers around nests identified during preconstruction surveys; buffers shall be determined by a qualified biologist in consultation with CDFW. Project activity shall not commence within the buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. The size of the buffer may be adjusted if a qualified biologist and CalVet, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during construction activities may be necessary. **BIO-8:** ***Conduct Preconstruction Special Status Mammal Surveys for Roosting Bats and Implement Protection Measures*** CalVet and its contractors shall retain a qualified wildlife biologist to conduct bat roost surveys within 14 days before any tree removal or clearing. Locations of	

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		vegetation and any required tree removal or excavation shall be examined for potential bat roosts. Specific survey methodologies shall be determined in coordination with CDFW, and may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (e.g., SonoBat, Anabat). Removal of any significant roost sites located onsite shall be avoided if feasible. If it is determined that an active roost site cannot be avoided and will be affected, bats shall be excluded from the roost site before the site is removed. The biologist shall first notify and consult with CDFW on appropriate bat exclusion methods and roost removal procedures. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Once it is confirmed that all bats have left the roost, crews will be allowed to continue work in the area.	
Impact 3.3-2: The Project could affect riparian habitat or sensitive natural communities.	S	***Implement Mitigation Measures BIO-2 and BIO-3 presented above.*** **BIO-9 Compensate for the Loss of Riparian Habitat and Restore Temporary Disturbed Areas** To compensate for the permanent loss of riparian habitat communities, prior to construction, CalVet shall purchase habitat credits at an agency approved mitigation bank to ensure no net loss of riparian functions and values. To account for temporal loss, the Project shall purchase riparian credits at a 3:1 ratio. The final mitigation ratio and acreage shall be confirmed during review of final engineering drawings and may be modified during the CDFW Section 1602 permitting process which will dictate the ultimate compensation. CalVet shall provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. Alternatively, as part of the CDFW Streambed Alteration Agreement process, CalVet may provide a plan/proposal for CDFW approval to conduct on or offsite riparian habitat creation/enhancement to compensate for the Project's direct riparian impacts. All riparian areas subject to temporary construction disturbance shall be restored by CalVet and its contractors in accordance with a post construction Erosion	LTS

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		Control and Habitat Restoration Plan (ECHRP). The ECHRP shall address all temporarily disturbed areas, be prepared by a qualified biologist, be developed as part of the CDFW Streambed Alteration Agreement process and be reviewed and approved by CDFW prior to implementation.	
Impact 3.3-3: The Project Could require construction and fill within waters of the U.S. and waters of the State.	S	***Implement Mitigation Measures BIO-1, BIO-2, and BIO-3 presented above.***	LTS
Impact 3.3-4: The Project could affect wildlife movement and/or migration.	LTS	None required.	LTS
Impact 3.3-5: The Project would be implemented consistent with the intent of local policies and ordinances associated with protection of biological resources.	LTS	None required.	LTS
Impact 3.3-6: The Project could conflict with HCPs, NCCPs, or other conservation plans.	NI	None required.	NI
Impact 3.3-7: Cumulative Biological Resource Impacts.	CC	None required with implementation of Project mitigation (BIO-1 through BIO-9).	LCC
Cultural Resources			
Impact 3.4-1: Impacts to historical resources.	S	**CUL-1** ***Inadvertent Discovery*** CalVet and its contractors shall implement the following measures. If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to	LTS

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		modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find: If the professional archaeologist determines that the find does not represent a cultural resource, then work may resume immediately, and no agency notifications are required. If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, then he or she shall immediately notify DGS. The agencies shall consult to determine whether the resource is an historical resource or a unique archaeological resource. Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historic Property according to Section 106 or a Historical Resource according to CEQA; or 2) that appropriate treatment measures have been completed to their satisfaction. Appropriate treatment measures are those consistent with CEQA Guidelines Section 15126.4(b) and Public Resources Code Section 21083.2. If any archaeological find that includes Native American or potentially Native American resource that does not include human remains, the archaeologist shall notify the Mishewal-Wappo Tribe of Alexander Valley consistent with Mitigation Measure TCR-1.	
Impact 3.4-2: Impacts to archaeological resources.	S	***Implement Mitigation Measure CUL-1***	LTS
Impact 3.4-3: Impacts to human remains.	S	**CUL-2** ***Human Remains*** CalVet and its contractors shall implement the following measures. If the find includes human remains, or remains that are potentially human, CalVet and its contractors shall retain a professional archaeologist to ensure reasonable protection measures are taken to protect the discovery from disturbance. The archaeologist shall notify the Napa County Coroner (as per § 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 shall be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner shall notify the NAHC, which then will	LTS

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		designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD shall have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If CalVet does not agree with the recommendations of the MLD, then the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, CalVet must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This shall also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located. Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction. This mitigation measure should be carried out consistent with Mitigation Measure **TCR-1.**	
Impact 3.4-4: Project construction and operation could contribute to the cumulative impact on cultural resources.	CC	None required with implementation of Project mitigation measures CUL-1 and CUL-2	LCC
Greenhouse Gas Emissions			
Impact 3.5-1: Implementation of the proposed Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	LTS	None required.	LTS
Impact 3.5-2: Implementation of the proposed Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	NI	None required.	NI
Impact 3.5-3: Result in a considerable contribution to cumulative impacts associated with greenhouse gas emissions.	LCC	None required.	LCC

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
NI = No Impact, S=Significant, LTS = Less than Significant, SU = Significant and Unavoidable, LCC = Less Than Considerable Contribution to Cumulative Impacts, CC = Cumulatively Considerable			
Geology, Soils, and Paleontological Resources			
Impact 3.6-1: The proposed project could result in soil erosion or the loss of topsoil.	S	***Implement Mitigation Measure HYD-1.***	LTS
Impact 3.6-2: Project facilities could be subject to seismic hazards, instability of existing fills, and settlement that could potentially result in future failure of those facilities.	LTS	None required.	LTS
Impact 3.6-3: The project could directly impact a unique paleontological resource during excavation activities.	NI	None required.	NI
Impact 3.6-4: Cumulative geology, soils and paleontological resources impacts.	LCC	None required.	LCC
Hazards and Hazardous Materials			
Impact 3.7-1: The Project would require the transport, storage and use of hazardous materials common for such activities and could result in their inadvertent release to the environment.	LTS	None required.	LTS
Impact 3.7-2: Project contribution to the cumulative impact of the transport, handling and storage of hazardous materials.	LCC	None required.	LCC

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
NI = No Impact, S=Significant, LTS = Less than Significant, SU = Significant and Unavoidable, LCC = Less Than Considerable Contribution to Cumulative Impacts, CC = Cumulatively Considerable			
Hydrology and Water Quality			
Impact 3.8-1: The Project could adversely affect water quality during construction by increasing the concentration of pollutants in surface runoff from the Project site, but would not significantly impact water quality during operation.	S	**HYD-1:** ***Prepare and implement a Construction Stormwater Erosion Control Plan and implement construction Best Management Practices (BMPs).*** Should a SWPPP not be required per Mitigation Measure BIO-1, the construction contractor shall submit a Construction Stormwater Erosion Control Plan to CalVet for review and approval. At a minimum, the Construction Stormwater Erosion Control Plan shall include the following erosion prevention BMPs which shall be implemented throughout Project construction: • Diversion of offsite runoff away from the construction area; • Silt containment measures including silt traps, ponds, perimeter straw wattles, silt fences and/or temporary basins shall be implemented onsite to trap sediment before it leaves the site; • Regular sprinkling of exposed soils to control dust during construction during the dry season; • Stockpile management to ensure materials stockpiles are upland of the Rector Creek ordinary high-water mark and contained with straw wattles or other silt containment measures; • Erosion control measures maintained throughout the construction period; • Construction scheduling to minimize soil disturbance during the wet weather season; and • Regular inspections and maintenance BMPs and storm event monitoring.	LTS
Impact 3.8-2: Project outfall construction and operation within the north bank of Rector Creek could result in increased erosion due to alteration of the course of Rector Creek during high flow conditions and or as a result of outfall discharges.	LTS	None required.	LTS

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
NI = No Impact, S=Significant, LTS = Less than Significant, SU = Significant and Unavoidable, LCC = Less Than Considerable Contribution to Cumulative Impacts, CC = Cumulatively Considerable			
Impact 3.8-3: Cumulative Project impact on Rector Creek hydrology and water quality.	LCC	None required.	LCC
Noise			
Impact 3.9-1: The Project could result in short-term construction generated noise in excess of County standards.	LTS	None required.	LTS
Impact 3.9.2: Project construction activities could generate groundborne vibration or groundborne noise levels.	LTS	None required	LTS
Impact 3.9.3: Result in exposing individuals residing or working in the Project area to excessive airport noise levels.	LTS	None required.	LTS
Impact 3.9-4: Result in a considerable contribution to cumulative noise and vibration impacts.	LCC	None required.	LCC
Tribal Resources			
Impact 3.10.1: Project construction could adversely affect tribal cultural resources.	S	**TCR-1** ***Unanticipated Discovery*** CalVet and its contractors shall implement the following measures. If any suspected TCRs or any archaeological find that includes Native American or potentially Native American resource that does not include human remains are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find. DGS, and/or the on-site archaeologist (if applicable) shall notify Mishewal-Wappo Tribe of Alexander Valley. The agencies shall consult with the tribe on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Preservation in place is the preferred treatment, if feasible. Work cannot resume within the no-work radius	LTS

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
NI = No Impact, S=Significant, LTS = Less than Significant, SU = Significant and Unavoidable, LCC = Less Than Considerable Contribution to Cumulative Impacts, CC = Cumulatively Considerable			
		until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to their satisfaction. This shall be carried out in congruence with the process outlined in mitigation measure CUL-1. Human Remains. If the find includes human remains, or remains that are potentially human, the measures outlined in Mitigation Measure CUL-2 shall be followed.	
Impact 3.8.2: Project construction and operation could contribute to cumulative adverse impact on tribal cultural resources.	CC	Implement Mitigation Measure TCR-1	LCC
Utilities and Service Systems: Water Supply			
Impact 3.11-1: The project would construct new water conveyance facilities which could adversely affect environmental resources.	S	Implement all mitigation measures contained in Sections 3.2-3.10 and listed in Table ES-1 above.	LTS
Impact 3.11-2: Implementation of the Proposed Project Release Schedule could result in the inability of CalVet to meet current water delivery commitments to its customers.	LTS	None required.	LTS
Impact 3.11-3: Project construction activities could contribute to the cumulative impact on significant environmental resources.	CC	Implement all mitigation measures contained in Sections 3.2-3.10 and listed in Table ES-1 above.	LCC

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
NI = No Impact, S=Significant, LTS = Less than Significant, SU = Significant and Unavoidable, LCC = Less Than Considerable Contribution to Cumulative Impacts, CC = Cumulatively Considerable			
Impact 3.11-4: Implementation of the Proposed Project Release Schedule could result in the inability of CalVet to meet future water delivery commitments to its customers. Impact Determination: *less than cumulatively considerable with mitigation.*	CC	**UTIL-1** ***Alternate Water Supply to Napa State Hospital.*** In the event that Napa State Hospital pursues a future agreement with CalVet to provide the hospital with up to 500 AF/yr of potable water, CalVet shall assess its water supply availability taking into account its interim or long-term environmental release schedule, whichever is in effect at the time, and its current consumptive water demand from existing customers. If CalVet determines such an agreement would adversely affect Rector Reservoir operations and result in infringement on the conditions of its water rights license and/or its ability to meet the consumptive water demand of its current customers, CalVet shall not enter into a new agreement with Napa State Hospital. CalVet shall then work with the hospital to identify and secure feasible alternative sources of potable water to meet its demand. An alternate water source includes, but, is not limited to, the City of Napa which currently supplies the hospital with potable water.	LCC

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1.0 INTRODUCTION

This Draft Environmental Impact Report (DEIR) identifies and evaluates the environmental impacts associated with the implementation of the Rector Reservoir Bypass Valve Project (Project). Rector Dam is located on Rector Creek on the east side of the Silverado Trail in Napa County near the Town of Yountville, California. Rector Creek flows from the east side of the Napa Valley and is a tributary to Conn Creek, which is a tributary to the Napa River. The State of California built Rector Dam in 1946 and the California Department of Veterans Affairs (CalVet) has operated the dam and reservoir since that time to supply drinking water to the Veterans Home of California in Yountville, the Napa State Hospital, the California Department of Fish and Wildlife's (CDFW) Bay-Delta Region office, the Town of Yountville, and several local wineries. CalVet also supplies untreated water to the CDFW Silverado Fisheries Base (Fisheries Base), which includes a hatchery located along Rector Creek downstream of the dam, and to the California Department of Forestry and Fire Protection (CAL FIRE) training facility, located at the base of Rector Dam. Of these uses, water delivered to the fisheries base is returned to Rector Creek approximately 0.35 mile downstream of the spillway.

The State Water Resources Control Board License to operate Rector Dam does not include specific instream flow release requirements; however, California Fish and Game Code 5937 requires the owner or operator of any dam to allow sufficient flow to pass through or over the dam to keep fish downstream of the dam in good condition.

The Project would construct a bypass valve at the base of Rector Dam and a raw water pipeline connecting the valve to a proposed outfall structure on Rector Creek downstream of the dam. The proposed facilities would allow CalVet to divert and release water directly to Rector Creek for the purpose of maintaining minimum environmental release flows to support Rector Creek fish resources. As part of the Project, CalVet would implement interim minimum release flows through the bypass facilities while additional long-term stream habitat studies are conducted. When those studies are complete, CalVet will implement a permanent schedule for minimum environmental releases to Rector Creek.

CalVet with support from the California Department of General Services/Real Estate Services Division (DGS/RESD) will serve as the California Environmental Quality Act (CEQA) Lead Agency for this Project. An Initial Study was conducted to determine the Project's potential for any significant environmental impacts. Based in part on the results of that study, CalVet determined preparation of an Environmental Impact Report (EIR) was appropriate to meet its obligation for environmental review under CEQA. A Notice of Preparation (NOP) for the EIR was circulated for public review, along with the Initial Study, in July 2020.

1.1 PURPOSE AND USE OF THE EIR

This DEIR was prepared in accordance with CEQA (Public Resources Code [PRC] §§ 21000-21177) and the Guidelines for the Implementation of CEQA (California Administrative Code §§ 15000 et seq.). As described in CEQA Guidelines Section 15121(a), an EIR is a public informational document that assesses the significant environmental impacts of a project, identifies ways to minimize the significant impacts, and describes a reasonable range of alternatives to the project. CEQA requires that an EIR be prepared by the agency with primary responsibility over the approval or carrying out of a project (the lead agency).

CalVet is the lead agency for preparation of this DEIR. Lead agencies are charged with the duty to consider and minimize significant environmental impacts of proposed development, where feasible. CalVet has determined that an EIR is the appropriate CEQA documentation due to the potential for significant environmental impacts that could result from approval of the requested actions and development of the Proposed Project. This DEIR evaluates the existing environmental resources in the area, analyzes impacts on those resources due to the proposed project (particularly as they relate to prior CEQA analyses and clearances), and if necessary, identifies feasible mitigation measures for significant impacts that could avoid or reduce the magnitude of those impacts. This DEIR provides an analysis and evaluation of on- and offsite environmental impacts resulting from the construction and operation of the Project.

1.2 KNOWN TRUSTEE AND RESPONSIBLE AGENCIES

For the purpose of CEQA, the term *trustee agency* means a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of California. In CEQA, the term *responsible agency* includes all public agencies other than the lead agency that may have approval authority in some regard associated with the Project. Interested agencies may have a general interest in the proposal with respect to issues germane to their organization. The CDFW is a trustee agency for the Project. Responsible agencies for the Project include:

- CDFW, Bay-Delta Region
- Regional Water Quality Control Board (RWQCB), Region 5
- Napa County Air Pollution Control District
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)
- State Lands Commission (SLC)

This EIR may also be used by other public agencies to issue approvals and permits related to the Project.

1.3 TYPE OF DOCUMENT

CEQA and the CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR is for a specific development project with defined parameters. As such, this EIR is a "project" EIR. Project EIRs are defined by CEQA Guidelines (Section 15161) as:

> "The most common type of EIR examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from development of the project. The EIR shall examine all phases of the project including planning, construction, and operation."

1.4 INTENDED USE OF THE EIR

This DEIR is intended to evaluate the environmental impacts of constructing and operating the proposed Project. This EIR in its final form will be used by CalVet in considering approval of the Project. CalVet will certify the EIR as adequate under CEQA. CalVet will be responsible for Project approval. In accordance with CEQA Guidelines Section 15126, the EIR will be used as the primary environmental document in consideration of all subsequent planning and permitting actions associated with the Project, to the extent such actions require CEQA compliance and as otherwise permitted under applicable law.

1.5 ENVIRONMENTAL IMPACT REPORT ORGANIZATION

Executive Summary provides a brief summary of the Proposed Project, Project objectives and alternatives, areas of controversy, issues to be resolved by the lead agency, and a summary of impacts and mitigation measures in a table format.

Section 1.0 of the EIR provides an introduction to the Proposed Project, the purpose of the DEIR, a description of the organization of the DEIR, the intended uses of the DEIR, and a description of the public review process.

Section 2.0 provides a description of the Project.

Section 3.0 provides the environmental analysis of the Proposed Project. This includes the description of the regulatory and environmental setting, the analysis of environmental impacts, and a discussion of mitigation measures to avoid or reduce significant impacts.

Section 4.0 discusses the alternatives and environmental impacts of implementing alternatives to the Project.

Section 5.0 addresses the Project’s growth-inducing impacts, and significant irreversible and/or unavoidable impacts.

Section 6.0 provides a list of the DEIR preparers.

Section 7.0 includes a list of acronyms and abbreviations.

1.6 ENVIRONMENTAL REVIEW PROCESS

1.6.1 Notice of Preparation and Initial Study

In accordance with CEQA Guidelines Section 15082, CalVet prepared an NOP of an EIR and Initial Study for the Project that was distributed to responsible agencies and the public for a 30-day comment period, beginning on July 1, 2020, and concluding on July 31, 2020 (State Clearinghouse [SCH] No. 2020070017). Along with the NOP, the Rector Reservoir Bypass Valve Project Initial Study was circulated by CalVet for the 30-day public review period.

The Initial Study determined that the Project would have a less than significant impact or no impacts on the following Initial Study impact areas:

Aesthetics	Public Services
Agriculture and Forest Resources	Recreation
Land use and Planning	Transportation
Mineral Resources	Utilities (except for water facilities and water supply), and
Population and Housing	Wildfires

The NOP and Initial Study are provided in *Appendix 1.1-A*.

Scoping Meeting

On July 21, 2020, DGS/RESD held an online scoping meeting from 6:00 p.m. to 8:00 p.m. in order to allow early public/agency input and comments about the Project, Initial Study, and future environmental review. DGS/RESD and the Project's environmental consultant (ECORP Consulting, Inc.) presented a description of the Project and an overview of the upcoming environmental review process. During the scoping session, no attendees signed in and no comments from the public were presented.

NOP Comments

One comment letter on the NOP/Initial Study was received during the 30-day public review period. That letter was submitted by the CDFW (Bay-Delta Region) and is included in *Appendix 1.1-A* of this DEIR. In summary, concerns presented in the letter included the following issues related to project facilities construction activities:

- Maintenance of minimum flows in Rector Creek during Project construction;
- Potential for "take" (California Fish and Game Code, § 86) of special-status species;
- Locations and acreage of encroachment into riparian habitat and other sensitive areas;
- Loss or modification of breeding, nesting, dispersal and foraging habitat, including vegetation removal, alteration of soils and hydrology, and removal of habitat structural features (e.g., snags, roosts, overhanging banks);
- Permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic, or human presence; and
- Impacts to rare and special-status plant species and their habitat.

CDFW also recommended that the DEIR address the following concerns regarding long-term project operations, specifically, the implementation of the proposed interim reservoir release schedule:

- How will adequate flows be maintained to CDFW's Silverado Fisheries Base (SFB) to avoid interruptions?
- How will habitat between the dam and Silverado Fisheries Base be affected by the Project?

- How will CalVet ensure that the Project will not have an adverse impact on existing water demands and priorities for the use of Rector Reservoir water?

1.6.2 Draft EIR

As noted, CalVet determined that an EIR-level analysis was necessary for certain impact areas for the proposed project. These impact areas include air quality; biological resources; cultural resources; energy; geology, soils and paleontological resources; greenhouse gas emissions and climate change; hydrology and water quality; noise; tribal resources, and utilities (water supply). This DEIR provides this analysis.

This Draft EIR contains a description of the Project, description of the environmental setting, identification of Project direct, indirect, and cumulative impacts on affected environmental resources, and feasible mitigation measures for impacts found to be significant. Upon completion of the DEIR, CalVet will file the Notice of Completion (NOC) with the California Office of Planning and Research (OPR) to begin the public review period (PRC § 21161).

1.6.3 Public Notice/Public Review

Concurrent with the NOC, CalVet will provide public notice of the availability of the DEIR for public review and invite comment from the general public, agencies, organizations, and other interested parties. The public review and comment period will be a minimum 45 days. Notice of the time and location of any public meetings and hearings will be published prior to the meeting/hearing in accordance with applicable law. All comments or questions regarding the Draft EIR should be addressed to:

ECORP Consulting, Inc.
c/o Terry Ash, Senior Environmental Planner, DGS
2525 Warren Drive
Rocklin, CA 95677
Attention: Matteo Rodriquez

or

via email: mrodriquez@ecorpconsulting.com
Subject Line: "Rector Reservoir Bypass Valve Comment"

1.6.4 Response to Comments/Final EIR

Following the public review period, a Final EIR (FEIR) will be prepared. The FEIR will respond to all comments received during the public review period that raise significant environmental concerns and may contain revisions to the DEIR, if necessary. The DEIR, as revised and combined with responses to comments, will constitute the FEIR.

1.6.5 Certification of the EIR/Project Consideration

The CalVet will review and consider the FEIR. If CalVet finds that the FEIR is "adequate and complete," the CalVet would then certify the FEIR. Additionally, upon review and consideration of the FEIR, CalVet may take action to approve, revise, or reject the Project. Any decision to approve the Project would be accompanied by written findings, and if necessary, a Statement of Overriding Considerations, in

Reporting Program (MMRP), as described below, must also be adopted for mitigation measures that have been incorporated into the Project to reduce or avoid significant effects on the environment. The MMRP will be designed to ensure that these measures are enforceable and carried out during Project implementation.

2.0 PROJECT DESCRIPTION

2.1 Project Background

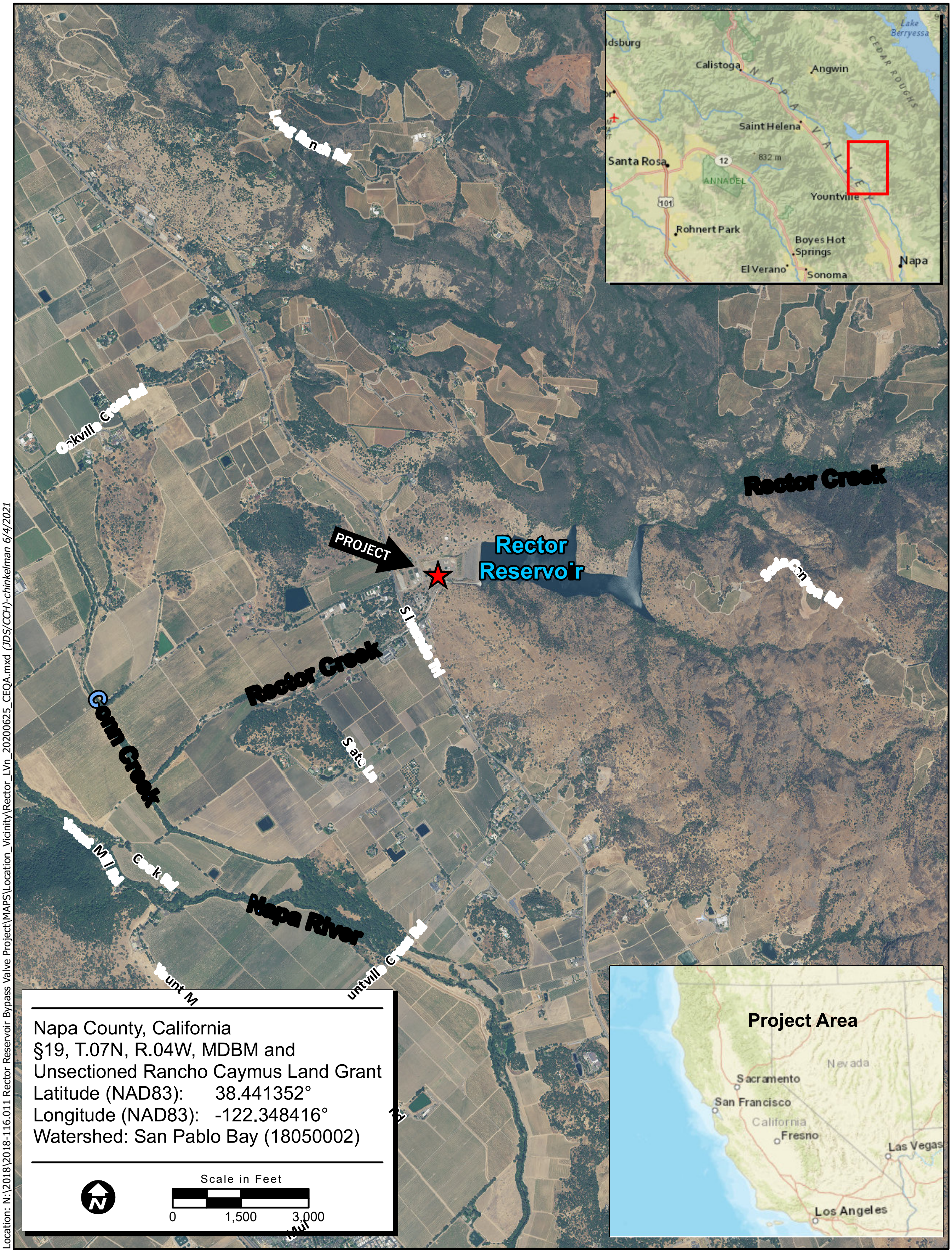
Rector Dam is located on Rector Creek on the east side of the Silverado Trail in Napa Valley near the Town of Yountville, California. Rector Creek flows from the east side of the Napa Valley and is a tributary to Conn Creek, which is a tributary to the Napa River (see Figure 2-1. *Project Location and Vicinity*). The State of California built Rector Dam in 1946 and the California Department of Veterans Affairs (CalVet) has operated the dam and reservoir since that time to supply drinking water to the Veterans Home of California in Yountville, the Napa State Hospital, the CDFW's Bay-Delta Region office, the Town of Yountville, and several local wineries. CalVet also supplies untreated water to the CDFW Silverado Fisheries Base (Fisheries Base), which includes a hatchery located along Rector Creek downstream of the dam, and to the CAL FIRE training facility, located at the base of Rector Dam. (see Figure 2-2. *Aerial View of Project Site and Surrounding Uses*). Water delivered to the Fisheries Base is returned to Rector Creek approximately 0.35 mile downstream of the spillway while water delivered to the other uses listed above are for consumptive purposes (Stillwater Sciences 2019).

The watershed that supplies Rector Reservoir is relatively small (10.7 square miles). Like most other storage reservoirs within California's Mediterranean climate, the reservoir generally fills in the winter and spring, and drains in the summer and fall. Inflow to Rector Reservoir is primarily from the mainstem Rector Creek, which is perennial upstream of the reservoir but intermittent downstream of the dam. Rector Creek extends approximately 1.7 miles downstream of Rector Dam to its confluence with Conn Creek, a tributary of the Napa River.

The stream reach below Rector Dam is accessible to anadromous fish. Additionally, approximately two-thirds of the channel falls within Conservation Lands Network (CLN) "fragmented critical habitat. The CLN identifies Bay Area habitats and linkages needed to meet goals for biodiversity conservation. CLN has identified areas that support irreplaceable, rare, and endemic plant and animal species, while also encompassing common plant and animal species (including vegetation types, stream and riparian networks, and migratory corridors). Fragmented areas are used to denote areas that may hold ecological significance but with substantial land cover conversion activity due to urban, rural residential, and cultivated agricultural uses (Stillwater Sciences 2019).

Neither CalVet's license to operate Rector Reservoir nor its water rights supporting those operations include specific instream flow release requirements. As such, CalVet has never established a year-round schedule of releases to Rector Creek below the dam. This historical practice may be inconsistent with California Fish and Game Code 5937, which states:

> The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam.



Location: N:\2018\2018-116.011 Rector Reservoir Bypass Valve Project\MAPS\Location_Vicinity\Rector_LVn_20200625_CEQA.mxd (JDS/CCH)-chinkelman 6/4/2021

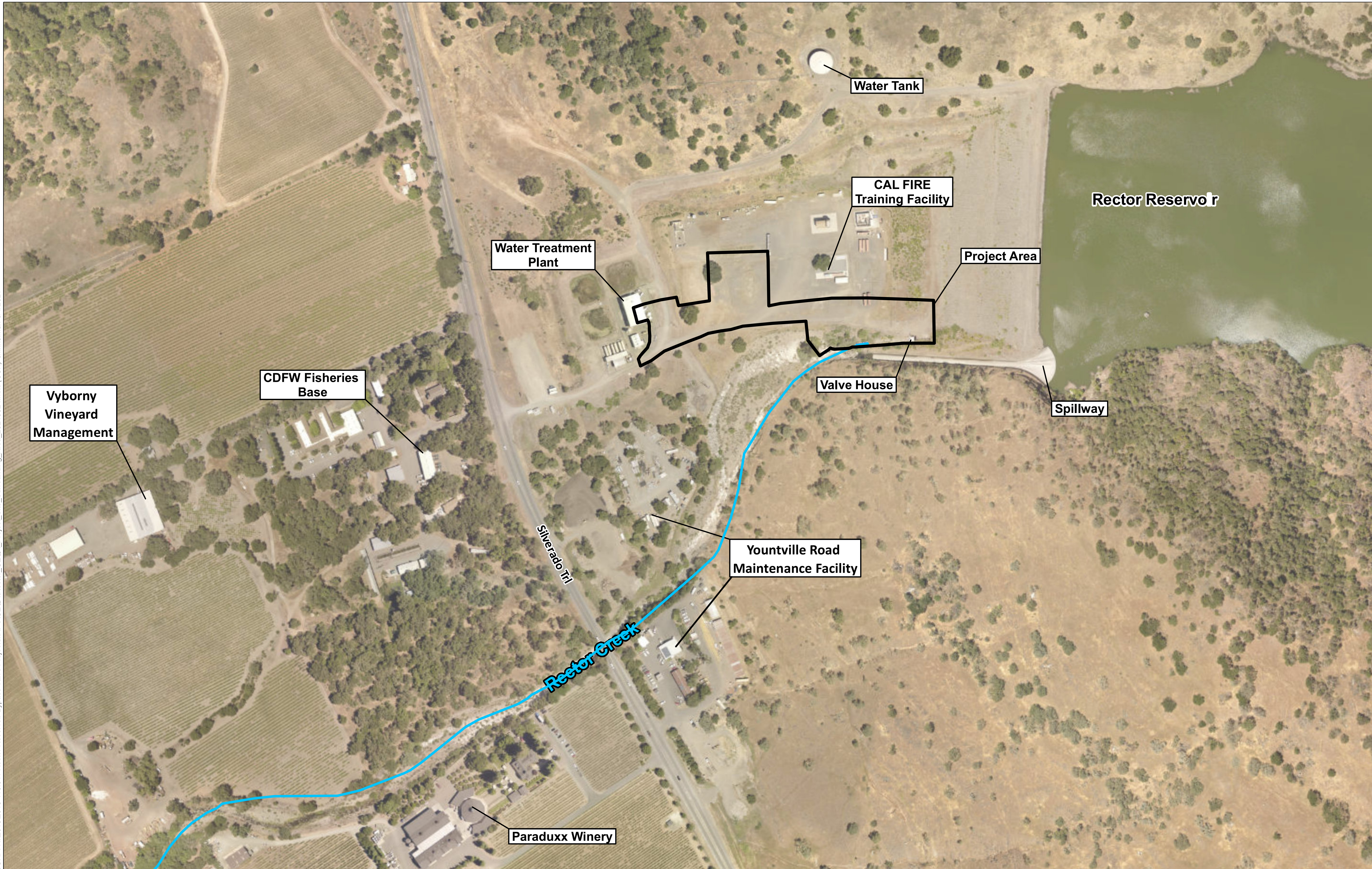
Map Date: 6/4/2021

Sources: ESRI, National Geographic, NAIP (2018)

Figure 2-1. Project Location and Vicinity

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2018-116.011 Rector Reservoir Bypass Valve Project



ECORP: N:\2018\2018-116.011 Rector Reservoir Bypass Valve Project\MAPS\CEQA\Rector_CEQA_Project_Site_Surrounding_Area_20210524.mxd *(CCH)-chinkelman 6/4/2021*

Map Date: 6/4/2021 Photo Source: USGS Topo: ESRI Base Imagery

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 150 300

Figure 2-2. Aerial View of Project Site and Surrounding Uses

2018-116.011 Rector Reservoir Bypass Valve Project

> During the minimum flow of water in any river or stream, permission may be granted by the department to the owner of any dam to allow sufficient water to pass through a culvert, waste gate, or over or around the dam, to keep in good condition any fish that may be planted or exist below the dam, when, in the judgment of the department, it is impracticable or detrimental to the owner to pass the water through the fishway.

On November 15, 2016, California Water Audit (Water Audit) filed a complaint and petition alleging that CalVet operates Rector Dam and Rector Reservoir in violation of California Fish and Game Code § 5937 and the Public Trust and calling for CalVet to establish and maintain minimum flow releases from Rector Reservoir. Since filing the original complaint, the Water Audit has twice amended the complaint and petition.

In response to the complaint, CalVet entered into negotiations with the Water Audit to reach an agreement on terms to avoid pending litigation. At present, CalVet and the Water Audit have not reached an agreement on the terms of such an agreement. In the absence of an agreement, CalVet is proceeding in good faith to assess and implement minimum flow release requirements for Rector Reservoir and construct the needed infrastructure to facilitate these releases. In support of this effort, CalVet has commissioned a number of studies to provide the data and analysis necessary to establish an effective and sustainable minimum flow release schedule and to design infrastructure needed to carry out those releases. These studies include the *Rector Creek Preliminary Instream Flow and Steelhead Habitat Assessment* (Stillwater Sciences 2019), *Rector Dam Diversion Valve Preliminary Design Report* (J.C. Chang & Associates, Inc. 2018), Rector Reservoir Measurement Evaluation (California Department of Water Resources [DWR] 2018) and the *Rector Dam Diversion - Basis of Design Memorandum*, (Wood Rodgers, 2020a). Subsequent to their August 2020 memorandum, Wood Rodgers prepared draft "100%" design drawings for proposed Project facilities construction which serve as the basis for this environmental review.

The preliminary instream flow study noted above recognized the need for further data collection and analysis needed in order to establish an effective and sustainable long-term minimum flow release schedule for Rector Reservoir. The study, however, used available data and analysis to develop an interim schedule for minimum flow releases to be implemented while data collection and analysis is completed in support of establishing a long-term minimum release schedule. Additional studies in support of long-term schedule development are now in progress and are expected to be complete in approximately three years.

In March 2017 and at CalVet's request, CDFW began bypassing water into lower Rector Creek through the Fisheries Base that at times exceeds the base's operational needs. This was done so that CalVet could observe how the lower creek responds to these higher flows when Rector Reservoir is not spilling and to provide water to support Rector Creek fish resources while CalVet completes flow studies and implements a physical means to bypass water into the lower creek independent of the Fisheries Base and its infrastructure. While the use of the Fisheries Base has provided the means to temporarily bypass water to Rector Creek, the long-term use of base facilities for that purpose is considered impracticable due to potential disruptions to Fisheries Base operations.

In December 2018, CalVet, in keeping with CEQA requirements, initiated the environmental review process to assess the environmental effects of the proposed construction and operation of a bypass valve, pipeline, and related facilities needed to implement interim minimum flow releases to Rector Creek and, ultimately, the establishment of a long-term minimum environmental flow release schedule. As part of this environmental review, the EIR preparer was tasked to conduct a source capacity study of Rector Reservoir, including an assessment of water supply and demand and an evaluation of the availability and usage of the reservoir's water during normal, dry, and multiple dry water years, in order to ensure the availability of sufficient water at all times to serve the needs of lawful users on Rector Creek.

2.2 Project Location

Rector Creek Dam and Reservoir are located at approximately 38°26'28.91"N, 122°20'50.85"W at the base of the Howell Mountain in Napa County (see Figure 2-1). The dam and reservoir are approximately 2.5 miles northeast of the Town of Yountville on Silverado Trail, in Napa County between Napa and St. Helena. Rector Creek crosses Silverado Trail approximately 700 feet downstream of the dam's spillway. Vehicle access to the reservoir and the water treatment plant (WTP) is through the gate at 7300 Silverado Trail.

Three main tributaries contribute to Rector Reservoir storage: North Fork Rector Creek; mainstem Rector Creek and South Fork (known locally as LeRette Creek). The drainage area contributing to Rector Reservoir encompasses about 11 square miles or roughly 6,971 acres (Barber 2017). The watershed boundary around Rector's contributing drainage area extends upstream easterly 4.7 miles to Atlas Peak Mountain. Rector Canyon is steep and narrow and is bounded by the wide plateau, which continues to be developed for wine grape agriculture. Rector Creek, downstream of the dam, runs west to its confluence with Conn Creek, a tributary to the Napa River approximately 1.7 miles downstream of Rector Dam.

2.2.1 Land Use and Zoning

As shown in the 2008-2030 Napa County Land Use Plan (as revised 12/20/2016) the County land use designation for the Project site and surrounding parcels is "Agricultural, Watershed, and Open Space." This designation occupies the largest amount of land in the unincorporated areas of Napa County and is intended to protect lands within this designation from being subdivided or converted to other land uses without a countywide vote. As described in the Initial Study (*Appendix 1.1-A*), the Project would not convert areas affected by valve, pipeline or outfall installation from agricultural use. The proposed facilities are considered consistent with existing uses on and adjacent to the Project site. The Project site is zoned as Agricultural Watershed (AW). As the Project is consistent with current and historical use of the Project site and does not substantially expand any of those uses, the Project is considered consistent with current zoning.

2.2.2 Surrounding Land Uses

A CAL FIRE training facility and the reservoir water treatment plant are immediately north and west of the Project site. A Department of Fish and Game Hatchery is also further west, on the west side of Silverado Trail. The Napa County Yountville Maintenance Facility is located southwest of the Project site on both sides of Rector Creek just east of Silverado Trail. The Rector Reservoir Wildlife Trailhead is immediately south of the Project site. Rector Reservoir is east of the Project site, and land surrounding the reservoir is mostly open space. There are a number of vineyards and wineries in close proximity to the Project site including Vine Cliff Winery to the north, Vyborny Vineyard Management to the west, Perata Vineyard and Paraduxx to the southwest, and Gemstone Vineyard and Clos Valmi to the south. Numerous other vineyards are located north and south of the Project site along Silverado Trail (See Figure 2-2).

2.3 Project Objectives

CalVet seeks to develop a flow regime with two stated goals:

1. Compliance Goal: To allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition, and prevent unlawful take of federally or state designated protected species; and

2. Water Management Goal: To maintain the other purposes of the dam's operations while accomplishing the Compliance Goal, specifically to reduce or avoid adverse water supply impacts to all lawful users of water sourced from Rector Creek that may result from environmental flow releases.

2.4 Description of Existing Facilities

Rector Creek Dam is a 164-foot-high earth-fill structure with a crest elevation of 381.5 feet above mean sea level (MSL). The spillway has a crest elevation of 372.5 feet above MSL and a curvilinear crest length of 141.5 feet. The spillway crest elevation was 370.0 feet above MSL prior to 1989, when the spillway was raised to store more water.

A 21-inch pipe with an invert elevation 370.0 feet above MSL was installed when the spillway was raised to allow water to be released onto the spillway from the upper 2.5 feet of the reservoir. A slide gate covers the pipe and has blocked water from the reservoir for several years, according to Rector WTP operators, who monitor the dam.

Behind the dam, water collected from local run-off following storm events is discharged through an outlet tower, or during exceptionally rainy years, via a concrete spillway to Rector Creek. The tower has six intake inverts located 270, 291, 307, 323, 335, and 339 feet above MSL, respectively, however, the intake at 270 feet above MSL is buried by sediment, as determined by a 2000 Department of Water Resources (DWR) bathymetric survey. The lowest operational intake is at 291 feet above MSL, and the dead pool storage below this intake is 478 acre-feet.

The outlet tower feeds a 30-inch steel pipeline that travels approximately 900 feet through the dam, to a control facility or valve house. Once at the valve house, water is directed to either the WTP (via a continuation of the 30-inch steel pipe), or to Rector Creek, via a 24-inch emergency relief pipeline and gate valve (see Figure 2-3. *Project Components*, Figure 2-4. *Existing 30-Inch Pipeline and Connections*, and Figure 2-5. *Emergency Relief Valve*). Record drawings for the existing dam, outlet tower, and valve house can be found in *Appendix 3.6-C* of this DEIR [*Rector Dam Diversion - Basis of Design Memorandum*, Wood Rodgers, August 2020]. Water typically is stored in Rector Reservoir over the wet winter months and is withdrawn from storage over the summer irrigation season.

Since the 30-inch pipeline's original construction, a number of connections have been made just upstream of the valve house. The existing connections include the following (see Figure 2-4):

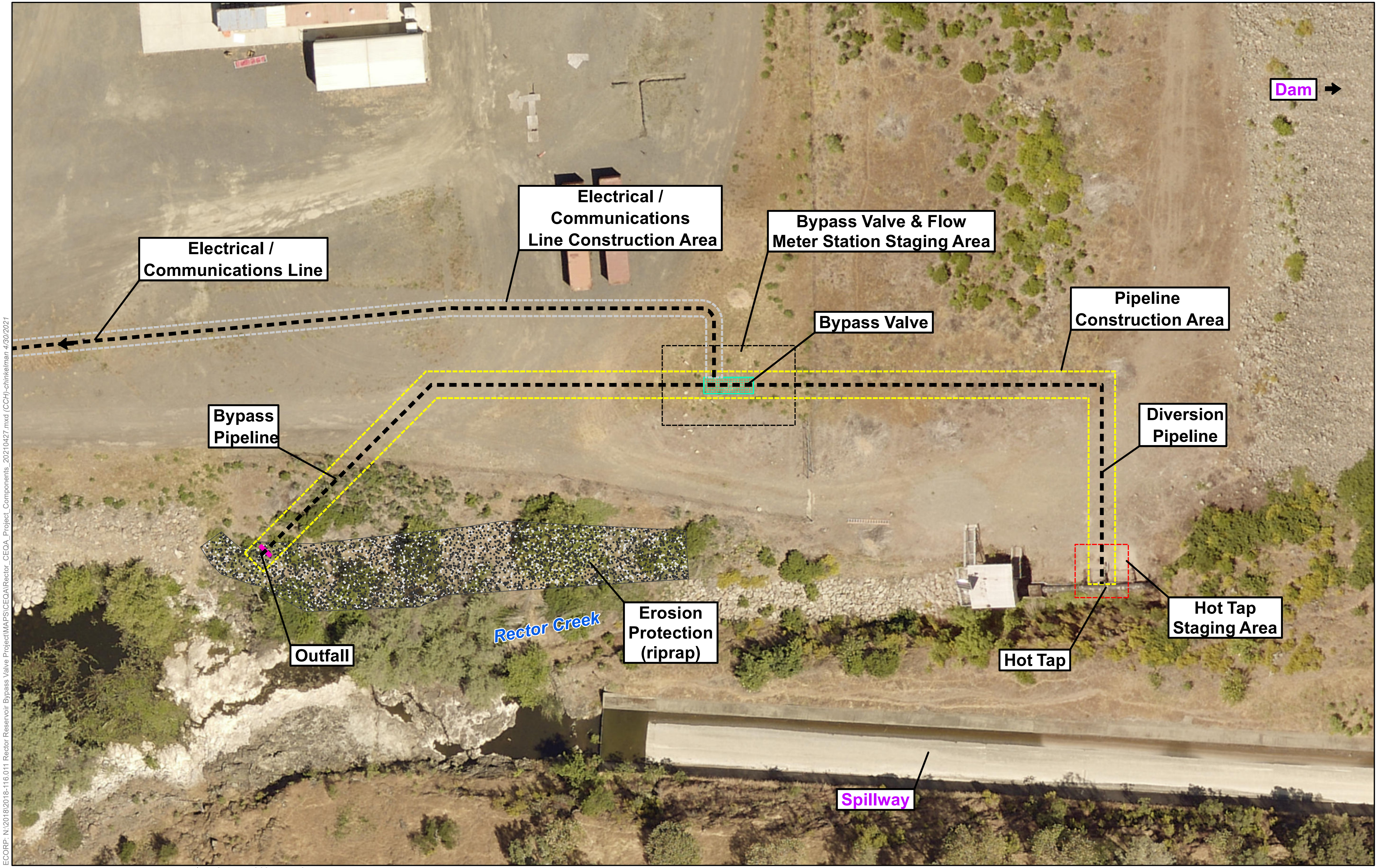
1. CAL FIRE Training Connection, which feeds fire hydrants at onsite training facility;
2. CDFW Connection, which supplies raw water to the fish hatchery across Silverado Trail;
3. Potassium Permanganate Connection, a feed line from the WTP (currently abandoned/not operational); and
4. Raw Water Sampling Connection, which supplies sample water to the treatment plant (see Figure 2-6. *Bypass Valve Assembly*).

2.5 Proposed Project Facilities

At the direction of the DGS/RESD, Wood Rodgers prepared the *Rector Dam Diversion – Basis of Design Memorandum* (2020b). The objective was to evaluate alternatives for the Proposed Project and present recommended facilities to meet the Proposed Project objectives listed above and CalVet's obligations as outlined in the Settlement Agreement. The memorandum describes each recommended component of the Proposed Project, technical analysis on which the recommendations are based, and equipment options. The memorandum presents 30 percent design drawings for all key project features and is included in its entirely as *Appendix 3.6-C* to this DEIR. As noted, subsequent to their July 2020 memorandum, Wood Rodgers prepared Draft 100% Design Drawings of proposed Project facilities. The July 2020 Memorandum and the Draft 100% Design Drawings (March 2021) are included in *Appendix 3.6-C* of this DEIR.

The key components of the proposed Project are shown in Figure 2-3 and include the following:

- Diversion pipeline to convey water from the existing 30-inch water line at the base of Rector Dam to the proposed bypass valve and from the bypass valve to Rector Creek;
- Bypass valve and flow meter;
- Underground electrical line and conduit between the bypass valve and CalVet WTP;
- Twelve-inch diameter underground water pipeline between the bypass valve and proposed Rector Creek outfall; and
- Rector Creek outfall structure at the terminal end of that pipeline in Rector Creek and streambank erosion controls.



Map Date: 4/30/2021 Photo Source: USGS Topo; ESRI Base Imagery

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Scale in Feet
0 40

Figure 2-3. Project Components

2018-116.011 Rector Reservoir Bypass Valve Project

Source: Wood Rodgers

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Figure 2-4. Existing 30-Inch Pipeline and Connections

2018-116.011 Rector Reservoir Bypass Valve Project

Source: Wood Rodgers

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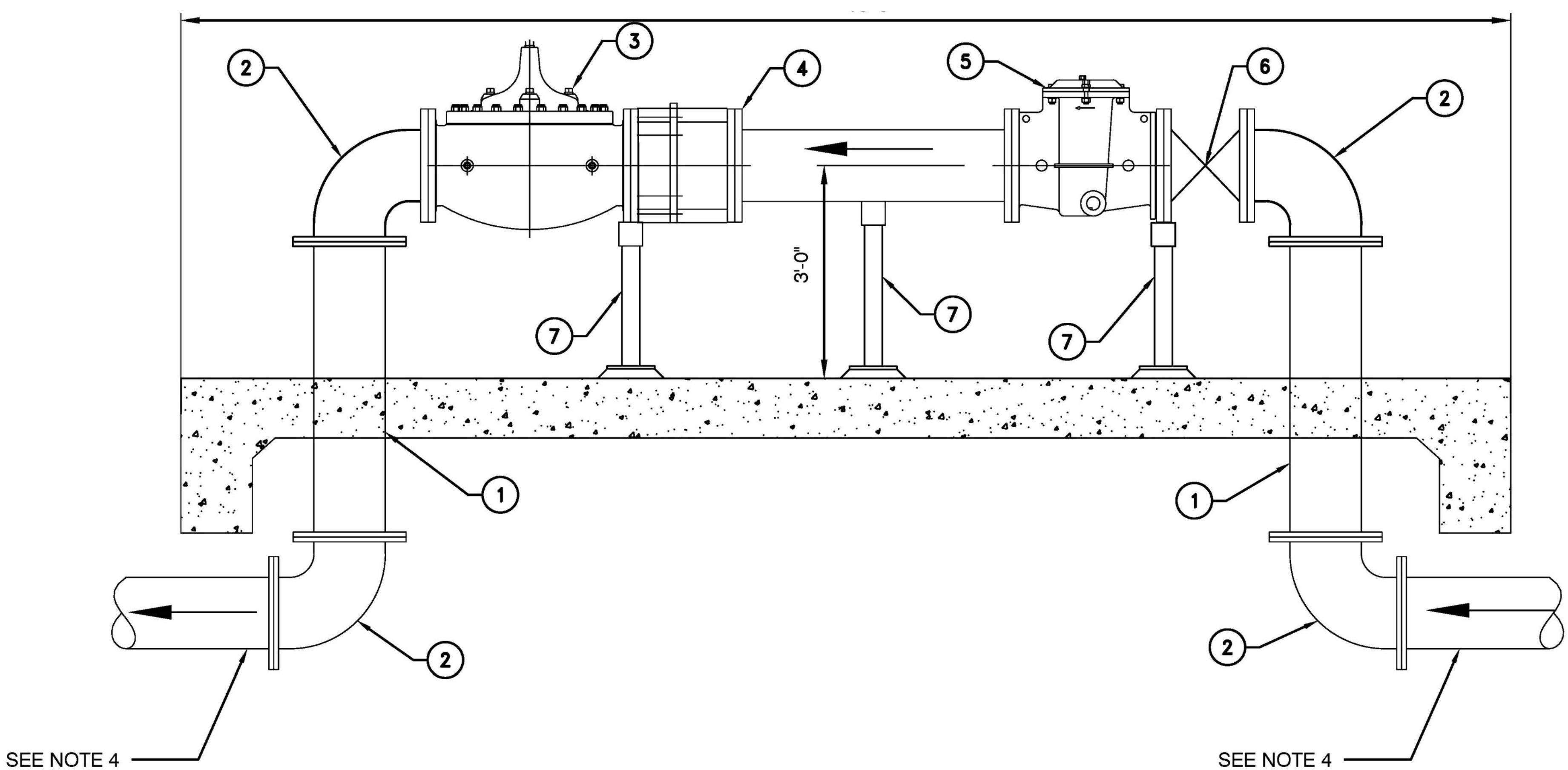
Figure 2-5. Emergency Relief Valve

2018-116.011 Rector Reservoir Bypass Valve Project



FLOW CONTROL FACILITY SECTION

SCALE: 1/2"=1'

Source: Wood Rodgers

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Figure 2-6. Bypass Valve Assembly

2018-116.011 Rector Reservoir Bypass Valve Project

2.5.1 Diversion Pipeline

The supply connection for the new flow diversion pipeline is proposed to be placed between the CAL FIRE Training, and CDFW connections shown in Figure 2-4. A "hot tap" or "wet tap" type connection is the preferred method to connect to the existing 30-inch pipeline. A hot tap connection is recommended as it does not require the 30-inch mainline be isolated and de-energized. The process consists of attaching a tapping sleeve and valve to the mainline, and then utilizing specialized drilling equipment to core an opening, all while the main line remains in service.

Once connected to the 30-inch mainline, the diversion pipeline will traverse approximately 75 feet to the north before turning 90 degrees to the west (see Figure 2-3). The pipeline will then continue west, until it reaches the proposed bypass valve. The location of the valve and pipeline is north of the existing access road to provide for a safe operator environment, and to avoid areas where slope erosion has occurred in the past.

Based on the recommendation included in the 2020 Wood Rogers memorandum, the diversion pipeline would be constructed of ductile iron pipe (DIP) because it is capable of meeting the operating conditions, is readily available, cost effective, and is a piping system many contractors are familiar with installing. The option of polyvinyl chloride piping (PVC) may also be considered as it, too, could be suitable for the Project. For the diversion pipeline, a 12-inch-diameter pipe is proposed, which at 10 cubic feet per second (cfs) (maximum flow), provides a velocity of 12.7 feet per second (fps). Thrust forces due to the internal pressure in the pipe can be mitigated through the use of concrete thrust blocks or restrained pipe joints. Thrust blocks are recommended to be used to restrain the pipe because this pipeline is located in a relatively undeveloped area, and space is available.

To accommodate placement of the pipeline, a trench would be constructed approximately 36 inches wide and a minimum of three feet below the existing ground elevation. An additional seven feet would be allotted for the temporary placement of excavated material. Clean base material would be placed at the bottom of the trench on which the pipeline would be laid. The trench would then be refilled with engineered fill material. The trench will be filled with engineered fill to within six inches of ground elevation in areas along the pipeline alignment supporting native and ruderal vegetation. That remaining six inches will be filled with native soil excavated during construction. Those areas will be hydroseeded upon completion of pipeline installation.

2.5.2 Bypass Valve

The proposed bypass valve would be installed at the location shown in Figure 2-3. The valve would serve to control the rate of water discharged to Rector Creek. A diagram of the proposed valve assembly is shown in Figure 2-6.

The 2020 Wood Rogers memorandum recommends a hydraulically operated valve that would limit the flow passing through it via "pilot-controlled diaphragms." This type of valve uses an orifice plate to measure and adjust the valve position in response to changes in upstream pressure, placed downstream of the valve. This is needed to maintain the specified flow rate. There are several variants of this type of valve, which can include electric solenoids and motors to remotely adjust the flow rate setting. While the electronic controls can be an added convenience, manual controls can be appropriate when the flow rate will not be frequently adjusted. Manual controls are considered more reliable and are generally located aboveground for ease of access.

To cover the range of flows required (0 to 9 cfs), the bypass valve contains two valves. Each of the valves operating range is limited to 1:4, meaning the maximum flow rate is limited to 4 times the minimum flow rate. For example, if a minimum flow rate of 1 cfs is desired, the maximum flow rate is limited to 4 cfs. For the Proposed Project the two valves include a 4-inch Cla-Val 40-01 and a 12-inch Cla-Val 40-01. Using both valves in combination, operation of the bypass valve would achieve the flow ranges shown in Table 2-1, below.

Table 2-1. Bypass Valve Flow Ranges

Valve Size and Type	Orifice Plate Size (inches)	Flow Range (cfs)
4-inch Cla-Val 40-01	2.8	0.38 - 1.52
12-inch Cla-Val 40-01	6.5	1.87 - 7.49
Valves in Combination	N/A	0.38 - 9.01

Because of the 4:1 nature of the valves and the two different sizes, there are a limited number of flow range gaps. These gaps appear between the normal operating ranges of the flow control valves. For example, if a flow rate of 1.6 cfs is desired, the 4-inch valve would be opened to its maximum flow rate of 1.5 cfs, however if the 12-inch valve was opened to make up the remaining 0.1 cfs, it would be operating below its specified 1.9-cfs minimum, thus rendering it incapable of meeting the specific flow rate of 1.6 cfs.

An electronically controlled valve could be installed if more precise and granular flow control is required. This type of valve, referred to in the Wood Rogers memorandum as the "631 series valve", receives flow information from a flow meter (integrated into the valve or as a separate device), and adjusts itself to a preselected flow rate. Because this valve is electronically controlled, it can be integrated into existing supervisory control and data acquisition (SCADA) systems for remote operation and monitoring. However, because this valve and controller are electronic, the power requirements and integration are more complex than a manually operated valve. Integrating the valve control into the WTP will require a power line and a communication line, approximately 950 feet in length, to be installed to connect the valve to the WTP. The lines would be installed underground, in conduit, and within a trench a minimum of three feet below grade. For purposes of this Draft EIR, it is assumed the 950-foot power and communication lines would be installed as part of the Proposed Project. The alignment of the power and communication lines is shown in Figure 2-7. *Electrical and Communications Alignment*.

Flowmeter

The Proposed Project would include a flowmeter. Flow measurement will be an important factor for both discharge reporting and flow control valve operation. This would be accomplished through a traditional magnetic (mag) meter, or by integrating a flow meter into the flow control valve. This valve would be integrated into the bypass valve assembly.

2.5.3 Bypass Pipeline

Beyond the bypass valve, a 12-inch diameter underground pipeline would be constructed to convey water from the bypass valve to the Rector Creek outfall (see Figure 2-7). The bypass pipeline would continue approximately 350-feet to the west and southwest, terminating at the proposed Rector Creek outfall structure, which is described below. As with the diversion pipeline described above, the bypass pipeline would be constructed of ductile iron pipe capable of meeting the operating conditions.

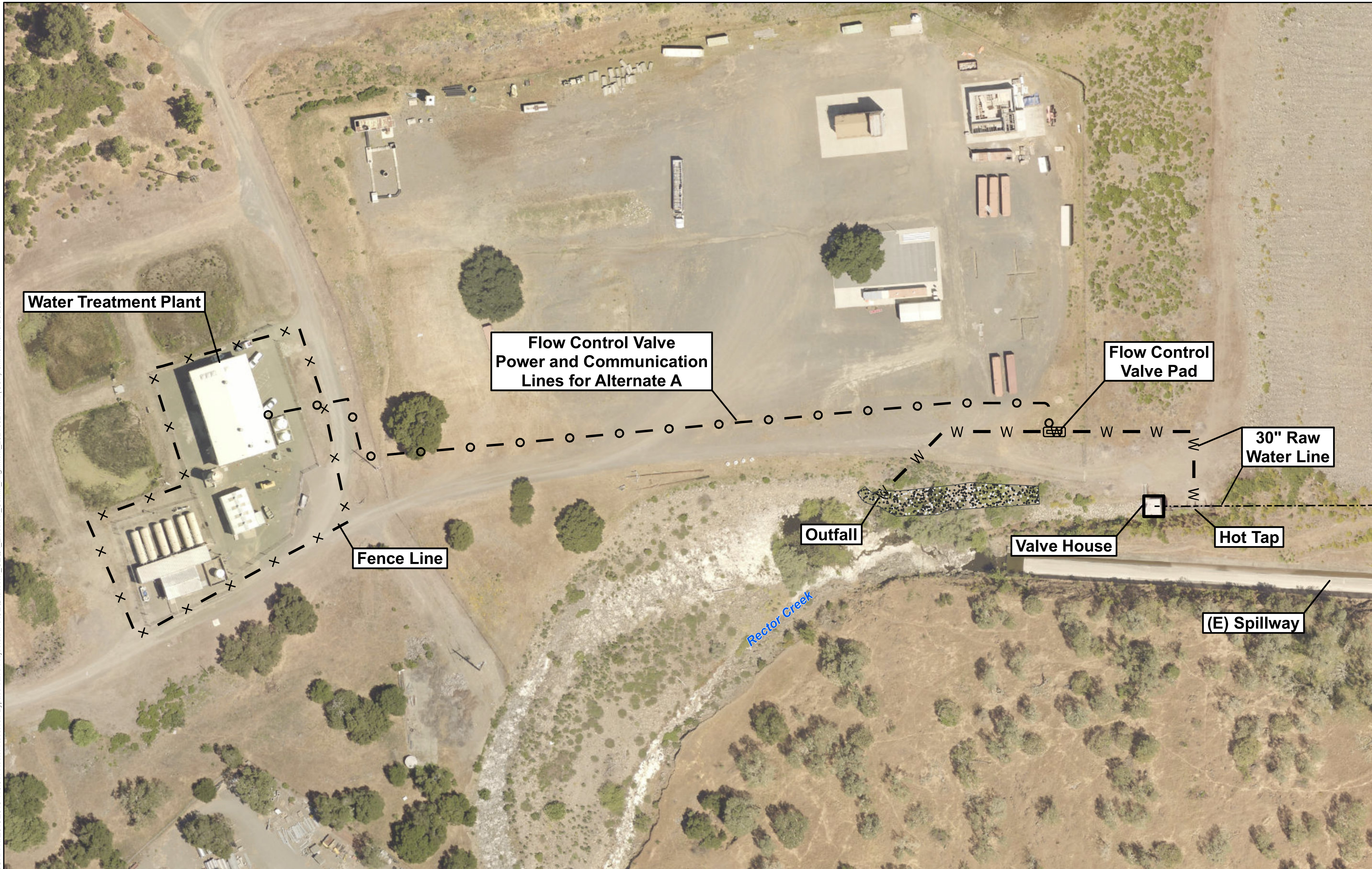
As with the diversion pipeline described above, the bypass pipeline would be placed a trench, 36 inches wide and a minimum of three feet below the existing ground elevation. An additional seven feet along the pipeline alignment would be allotted for the temporary placement of excavated material during construction. Clean base material would be placed at the bottom of the trench. The trench would be refilled with engineered fill material to within six inches of ground elevation in areas along the pipeline alignment supporting native and ruderal vegetation. That remaining six inches will be filled with native soil excavated during construction. Those areas will be hydroseeded upon completion of pipeline installation.

2.5.4 Pipeline Outfall and Erosion Protections

Once beyond the bypass valve, water will travel through the bypass pipeline toward the discharge point at Rector Creek. Because this water will still contain energy, engineered energy dissipation facilities would be constructed to protect the creek bed and side slopes from erosion. At the pipeline terminus, a concrete headwall with a check valve will be installed (see Figure 2-8. *Outfall Structure Design Drawings*). The check valve allows water to discharge, but will prohibit materials, and animals from entering the pipeline. Immediately downstream of the headwall, energy-dissipating riprap or engineered energy dissipation/slope protection will be constructed. The extent of the riprap (e.g., square footage, depth, and rock size) is determined by the velocity of the water and will be further refined as the final flow rate is determined. For the purposes of the Project, a maximum flow rate of 10 cfs yields a velocity of just over 12 fps.

This velocity results in a riprap apron approximately eight feet wide by 10 feet long, and 3.5 feet deep, utilizing half-ton rock. Detailed design drawings of the proposed outfall structure are included in *Appendix 3.6-C* of this DEIR on the sheet entitled, "CML Details."

The diversion valve and piping will discharge through an outlet structure that is proposed to be located on the north side of the Rector Creek channel, immediately downstream of the Rector Dam Spillway. The north bank of the channel bend, immediately downstream of the Rector Dam Spillway, has experienced erosion in the past due to high discharge events. This has resulted in significant erosion of the channel slope and damage to the access road at the top of the slope.



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Map Date: 5/25/2021 Photo Source: USGS Topo; ESRI Base Imagery

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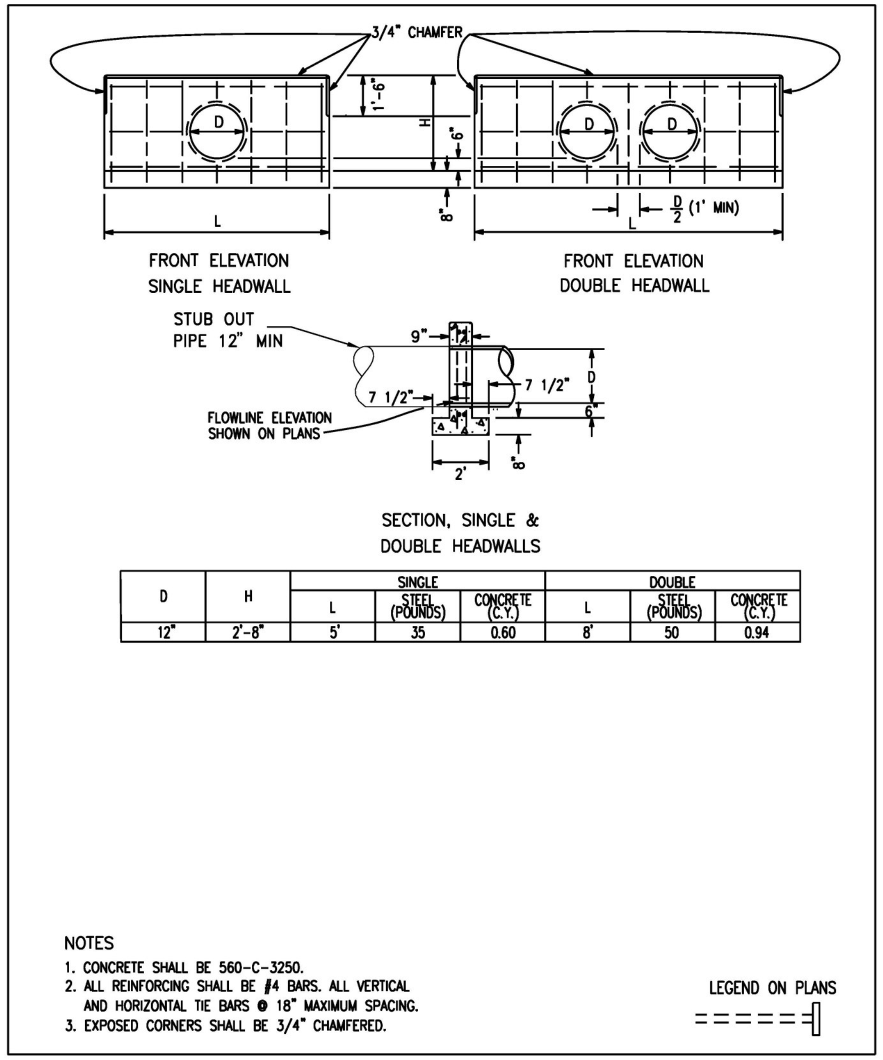
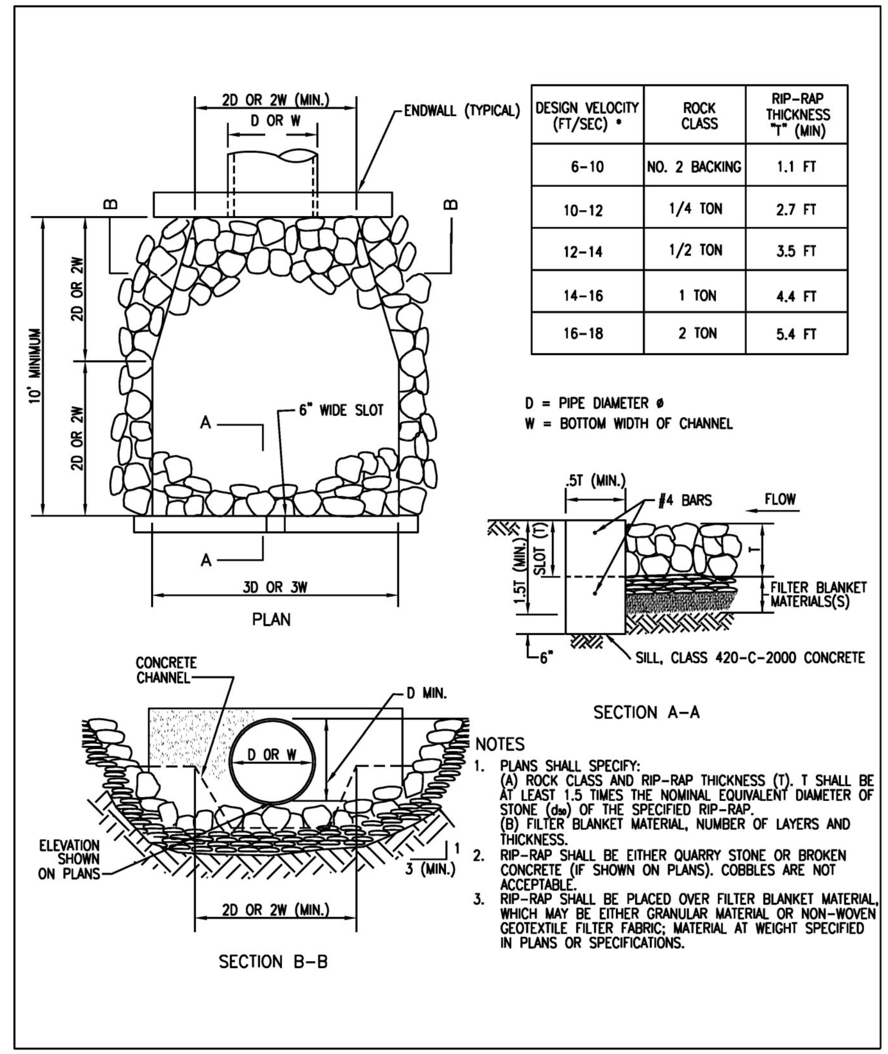
Figure 2-7. Electrical and Communications Alignment

2018-116.011 Rector Reservoir Bypass Valve Project



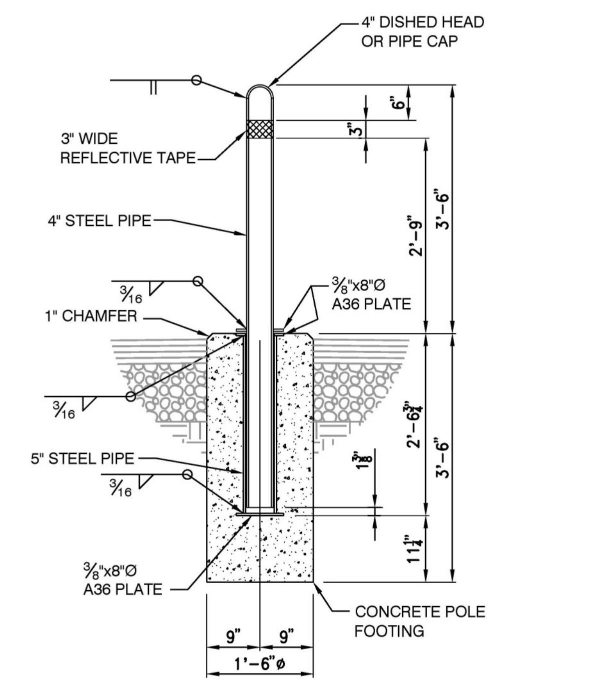
D	H	SINGLE			DOUBLE		
		L	STEEL (POUNDS)	CONCRETE (C.Y.)	L	STEEL (POUNDS)	CONCRETE (C.Y.)
12"	2'-8"	5'	35	0.60	8'	50	0.94

1 CONCRETE HEADWALL
VAR



DESIGN VELOCITY (FT/SEC) *	ROCK CLASS	RIP-RAP THICKNESS "T" (MIN)
6-10	NO. 2 BACKING	1.1 FT
10-12	1/4 TON	2.7 FT
12-14	1/2 TON	3.5 FT
14-16	1 TON	4.4 FT
16-18	2 TON	5.4 FT

2 RIP RAP ENERGY DISSIPATER
VAR



NOTES:
1. ALL TRAFFIC BOLLARD STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. AFTER GALVANIZING, PAINT ALL ABOVE GRADE BOLLARD STEEL SAFETY YELLOW.

3 REMOVABLE BOLLARD
VAR

Source: Wood Rodgers

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Figure 2-8. Outfall Structure Design Drawings

2018-116.011 Rector Reservoir Valve Bypass Project

The proposed outlet structure will include a pipe outlet protected by a concrete headwall and riprap to dissipate the flow. To protect the concrete headwall from scour and erosion during future high discharge events, the channel slope adjacent to, and upstream of the headwall would be covered in riprap (see Figure 2-9. *Erosion Control Detail*). The riprap slope protection would extend from the base of the spillway to limits of previous erosion events, including an area around the outlet structure extending a minimum of 10-feet on all sides.

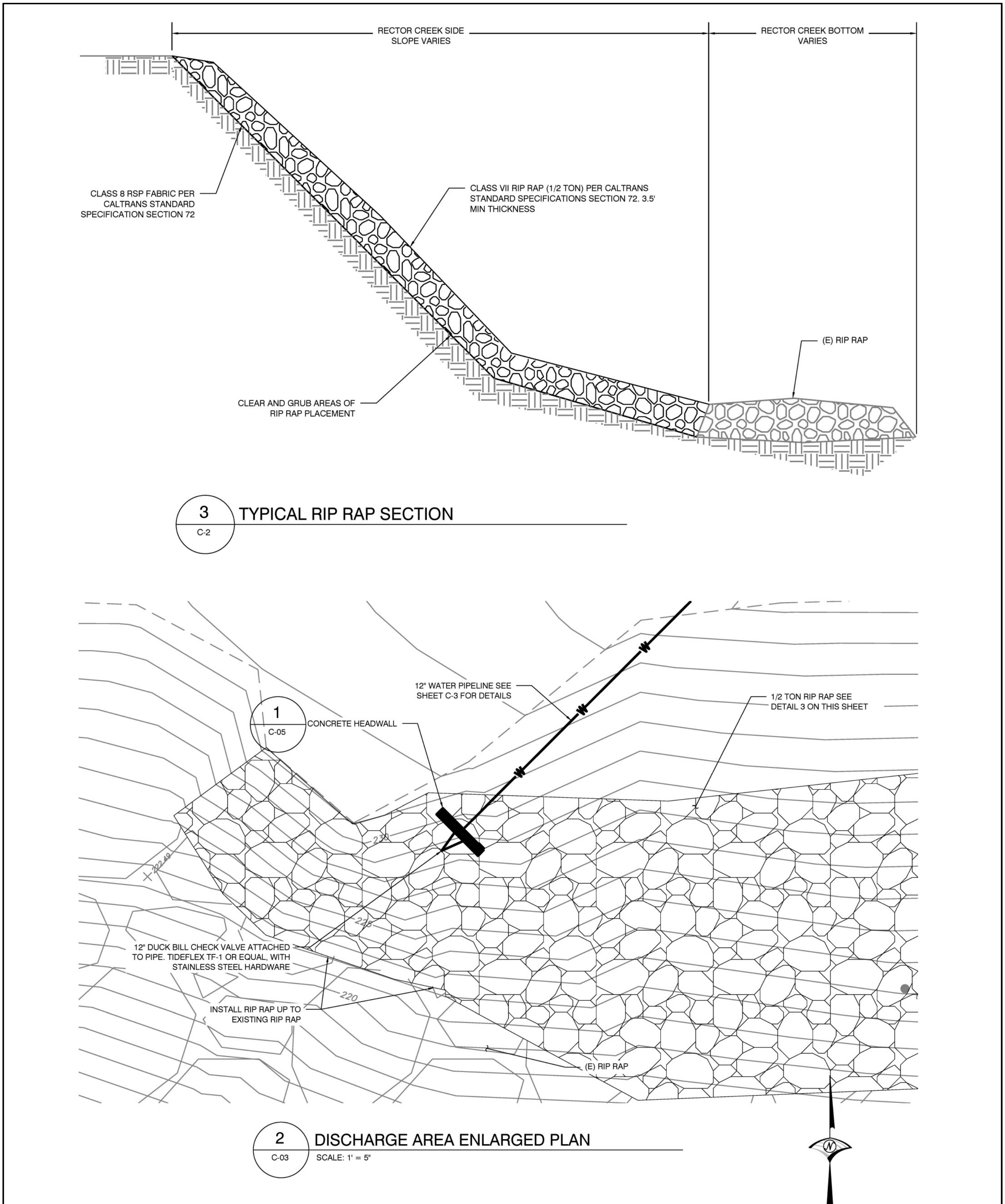
The area to be covered in riprap shall be cleared of all vegetation, trees and cobbles. If feasible, two oak trees within the limits of the riprap area will be retained.   The recommended riprap material is ½ ton angular rock. The riprap should be placed from the top of the slope to the existing riprap on the bottom and would be placed in a bench a minimum of five feet wide, and with a minimum depth (thickness) of 3.5 feet. Prior to placement of the riprap, the base of the bench and the back of the cut slope should be lined with a filter fabric to reduce the amount of fine-grained materials migrating through the riprap.

2.6 Project Construction Activities and Schedule

2.6.1 Pipeline and Connection Construction

As noted, a "hot tap" type connection would be used to connect the proposed diversion pipeline to the existing 30-inch pipeline that runs beneath Rector dam. The process consists of attaching a tapping sleeve and valve to the mainline and then utilizing specialized drilling equipment to core an opening. This will allow the attachment of the proposed line to the existing line without disrupting water service. Additional tapping sleeve product detail can be found in *Appendix 3.6-C* of this DEIR.

Once connected, the diversion pipeline will traverse approximately 75 feet to the north before turning 90 degrees to the west. The pipeline will then continue west, until it reaches the bypass valve location. Following the flow control facility, the pipeline will continue approximately 350 feet before discharging to Rector Creek. The required excavation needed to install the pipeline is approximately 36 inches wide, with an additional seven feet allotted for temporary soil stockpiling and excavator movement. Areas of effect and typical construction equipment are summarized in Table 2-2. Materials that would be imported and exported to the Project site during pipeline installation and total estimated truck trips for those activities are listed in Table 2-3.



Source: Wood Rodgers,

Figure 2-9. Erosion Control Detail

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2018-116.011 Rector Reservoir Valve Bypass Project

Table 2-2. Pipeline Construction Activities

Work Element	Temporary Impact Area	Permanent Impact Area	Typical Construction Equipment	Construction Duration
Hot Tap Connection	20'x20' (400 sf[1])	0 sf	¾ ton Tool Truck Small (<100hp) Excavator Tractor Trailer Delivery Truck 10 Yard Dump Truck	6 working days
12" Pipeline Installation	10'x425' (4,250 sf)	0 sf	¾ ton Tool Truck Small (<100hp) Excavator Tractor Trailer Delivery Truck 10 Yard Dump Truck	10 working days

[1]sf=square foot/feet

Table 2-3. Estimated Import/Export of Materials for Pipeline Excavation

Work Element	Import/Export of Materials	Total Truck Trips	Worker Count
Hot Tap Connection	10 yards export (vegetation and misc. soil)	1	5
12" Pipeline Installation	160 yards export (native soil) 160 yards import (engineered fill)	32	5

2.6.2 Bypass Valve Construction

As described above, water flow within the diversion pipeline will be regulated by flow control equipment constructed aboveground on a concrete pad. The equipment includes flow control valves, isolation valves, a water strainer, and various ductile iron pipe fittings. A pole-mounted photovoltaic power system will also be placed in proximity to the flow control valve to supply power to a water meter. An optional electronically controlled valve is also being considered and would require a communication line be installed between to the valve (at the flow control facility), and the water treatment plant, located approximately 950 feet away.

Work elements associated with the installation of the Bypass Valve system are listed in Table 2-4 along with the estimated areas of temporary and permanent effect, required construction equipment and the estimated duration of construction activities. Materials that would be imported and exported to the Project site during valve installation and total estimated truck trips for those activities are listed in Table 2-5.

Table 2-4. Bypass Valve Construction Activities

Work Element	Temporary Impact Area	Permanent Impact Area	Typical Construction Equipment	Construction Duration
Flow Control Facility	30'x50' (1,500 sf)	12'x26 (312 sf)	¾ ton Tool Truck Small (<100hp) Excavator Tractor Trailer Concrete Delivery Truck 10 Yard Dump Truck	15 working days
Power / Communication Line	6'x950' (5,700 sf)	0 sf	¾ ton Tool Truck 48" Trencher Small Excavator Delivery Truck 10 Yard Dump Truck	15 working days

Table 2-5. Estimated Import/Export of Materials for Bypass Valve Construction

Work Element	Import / Export of Materials	Total Truck Trips	Worker Count
Flow Control Facility	25 yards export (native soil) 25 yards import (engineered fill/concrete)	6	5 workers
Power/Communication Line	70 yards export (native soil) 70 yards import (engineered fill)	14	5 workers

2.6.3 Outfall and Erosion Control Construction

As noted, once passing through the bypass valve, water would travel toward the discharge point at Rector Creek. At the pipeline terminus, a concrete headwall with a check valve will be installed. Immediately downstream of the headwall, energy-dissipating riprap will be constructed. In addition, riprap would be placed upstream and downstream of the outfall and dissipater to prevent bank erosion during high-flow spill events. Work elements associated with the construction of the proposed outfall and erosion control are listed in Table 2-6 along with the estimated areas of temporary and permanent effect, required construction equipment and the estimated duration of construction activities. Materials that would be imported and exported to the Project site during outfall installation and total estimated truck trips for those activities are listed in Table 2-7.

As discussed in DEIR Section 3.3 Biological Resources, installation of energy-dissipating riprap may require removal of up to 2 coast live oak trees. Riprap installation will attempt to avoid impacting these trees as feasible. However, as part of the Proposed Project, should oak tree removal be required, replacement oaks would be planted onsite at a 3:1 ratio to replace associated habitat values. Should tree planting be necessary, replacement trees would be maintained and monitored for survival success for a minimum of three years, or until successfully established as determined by a qualified arborist.

Table 2-6. Outfall Construction Activities

Work Element	Temporary Impact Area	Permanent Impact Area	Typical Construction Equipment	Construction Duration
Discharge Headwall	10'x5' (50 sf)	6'x2' (12 sf)	¾ ton Tool Truck Small (<100hp) Excavator Tractor Trailer Delivery Truck 10 Yard Dump Truck	10 working days
Riprap	10'x425' (4,250 sf)	10'x425' (4,250 sf)	¾ ton Tool Truck Small (<100hp) Excavator Tractor Trailer Delivery Truck 10 Yard Dump Truck	20 working days

Table 2-7. Estimated Import/Export of Materials for Outfall Construction

Work Element	Import / Export of Materials	Total Truck Trips	Worker Count
Discharge Headwall	5 yards export (native soil) 5 yards import (engineered fill/ concrete)	2	5
Riprap	810 tons	61	5

2.6.4 Construction Timeline

The estimated duration of proposed project construction from equipment mobilization and delivery through the completion of Project facilities testing is approximately three months. The projected start date for construction is spring 2022.

2.7 Reservoir Operations and Interim Minimum Flow Releases

With the completion of the bypass valve facilities described above, CalVet will implement minimum flow releases to Rector Creek in accordance with the recommendations presented in the *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment* (see *Appendix 3.3-C* of this DEIR) prepared by Stillwater Sciences and dated July 2019. The data, considerations and methodology used in the development of the interim flow schedule recommendations are described in detail in that report and summarized in Sections 2.7.1 and 2.7.2.

2.7.1 Interim Environmental Flow Schedule Development

Minimum interim environmental flow release recommendations were developed for existing native species within lower Rector Creek based on several factors, including:

- fish community composition and abundance information,
- existing stream habitat and streamflow conditions,

- unimpaired hydrology, and
- hydrologic conditions in other Napa River tributaries.

The current fish assemblage, which includes a native-dominant composition that relies on perennial pool and run habitat in the summer and fall months, would be affected by any changes in flows downstream of Rector Dam. The environmental flow schedule considered the existing population as well as other species in the Napa River that may migrate into lower Rector Creek during periods of connected flow and the potential effect that would have on the condition of the fishery. To identify the lower bound of the interim environmental flow release recommendation, the minimum flow that provides stream connectivity within portions of the reach with surface flow was identified during the 2018 field survey.

Comparisons were made between stream habitat conditions in lower Rector Creek during periods with no instream flow release (Stillwater 2019), an approximately 0.25-cfs release, and an approximately 2.0-cfs streamflow release. The 2018 survey was conducted with approximately 0.23-cfs flow over the spillway and 1.8-cfs discharged from the Fisheries Base, allowing for a comparison of conditions within the reach (see Section 3.2.1, *Stream Habitat Assessment* for additional details on streamflow releases). The minimum interim environmental flow recommendations also considered the unimpaired base flows into Rector Reservoir. Both summer and winter base flows were calculated and used in conjunction with field observations to form upper and lower bounds of the streamflow release schedule.

The recommended interim environmental flows were then evaluated with a hydrologic water balance model to ensure sufficient water availability to meet the release schedule, and the expected stream conditions were compared to the hydrologic conditions in other Napa River tributaries.

2.7.2 Proposed Interim Minimum Flow Release Schedule

Lower Rector Creek is intermittent on the Napa Valley floor with isolated pools. Year-round connected surface flow is unlikely under natural conditions, particularly in the summer–fall months, given:

1. the coarseness of the sediment and subsequent high infiltration rates,
2. low summertime flows into Rector Reservoir, and
3. low bank strength and high coarse sediment supply during peak flows that form broad/shallow wetted channel meanders (i.e., braids) within the straight banks.

The existing spill flows, Fisheries Base discharge, and surface water-groundwater exchange in lower Rector Creek provide higher flows in the winter–spring and isolated pool and run habitat throughout most of the reach in the summer–fall that support a predominantly native fishery. The isolated reaches may limit the establishment of other nonnative fishes in lower Rector Creek that are present in the Napa River.

The intermittent flow conditions in lower Rector Creek are similar to other Napa River tributaries where steelhead are supported with intermittent flow (Stillwater Sciences 2019); however, the majority of these tributaries occur on the cooler western side of the valley, whereas Rector Creek is on the sunnier, more arid eastern side of the valley. Lower Rector Creek would not be a productive steelhead stream, given its low gradient channel and limited spawning area, even with modified streamflow releases. Adult

Oncorhynchus mykiss have been observed in the reach, and juveniles have been observed near the dam, indicating some limited successful spawning has occurred in the past. The stream may contain rearing habitat for juveniles in isolated pools and connected run habitats; however, water temperature and dissolved oxygen conditions are not well understood. Juvenile steelhead in other Napa River tributaries typically rear through the summer and fall, then out-migrate opportunistically in the winter–spring, prior to May, during the wet season (Stillwater Sciences 2019).

Based on the fish species composition and limited spawning habitat for salmonids, the recommendation for interim environmental flows focused on native resident species and maintaining flow within isolated pool and run habitats in the dry months, which would also benefit any rearing steelhead. The recommended minimum instream flow release schedule takes into account:

- water-year types to reflect variation in the natural hydrograph;
- seasonal releases based on the natural runoff patterns, including increased flow in winter and spring in Critical, Dry, Below Normal, Above Normal, and Wet water-year types; and
- minimum instream flows in all months to maintain habitat for native fish populations.

Based on these considerations, and the approach described in Section 3.1.3 Interim Environmental Flow Schedule Development of the *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment* (Stillwater 2019), a recommended interim environmental flow regime was developed by Stillwater and is presented in Table 2-8. This flow regime generally recommends winter releases that reflect the base winter inflow to Rector Reservoir (i.e., excluding storm peaks) of 3 to 4 cfs during the winter–spring months, and the base summer inflow to Rector Reservoir of 0.25 to 1.0 cfs during the summer–fall months. This flow regime also encompasses the minimum flow below the dam that resulted in stream connectivity within portions of the reach with surface flow (approximately 0.25 cfs). The release schedule was then scaled across multiple water-year types to reflect the variability of flows and water availability across water-year types using 0.25 cfs and 4.5 cfs as "book-ends," where releases include 0.25 cfs in the summer–fall months of the Critical and Dry water years and range up to 4.5 cfs in the winter–spring months of the wetter years (Above Normal and Wet).

It is important to note that the minimum releases shown in Table 2-8 reflect combined releases from both the CDFW Fisheries Base and the proposed CalVet bypass valve. As proposed, when releases from the Fisheries Base do not meet the required minimum release rates, CalVet would be responsible to supplement releases through the proposed bypass valve as necessary to meet the minimum release rate.

Table 2-8. Proposed interim environmental flow release schedule for outflows below Rector Creek Dam

Water-Year Type1	Minimum Environmental Flow Releases2 (cfs)														
	Oct	Nov	Dec 1-15	Dec 16-31	Jan	Feb 1-15	Feb 16-30	Mar 1-15	Mar 16-31	Apr	May	Jun	Jul	Aug	Sep
Wet	0.8	0.8	1.5	2.5	3.5	4.0	4.0	4.5	4.5	2.5	2.5	1.0	0.8	0.8	0.8
Above Normal	0.7	0.7	1.3	1.3	3.5	4.0	4.0	4.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Below Normal	0.7	0.7	1.3	1.3	2.5	2.5	4.0	3.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Dry	0.25	0.50	1.0	1.0	2.0	2.5	2.5	3.0	3.0	2.5	1.5	1.0	0.25	0.25	0.25
Critical	0.25	0.50	1.0	1.0	2.0	2.2	2.2	2.8	2.8	2.5	1.0	0.5	0.25	0.25	0.25

Note: Flows shown shaded in blue represent the increased flow levels for winter and spring migration and spawning. These proposed interim flows reflect the combined releases through both the proposed bypass and the CDFW Fisheries Base.

This environmental flow schedule would enhance existing conditions in lower Rector Creek by:

1. connecting and/or lengthening the isolated habitats in the summer and fall,
2. extending periods of continuous surface flow in the winter and spring, and
3. potentially buffering the magnitude and duration of spill flows, although the degree that this would be beneficial is uncertain.

This schedule uses the unimpaired hydrology for the summer and winter base flows and maintains the shape of the natural hydrograph by aligning the higher flows with periods when Rector Dam is typically spilling (see blue-shaded cells in Table 2-8).

The Fisheries Base discharge was included as part of the environmental flows since the majority of lower Rector Creek will benefit from the release. Specifically, the recommended environmental flow releases are intended to be met using a combination of releases from Rector Dam and the Fisheries Base discharge. As a result, when the Fisheries Base is discharging water, releases from Rector Dam can be reduced by the amount of the Fisheries Base discharge to meet the environmental flows goal while conserving water.

The interim environmental flow release schedule was developed using the water balance model to simulate Rector Reservoir storage to assess the availability of storage to meet the interim environmental flow releases. The simulated reservoir storage represents the minimum storage available for interim environmental flow releases, since the volume of water over the spillway during spill events is generally unknown, and this volume is not included as "recharge" in simulating reservoir storage. It is assumed that, with this release schedule, there will still be additional flows from spill events. At the time of interim flow release schedule development, sufficient data were not available to estimate this volume. The recently completed *Rector Creek Water Year Type and Watershed Model Technical Memorandum* (Stillwater Sciences 2021) supplements the available base information and is utilized in the DEIR analysis where appropriate.

2.7.3 *Development of a Long-Term Reservoir Operations Plan*

Additional Information Needed for the Development of the Long-Term Reservoir Operations Plan

Multiple data limitations related to hydrology, fish condition, and instream flow conditions were encountered in the modeling of the reservoir storage and the development of the interim release schedule flows. These data limitations need to be addressed to better quantify the available water for releases downstream of Rector Reservoir (Stillwater 2019).

Hydrology and Reservoir Operations

The absence of sufficient data to determine the magnitude of flows over the Rector Reservoir spillway during spill events was the most significant data limitation of the hydrologic assessment. A potentially significant portion of the total water yield from the Rector Creek watershed is unknown because there were simply no data to quantify it. It is important to determine spillway flows in order to calculate the actual reservoir storage changes under release schedule flows and to assess the available water for releases downstream of Rector Reservoir. The following recommendations address the data limitations for the Rector Creek watershed and would improve estimates of the available volume of water for releases downstream of Rector Reservoir:

- Development of a total watershed runoff model (upstream of the reservoir) to estimate total reservoir inflow with a reasonable margin of error. The model could be refined and reused in the future, as additional stage/flow data are collected.
- Installation of a reservoir elevation gage in Rector Reservoir to automatically record the reservoir elevation on at least a daily basis. More frequent measurements of the reservoir stage would reduce the uncertainty and error of water balance modeling and provide a better estimate of the available water for releases downstream.
- Installation of a flow gage at the new release valve at the base of Rector dam, or in lower Rector Creek, to assess flow in Rector Creek (note that flow gages within the creek may have inherent challenges due to the variability in surface flow downstream of the dam).
- Development of a stage/flow rating curve for streamflow releases and for water passing over the spillway.
- Calculation of the water-year type for the Napa River watershed based on precipitation data from gages located in the Napa Valley. Determining the water-year type specifically for the Napa River watershed would ensure the appropriate release schedule is selected and higher releases would only occur during water years when the water yield from Rector Creek watershed is higher.
- Installation of a precipitation gage in the Rector Creek watershed to ensure that sufficient data are available to determine the specific water-year type for the watershed.

Fish Populations and Condition

A preliminary assessment of existing Rector Creek stream channel conditions and fish populations downstream of Rector Dam identified additional information needed to assess the condition of the fishery and to develop an operations plan. The following recommendations address the data needed to assess the condition of fish in lower Rector Creek:

- Collection of contemporary BMI data using Surface Water Ambient Monitoring Program (SWAMP) protocols, with one additional baseline site located upstream of Rector Reservoir.
- Collection of current fish population data and evaluations of species composition, distribution, and abundance, and comparisons to historical conditions; age-class distribution; individual fish condition (e.g., size, growth rates, and presence of disease, parasites, or lesions); and fish community condition (e.g., community structure, food availability, resilience, habitat conditions).
- Collection of continuous water temperature data at three to four pools between Rector Dam and the confluence with Conn Creek.

- Collection of a water temperature and dissolved oxygen profile near the intake structure in the reservoir.

Consideration of Long-Term Minimum Flow Release Schedule and Channel Maintenance

As part of the development of a long-term minimum flow release schedule, consideration will also be given to potential channel enhancements in lower Rector Creek to benefit fish resources. These enhancements could include the addition of larger substrates and structures like boulders and large woody material into broad and shallow channels at key locations to enhance fish habitat by creating scour pools. To assess the potential effectiveness of such measures, additional data will be collected in preparation of the long-term minimum flow release schedule that will identify:

- releases necessary to connect habitats throughout the stream reach for migrating fishes;
- releases necessary to maintain adequate stream habitat conditions to keep native fish in good condition; and
- flows necessary to provide suitable spawning habitat for native fishes present in lower Rector Creek.

Following additional data collection and synthesis, the timing, magnitude, and conditions of the Rector Creek environmental flow release schedule will be reassessed based on the condition of the fishery and updated hydrology of Rector Creek. The proposed interim flow release schedule will be modified, and a long-term flow release schedule will be implemented based on this assessment. The analysis contained in this DEIR is intended to provide CEQA coverage for the ultimate long-term flow release schedule. This will be confirmed once the long-term schedule is fully developed. However, if the long-term flow release schedule varies substantially from the interim schedule addressed herein, subsequent environmental review may be warranted prior to adoption of the long-term release schedule.

2.8 Required Permits and Approvals

Under CEQA, a responsible agency is a public agency, other than the lead agency, that has responsibility to carry out or approve a project (PRC Section 21069). A trustee agency is a state agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California (PRC Section 21070). The following agencies may have responsibility for, or jurisdiction over, implementation of elements of the Project, and may have permit authority or other approval actions that may be required before implementation of individual elements of the Project:

2.8.1 Federal

- National Marine Fisheries Service (NMFS): Consultation under the Federal ESA as necessary for federal agency actions (Sections 7 and 10 of the ESA).
- USACE, Sacramento District: Compliance with Section 404 of the Clean Water Act (CWA) if discharge of dredged material or fill to waters of the United States would occur and compliance with Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code (USC) 403) for work performed in, over, or under navigable waters of the United States (such as excavation of material

from or deposition of material into navigable waters). Authorization to use lands managed by USACE.

- U.S. Fish and Wildlife Service (USFWS): Consultation under the federal ESA as necessary for federal agency actions (Sections 7 and 10 of the ESA).

2.8.2 State

- CDFW: Compliance with streambed alteration requirements (California Fish and Wildlife Code Section 1602) for modification to watercourses, and Section 2081 of the California ESA if take of listed species is likely to occur.
- The San Francisco Bay RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements (WDR) for these activities. Section 401 of the CWA requires a state-issued Water Quality Certification for all projects regulated under Section 404. In California, the RWQCBs issue Water Quality Certifications, with the RWQCB having jurisdiction over the project site.
- State Lands Commission: Acquisition of a lease for use of state lands in the construction and operation of the Proposed Project.

2.9 References

Barber, Teri Jo. 2017. *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* July 23. Prepared by Teri Jo Barber, Professional Surface Water Hydrologist #00H-1535 American Institute of Hydrology, Professional Storm Water Design and Practitioner and QSD/P #21493. Prepared for Veterans Home and Rector Reservoir Surface Water Treatment Plant, California Department of Health Services Drinking Water Division.

DWR. 2018. *Rector Reservoir Measurement Evaluation*. August.

J.C. Chang & Associates, Inc. *2018. Rector Dam Diversion Valve Preliminary Design Report*. July.

Stillwater Sciences. 2021. Rector Creek water year type and watershed model technical memorandum. Prepared for the California Department of Veteran Affairs, Sacramento, CA. Prepared by Stillwater Sciences, Davis, CA. May.

_____. 2019. *Rector Creek Preliminary Instream Flow and Steelhead Habitat Assessment*. July.

Wood Rodgers, Inc. 2020a. *Rector Dam Diversion - Basis of Design Memorandum*. August

Wood Rodgers, Inc. 2020b. *Rector Dam Diversion – Basis of Design Memorandum*. July.

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3.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

3.1 Introduction to the Environmental Analysis

Chapter 3 of this DEIR describes the environmental resources with the potential to be directly and/or indirectly affected by the construction and operation of the Rector Reservoir Bypass Valve Project (Project or Proposed Project) and the extent and significance of those effects. This chapter also considers the Project's contribution to the cumulative impact on affected resources due to past, present, and reasonably foreseeable future projects, as required by CEQA. The environmental analysis contained in Sections 3.2 through 3.10 addresses the following resource subject areas:

- 3.2 Air Quality
- 3.3 Biological Resources
- 3.4 Cultural Resources
- 3.5 Geology/Soils/Paleontological Resources
- 3.6 Greenhouse Gas Emissions
- 3.7 Hazards and Hazardous Materials
- 3.8 Hydrology and Water Quality
- 3.9 Noise
- 3.10 Tribal Cultural Resources
- 3.11 Utilities and Service Systems

Each of these resource sections contains the following subsections:

- Environmental Setting: this section provides a discussion of the existing conditions of the Project Site and Project area as relevant to the resource;
- Regulatory Framework: this section discusses federal, state, and local regulations, plans, and standards of potential relevance to the resources;
- Methodology and Assumptions: this section defines the methods and assumptions used for the impact evaluations and identifies the thresholds used for assessing the significance of Project impacts;
- Environmental Impacts and Mitigation Measures: this section describes the Project impacts related to the specific resource and, when impacts are identified as significant, mitigation measures to avoid or reduce the severity of impacts; and
- Cumulative Impacts: this section considers the significance of the Project's contribution to the impacts of other past, present, and reasonably foreseeable projects.

3.1.1 Issues Not Included for Further Review in this DEIR

In addition to the resource subjects listed in Section 3.1.1, above, the CalVet considered other resource subject areas in determining the potential of the Project to result in significant effects. CEQA Guidelines Section 15060(d) enables the lead agency to focus the EIR on the issue areas on which the Project could have significant effect, but the lead agency must provide a brief explanation of the reasons for determining that other effects would not be significant or potentially significant.

Specifically, CEQA contemplates using an Initial Study to identify a project's insignificant effects, and then focusing the project EIR analysis on the areas where potentially significant effects have been identified. "Effects dismissed in an Initial Study as clearly insignificant and unlikely to occur need not be discussed further in the EIR unless the Lead Agency subsequently receives information inconsistent with the finding in the Initial Study." (CEQA Guidelines Section 15143.) In response to the NOP, CalVet received one comment letter. That letter was from the California Department of Fish and Wildlife. Substantive comments in that letter were considered in determining what issues required further evaluation in this DEIR. No comments received in response to the NOP or provided during the July 21, 2020 online public scoping meeting were contrary to the findings of the Initial Study.

In keeping with CEQA Guidelines, § 15143, a copy of the Initial Study may be attached to the EIR to provide the basis for limiting the impacts discussed. The Guidelines also state, "An EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Such a statement may be contained in an attached copy of an Initial Study" [CEQA Guidelines § 15128. See also: Pub. Res. Code §§ 21002.1(e), 21100(c); CEQA Guidelines, §§ 15006(d), 15063(c)(3)].

As discussed in Chapter 1, CalVet prepared and circulated the Notice of Preparation (NOP) and Initial Study for this DEIR in July 2020. The NOP and Initial Study are included with this DEIR as *Appendix 1.1-A*. The discussion below describes the resource subjects that were previously analyzed in the Initial Study and determined to not require further analysis in this DEIR. For each of the issues listed, the 2020 Initial Study found the Project to have no impact or a less-than-significant impact, and results are summarized below.

Aesthetics

CEQA Guidelines do not contain a specific definition of what constitutes a "scenic vista." What some may consider a scenic vista may not be considered that by others. For purposes of the IS, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Construction of the proposed Rector Dam Bypass Valve facilities would introduce new exposed piping and valve equipment in an area at the base of Rector dam in an already industrialized location containing water conveyance and monitoring facilities, gravel roadways and parking areas and the dam spillway structure. The Project would also install a buried pipeline and communications conduit and an outfall with erosion control features adjacent to the Rector Creek stream channel approximately 100 feet downstream of the dam spillway. Project improvements are all located exclusively on land owned and operated by CalVet and are remote from any public observation points. The area potentially affected by placement of facilities lacks any existing scenic resources such as mature trees, rock outcroppings or structures. Additionally, the Project does not include the installation of any new lighting source that could be seen from surrounding locations. As such, the Project would have no significant impact on scenic vistas, character, or scenic resources of the Project site in the short-term during project construction or long-term during Project operation.

Agriculture and Forestry Resources

The installation of Project facilities will occur exclusively within property owned and operated by CalVet. Areas potentially affected by installation of the bypass valve, pipeline and outfall are not designated as Prime or Unique Farmland or Farmland of Statewide Importance by the Farmland Mapping and Monitoring Program. The Project does not propose to convert lands currently or historically (i.e., after completion of Rector Reservoir in 1946) used for agriculture. No forest land, timberland, or forestry resources are located on the Project site.

Energy

As presented in the Initial Study, Project construction activities would be limited to bypass valve and water pipeline installation and outfall construction. Project construction will be of short duration, lasting no more than one construction season. Standard construction practices will be used. Significant impacts due to wasteful or inefficient energy consumption are not expected and are highly unlikely. Long-term implementation of the minimum release flow through Project facilities will be accomplished entirely via gravity without the use of pumps or other machinery and, therefore, energy required to operate the Project would be minimal. As such, the Project would not result in wasteful, inefficient, or unnecessary energy resource consumption, or conflict with or obstruct any applicable renewable energy or energy efficiency plans.

Hazards and Hazardous Materials

Project construction would involve the use of hazardous materials, such as diesel fuel. The transport, storage, use, and disposal of such materials would be done in compliance with local, state, and federal regulation and in compliance with fuels and materials Best Management Practices to be established in the construction SWPPP that would be prepared for the Project and implemented during construction. Potential risks associated with the handling of fuels and other potentially hazardous materials during construction are further evaluated in Section 3.8 of this DEIR. The Project, however, would not have significant impacts related to potential release of hazards within one-quarter mile of a school; the location of the Project on a designated hazardous materials site; location of the Project within an airport land plan area or in the vicinity of a private airstrip; impairment to an adopted emergency response or evacuation plan; or exposure of people or structures to significant risk of wildfire. These issues are not addressed further in this DEIR.

Land Use and Planning

Project facilities would be constructed entirely on CalVet property adjacent to Rector Dam and Rector Creek. It would have no impact on any established community. Project facilities would be located adjacent to Rector Dam and Rector Creek, would not physically divide and established community, and would be consistent with ongoing approved uses on the site which include the operation and maintenance of Rector Dam and Reservoir, raw water conveyance, water treatment, and raw water release to Rector Creek.

Mineral Resources

The Project would install a bypass valve, raw water pipeline between the valve and outfall structure, and the outfall itself. These activities would not adversely affect available mineral resources or access to mineral resources.

Population and Housing

The Project would not displace existing housing or residents and would not create the potential need for replacement housing; therefore, the Project would not have the potential to result in environmental effects associated with development of replacement housing. The Project does not include the construction of any new housing, nor would the Project induce unplanned growth.

Public Services

The Project would not result in substantial adverse physical impacts associated with the provision of 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 fire or police protection, schools, parks, or other public services or facilities in a manner that would require the development of additional public facilities.

Recreation

The Project would not 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. The Project also does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Transportation/Traffic

The Project would not directly or indirectly introduce a new population in the region. The total number of vehicle trips generated by the Project during operations would not change from existing conditions. Project construction will, however, result in temporary increases in local traffic due to the transport of construction personnel, equipment and material to the project site. Construction would have only minor short-term effects on traffic and circulation conditions within the area proposed for construction. There are no planned road closures as a result of Project construction, and effects on emergency access would not be significant. Traffic control would be provided, as necessary during Project construction.

Utilities and Service Systems

The Project would not introduce any new residences or other permanent uses to the project area that would increase demand for wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities or services. Any impact of the Project relative to increased demand for these services, therefore, is less than significant. The Project however does propose the construction of facilities designed to divert and release raw water supplies from Rector Reservoir which could have an adverse effect on a variety of environmental resources. As such, this impact is considered significant and is evaluated further in the Draft EIR in a number of subject areas.

Operation of the Project would require implementation of interim and long-term minimum release flows to Rector Creek from Rector Reservoir. Operation of the Project could substantially reduce water storage in Rector Reservoir and thus reduce the volume of water supply available to CalVet to serve existing and future water demand in certain circumstances. This issue is addressed in Section 3.11 of this DEIR.

Any solid waste generated by Project construction would be disposed of in a manner consistent with state and local standards. The Project is expected to generate only limited amounts of waste. No significant demolition of existing facilities is proposed nor is the export of excavated materials expected. Solid waste impacts would therefore be less than significant.

Wildfire

No areas affected by Project facilities construction are within a Fire Hazard Severity Zone designated by California Department of Forestry and Fire Protection (CAL FIRE, 2007), and no Very High Fire Hazard Severity Zones are located nearby. The Project does not include any actions that would impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. No construction activities would impede the use of surrounding roadways in an emergency evacuation. The Project would have no impact related to wildland fires.

3.1.2 CEQA Methods for the Environmental Analysis

Environmental Baseline

Pursuant to CEQA Guidelines (Section 15125(a)), the environmental setting used to determine the impacts associated with the Project normally is based on the environmental conditions that existed in the project area at the time the Notice of Preparation was published. However, CEQA Guidelines Section 15125(a) also provides that where existing conditions change or fluctuate over time, a lead agency may define existing conditions by referencing historic conditions, conditions expected when a project becomes operational, or projected future conditions beyond the date of initial project operations, if doing so would meet CEQA's objective of giving the public and decisionmakers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts.

For purposes of this EIR, CalVet recognizes the importance of fully and adequately defining existing resource conditions. Existing environmental conditions entail continued operation of Rector Reservoir for the supply of treated water to CalVet customers and raw water to CDFW and CAL FIRE, consistent with historical practices. The "study area" for assessing existing resource conditions varies depending on the resource being evaluated. For example, the study area for construction-related impacts on biological resources is shown in Figure 3.3-1. For operational impacts, the study area is primarily contained to Rector Reservoir and Rector Creek downstream of Rector Dam to its confluence with Conn Creek.

In addressing Project effects on hydrology and water supply, CalVet also recognizes the ongoing effects of climate change, as well as future water demands. As described in Section 3.11 of this DEIR, adjusted hydrology was developed using the data products from the California Water Commission's dataset for Water Storage Investment Program applications to account for projected future climate change conditions. For hydrology and water supply impact analyses, a future baseline as well an existing conditions baseline were used.

Impacts and Mitigation Measures

This DEIR analyzes the direct, indirect, and cumulative environmental impacts of the proposed Project. The determination of whether an impact is considered significant is based on significance thresholds. An adverse impact that exceeds the significance threshold is considered significant, and an impact that does not exceed the threshold is considered less than significant. The CEQA significance thresholds used in this DEIR are based on CEQA's mandatory findings of significance (as summarized in State CEQA Guidelines Section 15065); the checklist presented in Appendix G of the State CEQA Guidelines (Guidelines) in effect when the Draft EIR was prepared; and where appropriate, factual or scientific data and regulatory standards of federal, state, and local agencies. Impacts in this DEIR are classified as:

- No impact;
- Less than significant;
- Less than significant with mitigation;
- Significant and unavoidable;
- Cumulatively considerable:
- Less than cumulatively considerable: or
- Less than cumulatively considerable with mitigation.

Where feasible, mitigation measures are recommended for all significant impacts.

Long-Term Environmental Flow Releases and Channel Maintenance

As described in Section 2 and in *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment* (*Appendix 3.3-C* of this DEIR), the proposed Project would implement an *interim* environmental release schedule. The interim schedule is proposed due to limitations in existing data that require further studies prior to the establishment of a long-term or permanent schedule. These studies will also be used to develop suggestions for channel enhancement and in-channel restoration. These studies are currently ongoing and are intended to:

- identify releases necessary to connect habitats throughout the stream reach for migrating fishes,
- further identify releases necessary to maintain adequate stream habitat conditions to keep native fish in good condition, and
- identify flows necessary to provide suitable spawning habitat for native fishes present in lower Rector Creek.

These studies are currently being conducted by Stillwater Sciences under contract to CalVet and are anticipated to conclude in 2022. When the additional data collection and synthesis is complete, the timing, magnitude, and conditions of the interim Rector Creek environmental flow release schedule would be reevaluated and refined based on the condition of the fishery and updated hydrology of Rector Creek. The degree to which the proposed Project's interim schedule will be modified, if indeed any modification is required, cannot be estimated at this time. If substantive changes to the environmental release schedule are proposed in the future, approval of those changes may require additional CEQA review in compliance with CEQA requirements. This also would apply to any recommended channel enhancement or in-channel restoration activities that may result from the ongoing studies.

Cumulative Impacts

Under CEQA, an EIR must discuss cumulative impacts of a project if the project's incremental effects are significant when viewed in connection with the effects of past projects, current projects, and probable future projects (14 CCR 15130(a) and 15065(a)(3)). When this occurs, the project's impacts should be identified as "cumulatively considerable." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Cumulative Impacts are discussed in each of the following resource sections with an assessment of the potential for the proposed project to contribute to cumulative impacts associated with that resource. The effects of past, present, and foreseeable future projects that are critical to determining the cumulative impact of a proposed project are referred to as the "cumulative context." The cumulative context defines the environmental conditions that serve as the basis for determining whether the contribution of a project or action can be considered cumulatively considerable. The cumulative context, necessarily, is not the same for all issue areas addressed in this DEIR. For example, the past, present and future projects which affect the determination of the cumulative impact on air quality, are not necessarily the same projects that influence the cumulative impact on biological resources. As such, each subsection of Chapter 3 of this DEIR/EIS, i.e., Sections 3.2 through 3.11 describes the cumulative context for its specific resource area and assesses the project's incremental contribution to that context. In general, however, this DEIR relies on foreseeable future development as allowed under the Napa County General Plan (2007 as amended) and cumulative impact of that development addressed in the *Napa County General Plan Update Draft EIR* (February 2007).

3.1.3 References

Napa County 2007. *Napa County General Plan Update Draft EIR*. February.

Stillwater Sciences 2018. Rector Creek Preliminary Instream Flow and Stream Habitat Assessment: Technical Memorandum. December.

3.2 Air Quality

This section documents the results of a Project air quality evaluation. This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the Bay Area Air Quality Management District (BAAQMD 2017). Regional and local existing conditions are presented, along with pertinent pollutant emissions standards and regulations. The purpose of this assessment is to estimate criteria air pollutants attributable to the Project and to determine the level of impact the Project would have on the environment.

3.2.1 Environmental Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the San Francisco Bay Area Air Basin (SFBAAB), which encompasses the Project site, pursuant to the regulatory authority of the BAAQMD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project area.

San Francisco Bay Area Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Project site is in Napa County which is located entirely within the SFBAAB. The SFBAAB is approximately 5,600 square miles in area and consists of nine counties that surround the San Francisco Bay, including all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties; the southwestern portion of Solano County; and the southern portion of Sonoma County.

The topography of the SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys and bays. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the SFBAAB. The greatest distortions occur when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common in the summertime (BAAQMD 2017).

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result (BAAQMD 2017).

Summertime temperatures in the SFBAAB are determined by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. (BAAQMD 2017)

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills. Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap.

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the SFBAAB generally occur during inversions. The areas having the highest air pollution potential tend to be those that experience the highest temperatures in the summer and the lowest temperatures in the winter. The coastal areas are exposed to the prevailing marine air, creating cooler temperatures in the summer, warmer temperatures in winter, and stratus clouds all year. The inland valleys are sheltered from the marine air and experience hotter summers and colder winters. Thus, the topography of the inland valleys creates conditions conducive to high air pollution potential.

Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 3.2-1.

Table 3.2-1. Criteria Air Pollutants- Summary of Common Sources and Effects

Pollutant	Major Manmade Sources	Human Health & Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.

Table 3.2-1. Criteria Air Pollutants- Summary of Common Sources and Effects

Pollutant	Major Manmade Sources	Human Health & Welfare Effects
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N_2O) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM_{10} & $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: California Air Pollution Control Officers Association (CAPCOA 2013)

Carbon Monoxide

CO, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most sever meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances (i.e., up to 600 feet or 185 meters) of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Nitrogen Oxides

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides (NO_x). Motor vehicle emissions are the main source of NO_x in urban areas. NO_x is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to NO_x increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of NO_x, such as NO and NO_2, attribute to the formation of O_3 and $PM_{2.5}$. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

Ozone

O_3 is a secondary pollutant, meaning it is not directly emitted. It is formed when volatile organic compounds (VOCs) or ROG and NO_x undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NO_x forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form. Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

Particulate Matter

Particulate matter includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size (PM_{10}) and small than or equal to 2.5 microns in diameter ($PM_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances. $PM_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NO_x, sulfur oxides (SOx) and VOCs. $PM_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $PM_{2.5}$ and PM_{10} levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease. According to the U.S. Environmental Protection Agency (USEPA), some people are much more sensitive than others to breathing PM_{10} and $PM_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM_{10} and $PM_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Most recently, CARB identified diesel particulate matter (DPM) as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine (USEPA 2002). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Ambient Air Quality

Ambient air quality at the Project site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. The Napa Valley College air quality monitoring station (Magnolia Drive and Highway 221, Napa), located approximately 12 miles south of the Project site, monitors concentrations of O_3, PM_{10} and $PM_{2.5}$. The monitoring station monitors the pollutants in nonattainment of air quality standards in the Project region. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the development area.

Table 3.2-2 summarizes the published data concerning O_3, PM_{10} and $PM_{2.5}$ for the Napa Valley College air quality monitoring between 2017 and 2019 for each year that the monitoring data is provided. O_3, PM_{10} and $PM_{2.5}$ are the pollutant species most potently affecting the Project region.

Table 3.2-2. Summary of Ambient Air Quality Data

Pollutant Standards	2017	2018	2019
O_3			
Max 1-hour concentration (ppm)	*	0.083	0.095
Max 8-hour concentration (ppm) (state/federal)	* / *	0.069 / 0.068	0.077 / 0.076
Number of days above 1-hour standard (state/federal)	* / *	0 / 0	1 / 0
Number of days above 8-hour standard (state/federal)	* / *	0 / 0	2 / 2
PM_{10}			
Max 24-hour concentration (µg/m^3) (state/federal)	* / *	26.0 / 25.5	39.0 / 37.5
Number of days above 24-hour standard (state/federal)	* / *	* / *	* / 0
$PM_{2.5}$			
Max 24-hour concentration (µg/m3) (state/federal)	* / *	117.9 / 117.9	21.5 / 21.5
Number of days above federal 24-hour standard	*	*	0

Source: CARB 2020
µg/m^3 = micrograms per cubic meter; ppm = parts per million
* = Insufficient data available

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the Napa County portion of the SFBAAB is included in Table 3.2-3.

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3 $PM_{2.5}$ and PM_{10} (CARB 2019).

Table 3.2-3. Attainment Status of Criteria Pollutants in the Napa County Portion of the SFBAAB

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified/Attainment

Source: CARB 2019

Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest sensitive receptor to the Project site is a single-family residence located to the west approximately 900 feet beyond Silverado Trail Road.

3.2.2 *Regulatory Setting*

Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that carbon dioxide (CO_2) is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those “sensitive receptors” most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 3.2-3 lists the federal attainment status of the Napa County portion of the SFBAAB for the criteria pollutants.

State

California Clean Air Act

The California Clean Air Act (CCAA) allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The federal CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The SFBAAB currently has four air quality plans in place, discussed below.

- *2001 Ozone Attainment Plan*. The 2001 Ozone Attainment Plan was developed for compliance with the NAAQS for the 1-hour ozone standard. In June 2005, the USEPA revoked the standard for 1- hour O_3; however, the state standard for 1-hour O_3 remains. Therefore, BAAQMD continues to implement the strategies outlined in the 2001 Ozone Attainment Plan.
- *2005 Bay Area Ozone Strategy*. The 2005 Bay Area Ozone Strategy served as an update to the 2001 Ozone Attainment Plan and expanded on strategies to achieve compliance with the state 1-hour O_3 standard.
- *2010 Clean Air Plan*. The 2010 Clean Air Plan addresses various pollutants including O_3, PM, and air toxics, as well as greenhouse gas emissions within the SFBAAB. It serves to update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the CCAA to implement "all feasible measures" to reduce O_3; consider the impacts of O_3 control measures on particulate

matter, air toxics, and greenhouse gas emissions in a single, integrated plan and review progress in improving air quality in recent years.

- *2017 Clean Air Plan*. In April 2017, BAAQMD adopted the 2017 Clean Air Plan, whose primary goals are to protect public health and to protect the climate. The 2017 Clean Air Plan updates the Bay Area 2010 Clean Air Plan and complies with state air quality planning requirements, as codified in the California Health and Safety Code (although the 2017 plan was delayed beyond the three-year update requirement of the code). State law requires the Clean Air Plan to include all feasible measures to reduce emissions of O_3 precursors and to reduce the transport of O_3 precursors to neighboring air basins. The 2017 Clean Air Plan contains 85 measures to address reduction of several pollutants: O_3 precursors, PM, air toxics, and GHGs. Other measures focus on a single type of pollutant: super greenhouse gases such as methane and black carbon that consists of harmful fine particles that affect public health. These control strategies are grouped into the following categories:
  - Stationary Source Measures
  - Transportation Control Measures
  - Energy Control Measures
  - Building Control Measures
  - Agricultural Control Measures
  - Natural and Working Lands Control Measures
  - Waste Management Control Measures
  - Water Control Measures
  - Super GHG Control Measures

Tanner Air Toxics Act & Air Toxics "Hot Spots" Information and Assessment Act

CARB's Statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

CARB also administers the state's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by Senate Bill (SB) 1731, which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Local

Bay Area Air Quality Management District

The BAAQMD is designated by law to adopt and enforce regulations to achieve and maintain ambient air quality standards. The BAAQMD responsibilities include preparing plans for the attainment of ambient air quality standards, adopting and enforcing air pollution rules, issuing permits for and inspecting stationary air pollution sources, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing state and federal programs and regulations. The BAAQMD has also adopted various rules and regulations that are designed to reduce and control pollutant emissions from project's construction and operational activities. The following provisions are applicable to the Proposed Project are summarized as follows:

- **Regulation 2, Rule 1, General Permit Requirements:** Includes criteria for issuance or denial of permits, exemptions, appeals against decisions of the Air Pollution Control Officer (APCO) and BAAQMD actions on applications.
- **Regulation 2, Rule 2, New Source Review:** Applies to new or modified sources and contains requirements for Best Available Control Technology and emission offsets. Rule 2 implements federal New Source Review and Prevention of Significant Deterioration requirements.
- **Regulation 6, Rule 1, General Requirements:** Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity.
- **Regulation 6, Rule 6, Prohibition of Trackout:** Controls trackout of solid material onto public paved roads from three types of sites: large bulk material sites, large construction sites, and large disturbed area sites. Under this regulation, the owners and operators of a construction site are required to clean up trackout on public roadways within four hours of identification and at the conclusion of each workday. The rule also includes requirements regarding the emission of fugitive dust during cleanup of trackout, and requirements for monitoring and reporting trackout at regulated sites
- **Regulation 7, Odorous Substances:** Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person (or facility) must meet all limitations of this regulation, but meeting such limitations shall not exempt such person from any other requirements of BAAQMD, state, or national law. The limitations of this regulation shall not be applicable until BAAQMD receives odor complaints from 10 or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence. When the limits of this regulation become effective, as a result of citizen complaints described above, the limits shall remain effective until

such time as no citizen complaints have been received by BAAQMD for one year. The limits of this Regulation shall become applicable again if BAAQMD receives odor complaints from five or more complainants within a 90-day period. BAAQMD staff investigate and track all odor complaints it receives and make attempts to visit the site and identify the source of the objectionable odor and assist the owner or facility in finding a way to reduce the odor.

BAAQMD Construction Mitigation Measures

The BAAQMD recommends quantifying a proposed project's construction-generated emissions by implementing the Basic Construction Mitigation Measures as mitigation for dust and exhaust construction impacts in CEQA compliance documentation. If additional construction measures are required to reduce construction-generated emissions, the Additional Construction Mitigation Measures should then be applied. Table 3.2-4 identifies the Basic and Additional Construction Mitigation Measures. In addition, all projects must implement any applicable air toxic control measures. For example, projects that have the potential to disturb asbestos (from soil or building materials) must comply with all the requirements of CARB's air toxic control measures for construction, grading, quarrying, and surface mining operations.

Table 3.2-4 BAAQMD Basic and Additional Construction Mitigation Measures

BAAQMD Basic Construction Mitigation Measures
All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
All vehicle speeds on unpaved roads shall be limited to 15 mph.
All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air district's phone number shall also be visible to ensure compliance with applicable regulations.
BAAQMD Additional Construction Mitigation Measures
All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.

Table 3.2-4 BAAQMD Basic and Additional Construction Mitigation Measures
The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the number of disturbed surfaces at any one time.
All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
Minimizing the idling time of diesel-powered construction equipment to 2 minutes.
The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines.

Source: *BAAQMD 2017*

Napa County General Plan

The Napa County General Plan has various policies in place related to the improvement of air quality within the County. The following policies are applicable to the Project:

Policy CON-77: All new discretionary projects shall be evaluated to determine potential significant project-specific air quality impacts and shall be required to incorporate appropriate design, construction, and operational features to reduce emissions of criteria pollutants regulated by the state and federal governments below the applicable significance standard(s) or implement alternate and equally effective mitigation strategies consistent with BAAQMD's air quality improvement programs to reduce emissions.

Policy CON-80: The County shall seek to reduce particulate emissions and avoid exceedances of state particulate matter (PM) standards by:

- Requiring implementation of dust control measures during construction and grading activities and enforcing winter grading deadline.

Policy CON-81: The County shall require dust control measures to be applied to construction projects consistent with measures recommended for use by the BAAQMD.

Policy CON-83: The County shall prepare and disseminate maps showing areas where soils are known to contain naturally occurring asbestos and shall require enhanced dust suppression measures for grading and construction projects in these areas consistent with BAAQMD requirements.

Policy CON-85: The County shall utilize construction emission control measures required by CARB or BAAQMD that are appropriate for the specifics of the project (e.g., length of time of construction and distance from sensitive receptors). These measures shall be made conditions of approval and/or adopted as mitigation to ensure implementation. [Implemented by Action Item CON CPSP-6]

3.2.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact related to air quality if it would do any of the following:

- Conflict with or obstruct implementation of any applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors adversely affecting a substantial number of people).

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. To assist local jurisdictions in the evaluation of air quality impacts under CEQA, the BAAQMD has published a guidance document for the preparation of the air quality portions of environmental documents that includes thresholds of significance to be used in evaluating land use proposals. Thresholds of significance are based on a source's projected impacts and are a basis from which to apply mitigation measures. BAAQMD's CEQA thresholds have also been used to determine air quality impacts in this analysis. If a project's individual emissions exceed its identified significance thresholds, the Project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

The BAAQMD's established thresholds of significance for air quality for construction and operational activities of land use development projects are shown in Table 3.2-5.

Table 3.2-5. BAAQMD Significance Thresholds

Construction Related		
Air Pollutant	**Average Daily Emissions (pounds per day)**	
ROG	54	
NO_x	54	
PM_{10} (exhaust)	82	
$PM_{2.5}$ (exhaust)	54	
PM_{10}/$PM_{2.5}$ (fugitive dust)	Best Management Practices	
Local CO	None	
Operational Related		
Air Pollutant	**Average Daily Emissions (pounds per day)**	**Maximum Annual Emissions (tons per year)**
ROG	54	10
NO_x	54	10
PM_{10} (exhaust)	82	15
$PM_{2.5}$ (exhaust)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	None	None
Local CO	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	

Source: BAAQMD 2017

Methods of Analysis

Air quality impacts were assessed in accordance with methodologies recommended by the BAAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2 (CAPCOA 2017). CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Napa County coupled with Project specific information contained in Section 2.0. Potential operational air pollutant emissions associated with the Project is addressed qualitatively. (See *Appendix 3.2-A CalEEMod Emissions Model).*

3.2.4 *Project Impacts and Mitigation Measures*

Impact 3.2-1 The Project could conflict with or obstruct implementation of an applicable air quality plan. Impact Determination: *no impact*.

Threshold:	*Conflict with Bay Area Air Quality Management District Air Quality Plans.*

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously described, the BAAQMD is the agency responsible for enforcing many federal and state air quality requirements and for establishing air quality rules and regulations. The BAAQMD attains and maintains air quality conditions in Napa County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The most recently adopted air quality plan is the BAAQMD's 2017 Clean Air Plan, the primary goals of which are to protect public health and the climate. The 2017 Clean Air Plan includes a wide range of control measures and actions to reduce combustion-related activities, decrease combustion of fossil fuels, improve energy efficiency, and reduce emissions of potent greenhouse gases. Several measures address the reduction of multiple pollutants such as O_3 precursors, PM, air toxics, and greenhouse gases.

BAAQMD recommended guidance for determining whether a project supports the goals in the 2017 Clean Air Plan is to compare project-estimated emissions with BAAQMD thresholds of significance. If project emissions would not exceed the thresholds of significance after the application of all feasible mitigation measures, the project is consistent with the goals of the 2017 Clean Air Plan. As discussed in Impact 3.2-2, emissions generated during Project construction would not exceed the BAAQMD's significance thresholds and, once construction is complete, the Project would not create any permanent stationary or mobile sources of criteria air pollutant emissions. As such, the Project would not generate quantifiable criteria emissions from Project operations.

Because the Project would be wholly consistent with Bay Area Air Quality Management District air quality plans, the Project would have ***no impact***.

<u>Mitigation Measures</u>

None required.

Cumulative Impact

Impact 3.2-2 Implementation of the Project could result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
Impact Determination: less than significant.

Threshold:	*Would generate construction and/or operational emissions in excess of Bay Area Air Quality Management District Significance Thresholds.*

Project Construction

Construction of the Proposed Project would generate short-term emissions of criteria air pollutants. Three basic sources of short-term emissions would be generated through construction: operation of the construction vehicles (i.e., tractors, excavators, haul trucks), the creation of fugitive dust during clearing, and the use of asphalt or other oil-based substances during paving activities that would occur during outfall construction.

Construction-generated emissions associated with the Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See *Appendix 3.2-A CalEEMod Emissions Model* of this DEIR for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the Project are summarized in Table 3.2-6. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the BAAQMD's thresholds of significance.

Table 3.2-6. Construction-Related Emissions

Construction	Pollutant (maximum pounds per day)					
	ROG	NO_x	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)	PM_{10} (fugitive dust)	$PM_{2.5}$ (fugitive dust)
Pipeline Construction Activities (2022)	1.51	13.09	0.46	0.43	0.39	0.06
Bypass Valve Construction Activities (2022)	2.35	19.36	0.85	0.78	0.36	0.05
Outfall Construction Activities (2022)	2.06	16.39	0.63	0.58	0.31	0.04
Total Construction-Related Emissions	**5.92**	**50.06**	**1.94**	**1.79**	**1.25**	**0.20**
BAAQMD Potentially Significant Impact Threshold	*54*	*54*	*82*	*54*	*Basic Construction Mitigation Measures*	*Basic Construction Mitigation Measures*
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to *Appendix 3.2-A* for Model Data Outputs.
Notes: Construction emissions taken from the season (summer or winter) with the highest output. Emission estimates account for the construction equipment and duration listed in Section 2.0, Project Description.

Per General Plan Policy CON-81, all construction projects in unincorporated Napa County are required to implement the BAAQMD's Basic Construction Mitigation Measures (see Table 3.2-4) as a condition of project approval; therefore, the proposed Project would conform to BAAQMD recommendations related to fugitive dust emissions. As shown in Table 3.2-6, emissions generated during Project construction would not exceed the BAAQMD's significance thresholds. Therefore, criteria pollutant emissions generated during construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard. Therefore, construction related air quality impacts are ***less than significant***.

Post-Project Implementation

The Proposed Project would not include the provision of new permanent stationary or mobile sources of criteria air pollutant emissions, and therefore, by its very nature, would not generate quantifiable criteria emissions from Project operations. Thus, there would be no operational impacts concerning air pollutant emissions. This impact is ***less than significant***.

Mitigation Measures

None required.

Impact 3.2-3 **Implementation of the Project could expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs).**
Impact Determination: *less than significant.*

Threshold:	*Expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs).*

As previously described, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project site is a single-family residence located west of the Project site approximately 900 feet distant, beyond Silverado Trail Road.

Construction-related activities for the proposed Project would result in temporary, short-term emissions of DPM, ROG, NOx, CO, PM_{10} and $PM_{2.5}$ from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing); soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the SFBAAB which encompasses the Project area is designated as a nonattainment area for federal O_3 $PM_{2.5}$ and standards and is also a nonattainment area for the state standards for O_3, $PM_{2.5}$ and PM_{10} standards (CARB 2019). Thus, existing O_3, $PM_{2.5}$ and PM_{10} levels in the SFBAAB are at unhealthy levels during certain periods. However, as shown in Table 3.2-6, the Project would not exceed the BAAQMD significance thresholds for emissions.

The health effects associated with O_3 are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NOx) in excess of the BAAQMD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The BAAQMD does not have a threshold for construction related CO emissions and the Project would not involve construction activities that would result in excessive CO emissions. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary TAC of concern. $PM_{2.5}$ exhaust is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., $PM_{2.5}$). Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles. As with O_3 and NOx, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the BAAQMD's thresholds. Accordingly, the Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, construction of the Project would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Similarly, the Project would not result in the development of any substantial sources of air toxics. The Project seeks to construct a diversion pipeline to convey water from the existing water line at the base of Rector Damn to the proposed bypass valve, install a bypass valve and flow meter, and construct an outfall structure at the terminal end of the proposed pipeline in Rector Creek. There would be no stationary sources associated with the implementation of the Project. Once the Project is constructed, it would not attract heavy-duty trucks, a substantial source of DPM emissions, that spend long periods queuing and idling at the site. Therefore, the Project would not be a significant source of TACs after implementation.

This impact is **less than significant.**

Mitigation Measures

None required.

Impact 3.2-4: **Implementation of the Project could result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.**
Impact Determination: ***no impact.***

Threshold:	*Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.*

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Project would not represent a substantial source of odor. The Proposed Project does not include any uses identified as being associated with odors. During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. There is ***no impact***.

Mitigation Measures

None required.

3.2.5 Cumulative Impacts

Cumulative Setting

The cumulative setting for air quality includes Napa County and the SFBAAB. The SFBAAB is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, $PM_{2.5}$ and PM_{10} (CARB 2019). Cumulative growth in population, vehicle use, and industrial activity could inhibit efforts to improve regional air quality and attain the ambient air quality standards. Thus, the setting for this cumulative analysis consists of the SFBAAB and associated growth and development anticipated in the air basin. As previously described, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

Impact 3.2-5: Implementation of the Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard. Impact Determination: *less than considerable*.

Threshold:	*Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard.*

The standard approach to assessing cumulative impacts is based on the 2017 Clean Air Plan forecasts of attainment of ambient air quality standards in accordance with the requirements of the CAA and CCAA. As discussed earlier, the Project area is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, $PM_{2.5}$ and PM_{10} (CARB 2019). According to the BAAQMD, no single project by itself is sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. According to the BAAQMD, if a project exceeds its identified project-level significance thresholds, that project would be cumulatively considerable. The Project would not exceed the BAAQMD's significance thresholds during construction or operations. For this reason, the Project would have a ***less than considerable*** contribution to cumulative impacts regarding air quality.

<u>Mitigation Measures</u>

None required.

3.2.6 References

BAAQMD. 2017. CEQA Air Quality Guidelines.

CAPCOA. 2017. California Emissions Estimator Model (CalEEMod), version 2016.3.2.

_____. 2013. Health Effects. http://www.capcoa.org/health-effects/.

CARB. 2020. Air Quality Data Statistics. http://www.arb.ca.gov/adam/index.html.

_____. 2019. State and Federal Area Designation Maps. http://www.arb.ca.gov/desig/adm/adm.htm.

_____. 2002. Health Assessment Document for Diesel Engine Exhaust. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=300055PV.TXT.

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3.3 Biological Resources

3.3.1 Introduction

This section presents an evaluation of biological resource impacts associated with the Proposed Project. The section assesses whether construction and operation of the Project would result in significant impacts on terrestrial and aquatic biological resources. It includes a description of the existing environmental conditions, regulatory setting, an overview of the methods used for assessing impacts, impact significance thresholds, and the impacts associated with constructing and operating the Proposed Project. Where significant impacts are identified, feasible and effective mitigation measures are presented to reduce those impacts to less than significant levels.

3.3.2 Biological Field Surveys and Engineering Studies Conducted

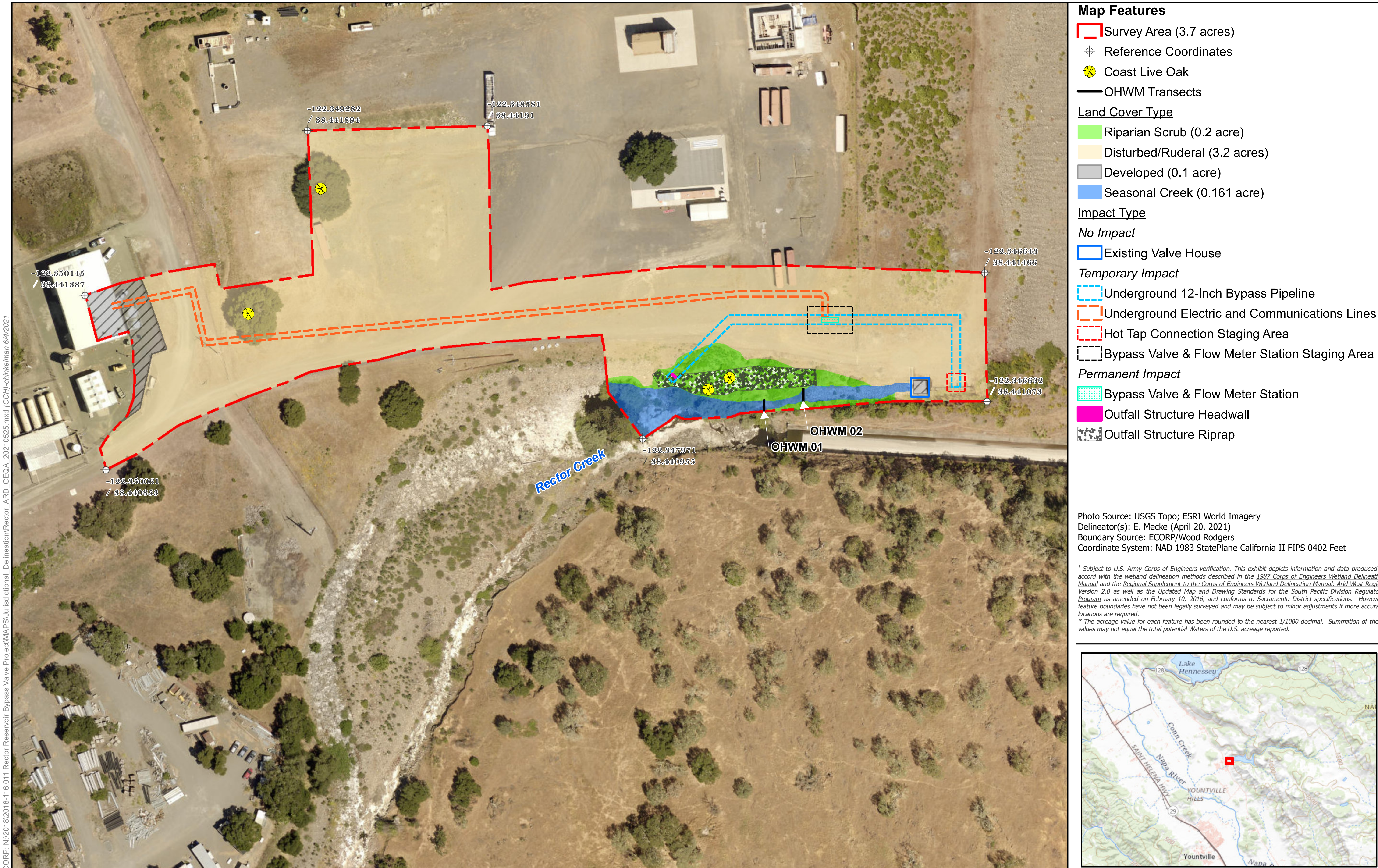
Biological resource information and Rector Creek flow data presented herein are based on the following technical studies, described further below:

- The Biological Resources Assessment (BRA) for Rector Dam Bypass Valve Project (ECORP 2021.) (DEIR Appendix 3.3-A);
- The Rector Dam Bypass Valve Project Aquatic Resources Delineation (ARD) (ECORP 2021b.) (DEIR Appendix 3.3-B);
- Rector Creek Preliminary Instream Flow and Stream Habitat Assessment (Stillwater Sciences. December 2019.) (DEIR Appendix 3.3-C);
- Rector Reservoir Operations Simulation Modeling (Western Hydrologics. April 2021.) (DEIR Appendix 3.3-D); and,
- Rector Creek Stream Fish Technical Memorandum (Stillwater Sciences. June 2021.) (DEIR Appendix 3.3-E).

Study Area

Two Study Areas are evaluated in this DEIR: A construction Study Area and an operations Study Area.

The construction Study Area includes 3.7-acres (refer to Figure 3.3-1 for the construction Study Area boundary), is comprised of primarily barren, heavily impacted and compacted land, a small reach of Rector Creek and the existing valve house and associated riprap. The existing spillway is not included in the construction Study Area. Construction Study Area existing conditions are primarily addressed by the ECORP BRA (discussed further below) and encompasses all areas of proposed construction.



Map Date: 6/4/2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 100

Figure 3.3-1. Impacts to Land Cover Types and Potential Waters of the U.S.

2018-116.011 Rector Reservoir Bypass Valve Project

The operations Study Area includes the Rector Creek corridor from the spillway to the confluence with Conn Creek. The operations Study Area is primarily addressed by the Stillwater Sciences (2019) *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment,* the Stillwater Sciences-(2020*) Rector Creek Stream Fish Technical Memorandum* and the Western Hydrologics (2021) *Rector Reservoir Operations Simulation Modeling.* These studies address creek flow and fish habitat under various operating conditions, are discussed further below, and aid in the fisheries impact analysis.

The Study Areas are located within gently rolling terrain situated at an elevational range of approximately 210 to 250 feet above MSL in the North Coast Range Subregion of the Northwestern California floristic region of California (Baldwin et. al. 2012). The average winter low temperature in the vicinity of the Study Area is 37.2 degrees Fahrenheit (°F) and the average summer high temperature is 85.6˚F. Average annual precipitation is approximately 33.79 inches, which falls as rain (National Oceanic and Atmospheric Administration [NOAA] 2020).

Representative Study Area photographs are included in DEIR Appendix 3.3-A, Attachment B.

Biological Resources Assessment (BRA)

The BRA addresses the plant communities, wildlife, special-status species, aquatic resources (i.e., potential Waters of the U.S./State), and sensitive natural communities found within a 3.7-acre construction Study Area (see DEIR Appendix 3.3-A, BRA Figure 8 for the original construction Study Area boundary). It should be noted that following completion of the BRA the project Study Area was expanded by approximately 0.4-acres to accommodate additional required riprap for a total of 3.7-acres. The Study Area shown in this DEIR includes this expansion area. Field surveys of the expansion area to identify land cover type were completed by ECORP Consulting, Inc. in support of this DEIR. In addition, an ARD was prepared by ECORP (discussed below) to identify the potential jurisdictional limits for waters of the U.S. and waters of the State within the construction Study Area.

The BRA is primarily used in this DEIR for construction impact analysis. The BRA includes setting information generated from assessment-level surveys of the Study Area that is sufficient for EIR impact analysis, however it does not include determinate field surveys for wildlife or plant species. BRA information is supplemented by fisheries analysis developed specifically for this DEIR. The fisheries analysis draws on hydrologic and fisheries information contained in the *Stillwater Sciences Rector Creek Preliminary Instream Flow and Stream Habitat Assessment* (Stillwater Sciences 2019) and the Western Hydrologics (2021) *Rector Reservoir Operations Simulations Modeling* technical studies, setting information contained in the BRA, and other government and commercially available sources. The Western Hydrologics Rector Reservoir Operations Simulation Modeling was used to determine impacts of the proposed operational flow regime on fishery and riparian resources. The Stillwater Sciences *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment* and the Rector Creek *Stream Fish Technical Memorandum* (Stillwater Sciences. June 2021.) provides fisheries and biological resource information and flow data, and is relied on for assessment of the Project's fisheries construction and operational analysis. This information was used to develop the DEIR fisheries construction and operation analysis.

Aquatic Resources Delineation (ARD)

To identity Waters of the U.S. and Waters of the State, an ARD of the Project Study Area was performed on April 20, 2021, in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Region Supplement; USACE 2008). The ARD is contained in DEIR Appendix 3.3-B and identifies 0.161 acre of seasonal creek within the Study Area.

3.3.3 Environmental Setting

Rector Creek Dam and Reservoir are located at approximately 38°26'28.91"N, 122°20'50.85"W at the base of Howell Mountain in Napa County (see DEIR Section 2.0, Figure 2-1). The dam and reservoir are approximately 2.5 miles northeast from the Town of Yountville on Silverado Trail, in Napa County between Napa and St. Helena. Rector Creek crosses Silverado Trail approximately 700 feet downstream of the dam's spillway. Vehicle access to the reservoir and the water treatment plant is through the gate at 7300 Silverado Trail.

Three main perennial tributaries contribute to Rector Reservoir storage: North Fork Rector Creek; mainstem Rector Creek and South Fork (known locally as No Name Creek or Lorette Creek). These three creeks cover approximately 10, 77, and 13 percent of the upper watershed, respectively. The drainage area contributing to Rector Reservoir encompasses about 11 square miles or roughly 6,971 acres (Barber 2017). The watershed boundary around Rector's contributing drainage area extends upstream easterly 4.7 miles to Atlas Peak Mountain. Rector Canyon is steep and narrow and is bounded by the wide plateau, which continues to be developed for wine grape agriculture. Rector Creek, downstream of the dam, runs west to its confluence with Conn Creek, a tributary to the Napa River approximately 2.5 miles downstream of Rector Dam.

Existing Site Characteristics and Land Use

Rector Reservoir typically fills and spills in the wet winter and spring months. Lower Rector Creek is an intermittent stream that is dry, with several isolated pools, during the dry summer months. Under current conditions, water from the reservoir is only able to pass the dam via the spillway (i.e., under spill conditions), the 24-inch emergency release valve located at the base of the dam, and as discharge from the CDFW Fisheries Base via its outfall to the creek located approximately 0.35-mile downstream of the dam (Stillwater Sciences 2019.).

During the dry summer months, surface flow in lower Rector Creek is limited to short reaches of isolated run and pool habitats (e.g., downstream of the Fisheries Base outfall). The creek in this reach supports a predominantly native fish assemblage, which hold in isolated pools and connected run habitats, or move downstream to perennial aquatic habitats in the Napa River prior to the dry summer months, when Rector Creek becomes intermittent. Stillwater Sciences (2019) concluded that suitable substrate for steelhead spawning was very limited in the creek and that productivity of steelhead would likely be low, even under improved flow conditions due to insufficient reservoir storage to maintain perennial flow downstream of the dam. During the field visit in October 2020, there was water in a pool in the creek channel a short distance downstream of the proposed outfall location and another isolated pool downstream of the State Lane crossing; however, the creek bed in this reach was otherwise dry.

Rector Creek Dam is a 164-foot-high earth-fill structure with a crest elevation of 381.5 feet above MSL. The spillway has a crest elevation of 372.5 feet above MSL and a curvilinear crest length of 141.5 feet. The spillway crest elevation was 370.0 feet above MSL prior to 1989, when the spillway was raised to store more water.

A 21-inch pipe with an invert elevation 370.0 feet above MSL was installed when the spillway was raised to allow water to be released onto the spillway from the upper 2.5 feet of the reservoir. A slide gate covers the pipe and has blocked water from the reservoir for several years, according to Rector Water Treatment Plant operators, who monitor the dam.

Behind the dam, water collected from local run-off following storm events is discharged through an outlet tower, or during exceptionally rainy years, via a concrete spillway to Rector Creek. The tower has six intake inverts located 270, 291, 307, 323, 335, and 339 feet above MSL, respectively, however, the intake at 270 feet above MSL is buried by sediment, as determined by a 2000 Department of Water Resources (DWR) bathymetric survey. The lowest operational intake is at 291 feet above MSL, and the dead pool storage below this intake is 478 acre-feet (DWR 2013).

The outlet tower feeds a 30-inch steel pipeline that travels approximately 900 feet through the dam, to a control facility or valve house. Once at the valve house, water is directed to either the water treatment plant (via a continuation of the 30-inch steel pipe), or to Rector Creek, via a 24-inch emergency relief pipeline and gate valve (see DEIR Section 2.0, Figure 2-3). Water typically is stored in Rector Reservoir over the wet winter months and is withdrawn throughout the year as the domestic water supply for Yountville and the Veteran's Home, and over the summer season for irrigation purposes.

Study Area Vegetation Communities and Land Cover Types

The construction Study Area is mapped as "Urban or Built-up" by CDFW (CDFW 2020a). While most of the construction Study Area is identified as "Urban or Built-up" land consisting of heavily impacted and disturbed land, as shown in Figure 3.3-1. *Impacts to Land Cover Types and Potential Waters of the U.S,* a small patch of degraded riparian scrub vegetation was identified during field survey within an existing riprap area located along the bed and bank of Rector Creek. The extent of this habitat does not meet the minimum size for vegetation community mapping of 0.5 acre (CDFW and CNPS 2019). A small portion of the western most construction Study Area includes the developed portion of the Rector Reservoir water treatment operations facility. The disturbed/ruderal land cover is a level area of mostly denuded and compacted dirt at the base of the dam. Scattered weeds include yellow star-thistle (*Centaurea solstitialis*), filaree (*Erodium* species), mustard (*Brassica* species), and wild oats (*Avena fatua*). Two coast live oak trees (*Quercus agrifolia*) are also located within the ruderal-disturbed area.

A narrow degraded riparian scrub vegetation community is dispersed within existing riprap and boulders on the northern creek bank. The degraded riparian scrub is comprised of willows (*Salix* sp.), Fremont cottonwood (*Populus fremontii*), California wild grape (*Vitis californica*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle, and two additional coast live oak trees (*Quercus agrifolia*). At the time of the field assessment on October 30, 2020, there was no flow from Rector Reservoir outfall, but water was being discharged into the creek from a CalFire training facility hydrant which receives untreated water from Rector Reservoir. This created a pool in the creek bed just downstream of the proposed outfall with little to no downstream flow at the time. Aquatic vegetation found in the pool included water primrose (*Ludwigia peploides*).

A list of plant species observed is included in Appendix 3.3-A, Attachment C.

Aquatic Resources

An ARD was conducted for the construction Study Area to identify potential jurisdictional Waters of the U.S./State (see DEIR Appendix 3.3-B). Results of the ARD are contained on Figure 3.3-1 and have not yet been verified by the USACE. As shown in Figure 3.3-1, a total of ±0.161-acre of Seasonal Creek (Rector Creek) has been mapped within the construction Study Area.

Rector Creek is an intermittent creek below Rector Reservoir. The reach of the creek within the Study Area contains a bed of cobble and boulders with little to no vegetation due to the effects of scouring associated with spill events from the reservoir located immediately upstream.

Stream Characteristics

Lower Rector Creek is a low gradient stream traversing a coarse-grained alluvial fan with high infiltration rates, resulting in intermittent pools and connected run habitats during the dry season (Stillwater Sciences 2019). Water quality is generally good, consisting of cool and highly oxygenated water that provides suitable conditions for native fish residing in isolated pools during the dry summer months. Spawning habitat for steelhead and other salmonids is limited, with very few deposits of suitable sized gravels and limited recruitment of gravels from upstream due to the presence of Rector Dam (Stillwater Sciences. 2018). Areas of bank erosion are present throughout the reach extending from the dam down to Silverado Trail. Large boulders and woody material are scarce within the channel. The isolated pools are generally 2-2.5 feet in depth; however, a large pool upstream of Silverado Trail is approximately 8 feet deep (Stillwater Sciences 2019). Riparian conditions in lower Rector Creek range from sparsely vegetated with no overstory to densely vegetated with overhead canopy and riparian understory.

Soils

As shown in Figure 3.3-2. *Natural Resources Conservation Service Soil Types,* according to the Web Soil Survey (NRCS 2020a), two soil units, or types, have been mapped within the Study Area:

- 125 – Cortina very stony loam, 0 to 5 percent slopes and
- 174 – Riverwash

No soil units derived from serpentinite or other ultramafic parent materials are known to occur within the Study Area or its immediate vicinity (SCS 1978).

Figure 3.3-2. Natural Resources Conservation Service Soil Types

Map Features

Survey Area - 3.7 ac.

Series Number - Series Name

125 - Cortina very stony loam, 0 to 5 percent slopes

174 - Riverwash

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Napa County, CA

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Location: N:\2018\2018-116.011 Rector Reservoir Bypass Valve Project\MAPS\Soils_and_Geology\Rector_Soils_20210420.mxd (CCH)-chinkelman 4/21/2021

2018-116.011 Rector Reservoir Bypass Valve Project

Photo (or Base) Source: Napa County NAIP (2018)

Map Date: 4/21/2021

Cortina series soils consist of excessively drained soils on flood plains and alluvial fans. These soils formed from recent stratified alluvium. Cortina very stony loam (125) contains riverwash hydric components in drainageways (NRCS 2020b).

Riverwash (174) is included in miscellaneous areas that are in active stream channels, on flood plains, and adjacent to drainageways. These areas are inundated during periods of waterflow and are subject to constant deposition and removal of material. Riverwash consists of erratically stratified layers of water-deposited sand, gravel, stones, and cobbles. Layers of sandy loam and silt loam are deposited for short periods but are subject to intermittent scouring and removal. Riverwash (174) contains riverwash hydric components in channels and floodplains (NRCS 2020b).

Wildlife

The Study Area is located between Rector Dam and the Rector Reservoir operations facility. Undeveloped lands with oak woodland, oak savannah, and annual grassland are located to the south. The upland portions of the Study Area are largely disturbed, unvegetated, and/or subject to periodic disturbances, so wildlife use is minimal.

Rector Creek below Rector Dam is accessible to anadromous fish and falls within Conservation Lands Network (CLN) “fragmented critical habitat” (Bay Area Open Space Council 2011, Stillwater Sciences 2019). The CLN identifies Bay Area habitats and linkages needed to meet goals for biodiversity conservation. CLN has identified areas that support irreplaceable, rare, and endemic plant and animal species, while also encompassing common plant and animal species (including vegetation types, stream and riparian networks, and migratory corridors).

Wildlife observed during the October 2020 site visit included western fence lizard (*Sceloporus occidentalis*), belted kingfisher (*Megaceryle alcyon*), acorn woodpecker (*Melanerpes formicivorus*), Anna’s hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), house finch (*Haemorhous mexicanus*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Special-Status Species Identified in the Literature Search

For the purposes of this DEIR, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;
- are identified as a species of special concern (SSC) by the CDFW;
- are birds identified as birds of conservation concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR]) 1 and 2) ", “plants about which more

information is needed" (i.e., species with a CRPR of 3), or "plants of limited distribution – a watch list" (i.e., species with a CRPR of 4);

- are plants listed as rare under the California Native Plant Protection Act (NPPA, California Fish and Game Code, § 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

As discussed above, only species that fall into one of the above-listed groups were considered for this assessment. While other species (i.e., special-status lichens, California Natural Diversity Database- (CNDDB-) tracked species with no special status) are sometimes found in database searches or within the literature, these species do not meet the above definition for sensitive species and therefore are not included in this analysis.

A list of all special-status plant and wildlife species identified in the literature search conducted for the BRA as potentially occurring within the Project Study Area is provided in Table 1 of the BRA (See DEIR Appendix 3.3-A). This table includes the listing status for each species, a brief habitat description, and a determination of the potential for the species to occur in or near the Project Study Area. Several species and sensitive habitat types identified in the database and literature searches are not included in BRA Table 1 because the species have been formally delisted or are only tracked by the CNDDB and possess no special status, or because the identified sensitive habitats are not located within the Project Study Area.

Based on species occurrence information from the literature review and observations in the field, the potential for each of these species to occur within the Project Study Area was assessed based on the following criteria:

- Present – Species was observed during the site visit or is known to occur within the Project Study Area based on documented occurrences within the CNDDB or other literature.
- Potential to Occur – Habitat (including soils and elevation requirements) for the species occurs within the Project Study Area.
- Low Potential to Occur – Marginal or limited amounts of habitat occur, and/or the species is not known to occur within the vicinity of the Project Study Area based on CNDDB records and other available documentation.
- Absent – No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Project Study Area based on CNDDB records and other documentation.

Special-Status Plant Species

Eighty-two special-status plant species were identified by the literature review as having the potential to occur within the vicinity of the Study Area. All of these special-status plant species were determined to be absent from the Study Area due to the lack of suitable habitat and/or the species is not known to occur at the elevation of the Study Area (See DEIR Appendix 3.3-A, BRA Table 1). Consequently, there is no further discussion of special-status plants in this analysis.

Special-Status Invertebrate Species

Three special-status invertebrate species were identified as having potential to occur in the Study Area based on the literature review. However, upon further analysis and after the site visit, all three species (California freshwater shrimp [*Syncaris pacifica*], Valley elderberry longhorn beetle [*Desmocerus californicus dimorphus*], and Conservancy fairy shrimp [*Branchinecta conservatio*]) were considered to be absent from the site due to the lack of suitable habitat or the Study Area is outside of the known range of the species. Two elderberry (*Sambucus nigra* ssp. *caerulea*) shrubs are located along Rector Creek in the immediate vicinity of the Study Area. However, the current known distribution of the federally threatened Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) does not include the Study Area and the Napa Valley. No further discussion of these species is provided within this analysis.

Special Status Fish Species

Nine special-status fish were initially identified as having potential to occur in the Study Area based on the literature review. However, upon further analysis and after the site visit, two of these special-status species, delta smelt (*Hypomesus transpacificus*) and longfin smelt (*Spirinchus thaleichthys*), were considered absent from the site due to the lack of suitable habitat and/or the Proposed Project is not within the known range of the species. No further discussion of these two fish species is provided within this assessment. In addition, coho salmon (*Oncorhynchus kisutch*) historically occurred in the watershed; however, this species has been extirpated and, therefore, does not have the potential to occur in the Study Area.

Based on this information, the seven special-status fish species with a potential to occur in the Study Area are:

- Central California Coast (CCC) Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss)* - federal threatened species;
- Central Valley fall/late-fall-run evolutionarily significant unit (ESU) Chinook salmon (*O. tshawytscha*) – federal Species of Concern and California SSC;
- Pacific lamprey (*Lampetra tridentata*) - California SSC;
- River lamprey (*L. ayresi*) - California SSC;
- Riffle sculpin (*Cottus gulosus*) - California SSC;
- Hardhead (*Mylopharodon conocephalus*) - California SSC; and
- Sacramento splittail (*Pogonichthys macrolepidotus*) - California SSC.

A brief description of the seven special-status fish species that have the potential to occur within the Study Area is presented below. Other native fish species documented or potentially occurring in Rector Creek include California roach (*Lavinia symmetricus*), threespine stickleback (*Gasterosteus aculeatus*), Sacramento sucker (*Catostomus occidentalis*), and Sacramento pikeminnow (*Ptychocheilus grandis*) (Stillwater Sciences. December 2019). In addition, Rector Creek in the Project area is designated critical habitat for CCC steelhead and is Essential Fish Habitat (EFH) for Chinook salmon downstream of Rector Reservoir.

Steelhead - Central California Coast DPS

The CCC DPS Steelhead (*Oncorhynchus mykiss)* is considered a threatened species and protected under the ESA. This DPS was listed as threatened on August 18, 1997 (62 FR 43937) and January 5, 2006 (71 FR 834), based on an estimated 85% decline is abundance in the latter half of the twentieth century (Moyle 2002). The CCC DPS steelhead is found in streams from the Russian River to Aptos Creek, and the drainages of San Francisco, San Pablo, and Suisun bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin rivers. Spawning takes place in shallow swift moving riffles with small gravel and cobble as the primary substrate.

Steelhead are the anadromous (i.e., spend adult life stage in ocean and early life stage in freshwater) form of rainbow trout, which are collectively referred to as *O. mykiss*. This species has a very elastic life history, in which resident rainbow trout can have offspring that migrate to the ocean and become the anadromous steelhead form and the anadromous form can have offspring that reside in freshwater their entire life. However, only the anadromous form (i.e., steelhead) of *O. mykiss* is listed under the ESA. Adult steelhead, typically averaging 600 to 800 millimeters in length (Moyle et al. 1989), generally leave the ocean and begin upstream migration through the Delta to spawning reaches in the upper Sacramento and San Joaquin rivers and tributaries from August through March (McEwan 2001), with peak immigration occurring in January and February (Moyle 2002). Spawning generally occurs from January through April (McEwan and Jackson 1996). Redds are typically dug by female fish in water depths of 10 to 150 centimeters (cm) and where water velocities over redds range from 20 to 155 cm per second (Moyle 2002). Juvenile steelhead rear in their natal streams for one to three years prior to emigrating from the river. Emigration of one- to three-year old, sub-adult fish primarily occurs from January through June (Snider and Titus 1996). Steelhead are iteroparous (i.e., able to spawn repeatedly) and may spawn for up to four consecutive years before dying; however, it is rare for steelhead to spawn more than twice and the majority of repeat spawners are females (Busby et al. 1996). Thus, kelts (post-spawning adults) may be present in the Project Study Area shortly after spawning (i.e., January through mid-April).

Limited numbers of *O. mykiss* have been observed in Rector Creek upstream and downstream of Rector Dam and in Conn Creek in recent decades (Stillwater Sciences 2019.). Because the dam is a complete barrier to fish migration, all *O. mykiss* occurring upstream of Rector Dam are resident rainbow trout, while *O. mykiss* occurring downstream of the dam may be steelhead or resident rainbow trout. Spawning activity for steelhead is generally concentrated in the western tributaries of the Napa River watershed, while more limited spawning activity occurs in the eastern tributaries, presumably due to the relatively drier and warmer climate associated with these slopes (Stillwater Sciences 2019). Juvenile steelhead occurring in these intermittent reaches hold in isolated pools, which may maintain suitable temperatures and dissolved oxygen levels in some water years from groundwater inputs (Stillwater Sciences 2021.).

There are no documented CNDDB occurrences of steelhead within five miles of the Study Area (CDFW 2020b), but steelhead are known to occur in Rector Creek downstream of the dam (Stillwater Sciences 2019.) and juvenile steelhead were observed in an isolated pool in the summer of 2020 (Stillwater Sciences 2021).

Critical habitat was designated for CCC steelhead on September 2, 2005 (70 FR 52488) and includes all of lower Rector Creek from Rector Reservoir to its terminus at Conn Creek. As such, the Study Area is located within the designated critical habitat for CCC steelhead.

Chinook Salmon - Central Valley Fall-Run/Late Fall-Run ESU

While the San Francisco/San Pablo Bay complex historically supported a natal run of Chinook salmon, this population was extirpated from the Napa River watershed in the 1900s. In the last several decades, Chinook salmon have recolonized the watershed. Genetic analyses of the Chinook salmon currently occurring in the Napa River indicate that the population is primarily comprised of the Central Valley fall/late fall-run ESU, with a small number of strays from the Klamath River (Garza and Crandall 2013).

The Central Valley fall-run ESU, a federal Species of Concern and California Species of Special Concern, is considered the only run of Chinook salmon currently naturally occurring in the Napa River basin. Adult fall-run Chinook salmon migrate into the Napa, San Joaquin, and Sacramento river systems from September through January, with peak immigration occurring in October and November (Moyle 2002). Spawning typically occurs from October through December, and fry typically begin to emerge in late December and January. Fall-run Chinook salmon may emigrate as post-emergent fry, juveniles, or as smolts after rearing in their natal streams for up to six months.

While Chinook salmon have not been documented in Rector Creek in recent decades, this species has been documented in the Napa River (Blank and Koehler 2020) and Conn Creek (Stillwater Sciences 2019.). Therefore, this ESU has potential to occur in the Study Area during the adult immigration and juvenile emigration periods.

Chinook salmon and coho salmon (*Oncorhynchus kisutch*) and were not included in the NMFS species list for the Yountville quadrangle, but EFH for these protected species was included. Coho salmon are considered extirpated from the Napa River, but Chinook salmon are occasionally found in the Napa River watershed (Stillwater Sciences 2019).

Pacific Lamprey

Pacific lamprey is not listed pursuant to either the federal or California ESAs; however, it is designated by CDFW as an SSC due to declining abundance throughout its range in California (Moyle et al. 2015). The reason for this decline is believed to be a secondary effect of the reduction in abundance of anadromous salmonids, the primary prey of Pacific lamprey.

Lampreys are eel-like, jawless fishes with a cartilaginous skeleton and disc-shaped, sucker-like mouths. Pacific lamprey are predatory and anadromous, although landlocked (i.e., potamodromous) populations exist in some inland water bodies. The adult predatory, ocean-residing stage typically lasts three to four years and these fish rarely stray far from the mouths of their natal streams (Moyle 2002). Adult fish ranging from 30-76 cm total length typically move upstream to spawning streams from March to late June (Moyle 2002). After males and females excavate a redd, the female attaches to the substrate and releases 20,200 to 200,000 eggs that are fertilized by males. The majority of adult fish die following spawning, although a small proportion may survive to spawn the following year at a larger size. The fertilized eggs hatch after approximately 19 days at 15°C (Moyle 2002). The larval ammocoetes remain in the gravel for a short period before emerging and being swept downstream, where they burrow into soft sediments and filter organic material from the substrates. Following a five-- to seven-year residence period in freshwater, the ammocoetes undergo metamorphosis to an adult, predatory stage that is tolerant of saltwater and subsequently migrate downstream under high winter flows to the ocean.

This species has been documented in the Napa River near the Study Area (Blank and Koehler 2020) and, thus, is considered having the potential to occur.

River Lamprey

The river lamprey is a California SSC. The abundance of this species in California is believed to be declining, primarily due to degradation and fragmentation of suitable spawning and rearing habitats and declines in salmonid prey species (Moyle et al. 2015).

The river lamprey is relatively small (averaging 17 cm) and highly predaceous (Moyle 2002). They are anadromous and will attack fish in both fresh and salt water (Moyle 2002). The river lamprey is distributed in streams and rivers along the eastern Pacific Ocean from Juneau, Alaska, to the San Francisco Bay. It may have its greatest abundance in the Sacramento–San Joaquin River system, although it is not commonly observed in large numbers (Moyle et al. 2015). A great deal of what is known about the river lamprey is from information on populations in British Columbia. There, adults migrate from the Pacific Ocean into rivers and streams in the fall and spawn from February through May. Adults will excavate a saucer-shaped depression in sand or gravel riffles where the eggs are deposited. After spawning, the adults perish. Ammocoetes remain in backwaters for several years, where they feed on algae and microorganisms (Moyle et al. 2015). The metamorphosis from juvenile to adulthood begins in July and is complete by the following April. Following completion of metamorphosis, river lamprey congregate immediately upriver from salt water and emigrate into the ocean in late spring (Moyle 2002).

This species has been documented in the Napa River near the Study Area (Blank and Koehler 2020) and, thus, is considered having potential to occur in the Study Area.

Riffle Sculpin

Riffle sculpin (*Cottus gulosus)* is not listed pursuant to either the federal or California ESAs; however, it is designated by CDFW as an SSC. The primary threats to riffle sculpin include increasing isolation between populations, thereby increasing vulnerability to local extirpation, and habitat changes that may reduce flows or increase water temperatures (Moyle et al. 2015).

Riffle sculpin are common in many clear and cold (i.e., maximum temperature <26°C) perennial streams predominated by riffle habitats with rock or gravel substrates and relatively high dissolved oxygen concentrations (Moyle 2002). They are benthic dwellers that typically co-occur with rainbow trout, but occupy different microhabitats and, therefore, interactions between the two species are not common. Riffle sculpin are opportunistic feeders that prey upon benthic macroinvertebrates, amphipods, and other small fish. Riffle sculpin typically have a four-year life span and reach sexual maturity at the end of their second year. Spawning typically occurs from late February through April in nests on the underside of rocks in riffles, or in cavities of submerged logs (Moyle 2002). Embryos hatch in 11-24 days at temperatures of 10-15°C, and adult males guard the embryos and fry during this period.

This species has been documented in the Napa River near the Study Area (Blank and Koehler 2020) and was observed in the study area in 2020 (Stillwater Sciences 2021.).

Hardhead

Hardhead is not listed pursuant to either the federal or California ESAs; however, it is designated by CDFW as an SSC due to declining numbers and small, isolated populations (Moyle et al. 2015). Primary threats to the species include dams and diversions, water quality degradation associated with agricultural activities, and invasive species (Moyle et al. 2015).

Hardhead occur in relatively undisturbed clear and cool (i.e., up to 20°C maximum summer temperature) low- to mid-elevation streams below approximately 1,500 meters (Moyle et al. 2015). Hardhead are primarily bottom-feeding fish that forage on aquatic invertebrates and aquatic vegetation, but will also prey on drifting invertebrates, plankton, and algae and terrestrial insects (Moyle et al. 2015). Hardhead reach maturity at age two and spawn primarily in April and May (Moyle 2002). Adult fish migrate into smaller tributary streams and aggregate in pools, returning to their home pools in larger rivers after spawning. Females produce over 20,000 eggs, which are deposited in sand or gravel substrates in riffles, runs, or heads of pools (Moyle 2002). After hatching, larval fish are believed to remain in near-shore areas with dense cover, gradually moving downstream and into deeper habitats with increased growth.

This species has been documented in the Napa River near the Study Area (Koehler 2007) and, thus, is considered having potential to occur in the Study Area.

Sacramento Splittail

Sacramento splittail is not listed pursuant to either the federal or California ESAs; however, it was previously listed as a threatened species by the USFWS in 1999 and was subsequently delisted in 2003 in light of new information regarding the biology and status of the species (Moyle et al. 2004). It is currently designated by CDFW as an SSC due to declining abundance and distribution. Major factors that may threaten the abundance and distribution of Sacramento splittail include major dams, water quality degradation associated with agricultural activities, alteration of the Sacramento-San Joaquin River Estuary, and invasive species (Moyle et al. 2015).

Sacramento splittail are relatively large (i.e., 40 cm SL) and long-lived (i.e., seven-10 years) warm water fish typically found at water temperatures ranging from 5-24°C (Moyle 2002). When acclimated to elevated temperatures, splittail can tolerate temperatures up to 33°C (Moyle 2002). Adult splittail typically reach sexual maturity in their second year. Upon reaching maturity, adult splittail migrate upstream from November through February (Moyle 2002). Adults spawn on floodplains or flooded edge habitats in

March and April at water temperatures between 14-19°F (Moyle 2002) and then move back downstream. Eggs acquire adhesive properties following exposure to water and adhere to vegetation or other benthic substrates. Fertilized eggs generally hatch in three to five days and larvae begin feeding on plankton soon thereafter. Juvenile splittail inhabit shallow, low-velocity habitats with abundant vegetation as they migrate downstream to the Delta. Emigration through the lower Sacramento River occurs from February through August, with peak emigration occurring from March through June (Moyle 2002). Splittail are benthic foragers that feed primarily on aquatic invertebrates, although detritus may make up a substantial proportion of their diet (Moyle et al. 2015).

This species has been documented in the Napa River near the Study Area (Koehler 2007) and, thus, is considered having potential to occur in the Study Area.

Special-Status Amphibian Species

Four special-status amphibians were identified as having potential to occur in the Study Area based on the literature review. However, upon further analysis and after the site visit, two of these special-status species, red-bellied newt (*Taricha rivularis*) and California giant salamander (*Dicamptodon ensatus*) were considered absent from the site due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. A brief description of the two remaining species that have the potential to occur within the Study Area is presented below. Stillwater Sciences (2021) made incidental observations of rough-skinned newts (*Taricha granulosa*), which is not a special-status amphibian species, at two Rector Creek locations during their April 2020 fish population surveys.

California Red-legged Frog

The California red-legged frog (CRLF, *Rana draytonii*) is listed as threatened pursuant to the ESA and is a California SSC. The current range of most remaining populations occur along the coast from Marin County to Ventura County and in blue oak woodland, foothill pine/oak, and riparian deciduous forests in the foothills of the western slope of the Sierra Nevada (Barry and Fellers 2013). Breeding habitat includes coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams. Creeks and ponds with dense growths of woody riparian vegetation, especially willows are preferred (Hayes and Jennings 1988). Adult CRLF use dense, shrubby or emergent riparian vegetation near deep [≥ 0.6 to 0.9 meters (2 to 3 feet)], still or slow-moving water, especially where dense stands of overhanging willow and an intermixed fringe of cattail (*Typha* sp.) occur adjacent to open water. CRLF breed from November through April (Jennings and Hayes 1994), and larvae generally metamorphose by mid to late summer. Upland and riparian areas provide important sheltering habitat during summer when CRLF aestivate in dense vegetation, burrows, and leaf litter.

There are no documented CNDDB occurrences of CRLF within five miles of the Study Area (CDFW 2020b). The ponded area within Rector Creek provides potentially suitable breeding habitat for this species, while the streambed and banks provide potential dispersal and foraging habitat.

Foothill Yellow-legged Frog

The Northwest/North Coast Clade of foothill yellow-legged frog (FYLF, *Rana boylii*) is not listed under the California ESA, as other clades are, but is considered a CDFW SSC. The Northwest/North Coast clade of FYLF occurs in Colusa, Del Norte, Glenn, Humboldt, Lake, Marin, Mendocino, Napa, Shasta, Solano, Sonoma, Tehama, Trinity, and Yolo counties, and portions of Butte, Lassen, Modoc, and Siskiyou counties. FYLFs occupy rocky streams in valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow plant communities. They are rarely found far from water and will often dive into water to take refuge under rocks or sediment when disturbed (Zeiner et al., 1988).

There are six documented CNDDB occurrences of FYLF within five miles of the Study Area (CDFW 2020b). Rector Creek within the Study Area provides potential habitat for this species.

Special-Status Reptile Species

One special-status reptile, Northwestern pond turtle (*Actinemys marmorata*), was identified as having the potential to occur in the Study Area based on the literature review. Based on the results of the site visit, it was determined that Rector Creek represents potentially suitable habitat.

Northwestern Pond Turtle

The Northwestern pond turtle is not listed pursuant to either the California or federal ESAs; however, it is designated as a CDFW SSC. They can occur in a variety of waters including ponds, lakes, streams, reservoirs, rivers, settling ponds of wastewater treatment plants, and other permanent and ephemeral wetlands (Bury et al. 2012). However, in streams and other lotic features they generally require slack- or slow-water aquatic microhabitats (Jennings and Hayes 1994). Western pond turtles also require basking areas such as logs, rocks, banks, and brush piles for thermoregulation (Bury et al. 2012). They are typically active between March or April through October or November, the timing of which depends on variables such as latitude, elevation, local climate (Bury et al. 2012).

There is one documented CNDDB occurrence of Northwestern pond turtle within five miles of the Study Area (CDFW 2020b). Rector Creek, within the Study Area, provides suitable habitat for this species. Northwestern pond turtle has potential to occur.

Special-Status Bird Species

Twenty-four special-status bird species were identified as having the potential to occur within the Study Area based on the literature review. However, upon further analysis and after the site visit, 21 of these species were considered absent from the site due to the lack of suitable habitat and/or the Study Area is outside the known range of the species. No further discussion of these species is provided in this analysis. A brief description of the remaining three species that have the potential to occur within the Study Area is presented below.

White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) is not listed pursuant to either the California or federal ESAs; however, the species is fully protected pursuant to § 3511 of the California Fish and Game Code. This species is a common resident in the Central Valley and the entire length of the California coast, and all areas up to the Sierra Nevada foothills and southeastern deserts (Dunk 2020). In northern California, white-tailed kite nesting occurs from March through early August, with nesting activity peaking from March through June. Nesting occurs in trees within riparian, oak woodland, savannah, and agricultural communities that are near foraging areas such as low elevation grasslands, agricultural, meadows, farmlands, savannahs, and emergent wetlands (Dunk 2020).

There are two CNDDB occurrences of white-tailed kite reported within five miles of the Study Area (CDFW 2020b). The isolated oak trees in the ruderal/disturbed area onsite provides suitable nesting habitat for this species. However, the likelihood of existing human-related disturbances at this location reduces, but does not eliminate, the potential for nesting onsite. White-tailed kite has low potential to occur.

Nuttall's Woodpecker

The Nuttall's woodpecker (*Dryobates nuttallii*) is not listed under either state or federal ESAs but is considered a USFWS BCC. They are resident from Siskiyou County south to Baja California. Nuttall's woodpeckers nest in tree cavities primarily within oak woodlands, but also can be found in riparian woodlands (Lowther et al. 2020). Breeding occurs during April through July.

There are no documented CNDDB occurrences of this species within five miles of the Study Area (CDFW 2020b). The isolated oak trees in the ruderal/disturbed area onsite provides suitable nesting habitat for this species. However, the likelihood of existing human-related disturbances at this location reduces, but does not eliminate, the potential for nesting onsite. Nuttall's woodpecker has low potential to occur.

Lawrence's Goldfinch

The Lawrence's goldfinch (*Spinus lawrencei*) is not listed pursuant to either the California or federal ESAs, but is currently a BCC according to the USFWS. Lawrence's goldfinch breed west of the Sierra Nevada-Cascade axis from Tehama, Shasta, and Trinity counties south into the foothills surrounding the Central Valley to Kern County; and on the Coast Range from Contra Costa County to Santa Barbara County (Watt et al. 2020). Lawrence's goldfinch nest in arid woodlands usually with brushy areas, tall annual weeds and a local water source (Watt et al. 2020). Nesting occurs during March through September.

While no occurrences of Lawrence's goldfinch have been reported within five miles of the Study Area (CDFW 2020b), the degraded riparian scrub community within the Study Area provides marginally suitable nesting habitat for this species. Lawrence's goldfinch has low potential to occur.

Migratory Bird Treaty Act Birds

The Study Area supports potential nesting habitat for a variety of common birds protected under the MBTA and California Fish and Game Code § 3503, among others.

Special Status Mammal Species

Four special-status mammal species were identified as having the potential to occur within the Study Area based on the literature review. However, upon further analysis and after the site visit, two of these species, Townsend's big-eared bat [*Corynorhinus townsendii*] and American badger [*Taxidea taxus*) were considered to be absent from the site due to the lack of suitable habitat. No further discussion of these species is provided within this analysis. A brief description of the remaining two species that have the potential to occur within the Study Area is presented below.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. The pallid bat is a large, light-colored bat with long, prominent ears and pink, brown, or grey wing and tail membranes. This species ranges throughout North America from the interior of British Columbia, south to Mexico, and east to Texas. The pallid bat inhabits low elevation (below 6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forest (above 7,000 feet). This species roosts alone or in groups in the crevices of rocky outcrops and cliffs, caves, mines, trees, and in various human structures such as bridges, and barns. Pallid bats are feeding generalists that glean a variety of arthropod prey from surfaces as well as capturing insects on the wing. Foraging occurs over grasslands, oak savannahs, ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. Although this species utilizes echolocation to locate prey, often they use only passive acoustic cues. This species is not thought to migrate long distances between summer and winter sites (Western Bat Working Group [WBWG] 2020).

There are two CNDDB occurrences of pallid bat reported within five miles of the Study Area (CDFW 2020b). The isolated oak trees in the ruderal/disturbed area and the outfall structure onsite could support marginally suitable roosting habitat for this species. Pallid bat has low potential to occur.

Western Red Bat

The western red bat (*Lasiurus blossevillii*) is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This species is broadly distributed; its range extending from southern British Columbia in Canada through much of the western United States to Argentina and Chile in South America. This solitary species day-roosts primarily in the foliage of trees or shrubs in edge habitats bordering streams or open fields, in orchards, and occasionally urban areas. They may be associated with intact riparian habitat, especially with willows, cottonwoods, and sycamores. This species may occasionally utilize caves for roosting as well. They feed on a variety of insects, and generally begin to forage one to two hours after sunset. This species is considered highly migratory; however, the timing of migration and the summer ranges of males and females may be different. Winter behavior of this species is poorly understood (WBWG 2020).

There are no CNDDB occurrences of western red bat reported within five miles of the Study Area (CDFW 2020b). The isolated oak trees in the ruderal/disturbed area onsite could support marginally suitable roosting habitat for this species. Western red bat has low potential to occur.

Sensitive Natural Communities

One sensitive natural community, Northern Vernal Pool, was identified as having the potential to occur within the vicinity of the Study Area based on the literature review (CDFW 2020b). During the field assessment, no sensitive natural communities were found onsite. No further discussion of sensitive natural communities is provided in this analysis.

3.3.4 Regulatory Setting

Federal

Endangered Species Act of 1973

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS and NMFS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion (BO), the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits for non-federal actions provided a Habitat Conservation Plan (HCP) is developed.

Federal Endangered Species Act Section 7

Section 7 of the ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies’ actions do not jeopardize the continued existence of a listed species or adversely modify Critical Habitat for listed species. If direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The USFWS and/or NMFS reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO, which may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

Critical Habitat

Critical Habitat is defined in Section 3 of the ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and
2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential lifecycle needs of the species. These include but are not limited to the following:

1. Space for individual and population growth and for normal behavior;
2. Food, water, air, light, minerals, or other nutritional or physiological requirements;
3. Cover or shelter;
4. Sites for breeding, reproduction, or rearing (or development) of offspring;
5. Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species;

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized under the MBTA, USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR Part 21 Migratory Bird Permits. The State of California has incorporated the protection of non-game birds in § 3800, migratory birds in § 3513, and birds of prey in § 3503.5 of the California Fish and Game Code.

Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Section 404 of the CWA prohibits the discharge of dredged or fill material into “Waters of the United States” without a permit from the USACE. The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas “that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3 (c)(16). The U.S.

Environmental Protection Agency (USEPA) also has authority over Waters of the U.S. and may veto an USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; in California, this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

Magnuson-Stevens Fishery Conservation and Management Act

The 1996 Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended (16 USC 1801), requires federal agencies to consult with NMFS whenever a proposed action has a potential to adversely affect essential fish habitat (EFH). Although states are not required to consult with NMFS, NMFS is required to develop EFH conservation recommendations for any state agency activities with the potential to affect EFH. EFH is defined in the MSA as "…those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity" and includes the necessary habitat for managed fish to complete their life cycles and contribute to a sustainable fishery and healthy ecosystem." Although the concept of EFH is similar to the ESA definition of Critical Habitat, measures recommended by NMFS or a regional fisheries management council to protect EFH are advisory, rather than prescriptive (NMFS 1998).

U.S. Fish and Wildlife Service Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, USFWS published a list of BCC (USFWS 2008) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Projects that result in substantial impacts to BCC may be considered significant under CEQA.

State

California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) protects species of fish, wildlife, and plants listed by the State as endangered or threatened. Species identified as candidates for listing may also receive protection. Section 2080 of the California ESA prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Section 2081 of the California ESA allows for take incidental to otherwise lawful projects under permits issued by CDFW.

Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and the California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. Fully protected species are identified in the California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish.

These sections of the California Fish and Game Code provide that fully protected species may not be taken or possessed at any time, including prohibition of CDFW from issuing incidental take permits for fully protected species under the California ESA. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

Native Plant Protection Act

The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was established with the intent to "preserve, protect and enhance rare and endangered plants in this state." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as "endangered" or "rare." The NPPA prohibits the take of plants listed under the NPPA, but the NPPA contains a number of exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under NPPA. Plants listed as rare under NPPA are not protected under the California ESA but are still protected under the provisions of NPPA. The Fish and Game Commission no longer lists plants under NPPA, reserving all listings to the California ESA

California Fish and Game Code Special Protections for Birds

In addition to protections contained within the California ESA and California Fish and Game Code § 3511 described above, the California Fish and Game Code includes a number of sections that specifically protect certain birds:

- Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.
- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests.
- Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic nonnative species, or any part of these birds.

- Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires individuals or agencies to provide a Notification of Lake or Streambed Alteration (LSA) to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions and, if necessary, proposed measures to protect affected fish and wildlife resources. The final proposal mutually agreed upon by CDFW and the applicant is the LSA Agreement.

Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the state Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State that may not be regulated by the USACE under the CWA. The RWQCB may require issuance of a Waste Discharge Requirements (WDRs) for these activities

California Environmental Quality Act

In accordance with CEQA Guidelines § 15380, a species or subspecies not specifically protected under the federal or California ESAs or NPPA may be considered endangered, rare, or threatened for CEQA review purposes if the species meets certain criteria specified in the Guidelines. These criteria parallel the definitions used in the ESA, California ESA, and NPPA. Section 15380 was included in the CEQA Guidelines primarily to address situations in which a project under review may have a significant effect on a species that has not been listed under the ESA, California ESA, or NPPA, but that may meet the definition of endangered, rare, or threatened. Animal species identified as SSC by CDFW, birds identified as a conservation concern by USFWS, and plants identified by the CNPS as rare, threatened, or endangered may meet the CEQA definition of rare or endangered.

Species of Special Concern

SSC are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal ESA, California ESA, or California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding range.
- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for State threatened or endangered status.
- SSC are typically associated with habitats that are threatened.

Projects that result in substantial impacts to SSC may be considered significant under CEQA.

Sensitive Natural Communities

The CDFW maintains the *California Natural Community List* (CDFW 2019), which provides a list of vegetation alliances, associations, and special stands as defined in the *Manual of California Vegetation* (Sawyer et al. 2009), along with their respective state and global rarity ranks. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Impacts to sensitive natural communities may be considered significant under CEQA.

California Rare Plant Ranks

The CNPS maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2020), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private-sector botanists, and is jointly managed by CDFW and the CNPS. No rare or endangered plants or their habitats were found within the Study Area and consequently California Rare Plant Ranks are not discussed further.

Local

Napa County General Plan

The Conservation Element of the Napa County General Plan (Napa County 2009) provides goals, policies, and action items related to open space conservation as well as a wide range of other topics that together comprise the natural environment of Napa County, including its natural and water resources. The goals and policies of this Conservation Element are intended to recognize and support positive industry trends, private-public partnership efforts, and effective elements of the existing regulatory framework.

The following Conservation Element Goals and Policies are pertinent to this Project:

Goals:

CON-2: *Maintain and enhance the existing level of biodiversity.*

CON-3: *Protect the continued presence of special-status species, including special-status plants, special-status wildlife, and their habitats, and comply with all applicable state, federal, or local laws or regulations.*

CON-4: *Conserve, protect, and improve plant, wildlife, and fishery habitats for all native species in Napa County.*

CON-5: *Protect connectivity and continuous habitat areas for wildlife movement.*

Policies:

CON-10: The County shall conserve and improve fisheries and wildlife habitat in cooperation with governmental agencies, private associations and individuals in Napa County.

CON-11: The County shall maintain and improve fisheries habitat through a variety of appropriate measures.

CON-12: Public water development projects shall provide an adequate release flow of water to preserve fish populations and public access to the water via public lands.

CON-13: The County shall require that all discretionary residential, commercial, industrial, recreational, agricultural, and water development projects consider and address impacts to wildlife habitat and avoid impacts to fisheries and habitat supporting special-status species to the extent feasible.

CON-16: The County shall require a biological resources evaluation for discretionary projects in areas identified to contain or potentially contain special-status species based upon data provided in the Baseline Data Report (BDR), California Natural Diversity Database (CNDDB), or other technical materials. This evaluation shall be conducted prior to the approval of any earthmoving activities. The County shall also encourage the development of programs to protect special-status species and disseminate updated information to state and federal resource agencies.

3.3.5 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this DEIR, implementation of the proposed Project would have a significant adverse impact on biological resources if it would result in any of the following:

- 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 CDFW, NMFS, or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- 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;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Methods of Analysis

Fisheries Resources

The construction-related and long-term impacts of Project implementation on Rector Creek fisheries resources considers the impacts on one special-status fish species occurring in Rector Creek: CCV DPS steelhead (federal threatened). This species represents the most sensitive fish species occurring in Rector Creek and, like all resident native and non-native fish occurring in Rector Creek, has the potential to occur year-round in all aquatic habitats having adequate flow and depth conditions to support fish. Other anadromous fish species (e.g., CV fall-run Chinook salmon, Pacific lamprey, river lamprey) may occur seasonally and opportunistically in Rector Creek and be subject to the same impacts associated with construction and long-term implementation of the Project during their periods of occurrence in Rector Creek.

Construction-related impacts consider the timing, duration, nature, and magnitude of impacts on fish and instream habitat of Rector Creek within the Project Study Area, including, but not limited to, the following factors:

- The species-specific and life stage-specific timing of occurrences of special-status fish species in the Project Area;
- The nature of the construction work and all included measures to avoid or minimize impacts on fisheries resources;
- The nature of the instream habitat being affected by construction-related activities; and
- The ability of fish to avoid or move past areas of active construction.

Long-term Project operation would result in changes to instream flows downstream of the Rector Creek Diversion site, relative to existing conditions. The determination of the magnitude and significance of these effects considers numerous factors, including, but not limited to, the following:

- Changes in instream habitat;
- Changes in flows and associated flow-based habitat conditions during the critical summer rearing period;
- Secondary effects, including potential increases in susceptibility to predation or reduction in foraging success; and
- Changes in migration conditions.

Terrestrial Resources

For terrestrial resources, a cover type habitat analysis was performed based on setting resource information contained in the BRA. This involved overlaying project improvements on cover type mapping using Geographic Information System (GIS) analysis to estimate project habitat impacts.

The BRA included a field assessment for special-status species conducted by ECORP biologist Keith Kwan on October 13, 2020. The purpose of this assessment was to identify potential onsite biological resource constraints (e.g., aquatic resources, special-status species) and related impacts and mitigation under CEQA. The following resources were queried to determine the special-status species that had been documented within or in the vicinity of the Study Area:

- CDFW CNDDB data for the "Yountville, California" 7.5-minute USGS quadrangle and the 8 surrounding USGS quadrangles (CDFW 2020b).
- USFWS Information, Planning, and Consultation System (IPaC) Resource Report List for the Study Area (USFWS 2020).
- CNPS' electronic *Inventory of Rare and Endangered Plants of California* for the "Yountville, California" 7.5-minute USGS quadrangle and the eight surrounding USGS quadrangles (CNPS 2020).

Results of database queries are included in DEIR Appendix 3.3-A, Attachment A.

During the assessment, the following biological resource information was collected:

- Direct observations of special-status species;
- Animal and plant species directly observed;
- Habitat and vegetation communities.

For the purposes of the BRA, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal ESA;
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;
- are identified as a SSC by the CDFW;
- are birds identified as BCC by the USFWS;
- are plants considered by the CNPS to be "rare, threatened, or endangered in California" [CRPR 1 and 2] ", “plants about which more information is needed” (i.e., species with a CRPR of 3), or “plants of limited distribution – a watch list” (i.e., species with a CRPR of 4);
- are plants listed as rare under the NPPA, California Fish and Game Code, § 1900 et seq.; or
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

As discussed above, only species that fall into one of the above-listed groups were considered for this assessment. While other species (i.e., special-status lichens, CNDDB-tracked species with no special status) are sometimes found in database searches or within the literature, these species do not meet the above definition for sensitive species and therefore are not included in this analysis.

Sensitive Natural Communities

Napa County Vegetation Alliance data (CDFW 2020a; Thorne et al. 2004) were used to initially delineate vegetation communities onsite. This was further refined and categorized, if necessary, according to the *Manual of California Vegetation, Second Edition* (Sawyer et al., 2009) following the site assessment on October 13, 2020. Sensitive natural communities are those that are listed in the CNDDB and identified in the Napa County Baseline Data Report as a sensitive biotic community (Jones & Stokes and EDAW 2005). According to the Baseline Data Report, no sensitive natural communities exist within the Study Area.

Proposed Project Facilities

As discussed in DEIR Section 2.0 and as shown on Figure 2.3, the proposed Project includes construction of the following physical improvements:

Diversion Pipeline: The Project would construct a new 425-foot-long, 12-inch Diversion Pipeline to convey water from the existing 30-inch water line at the base of Rector Dam to Rector Creek. This new line would greatly increase Rector Dam downstream release operational flexibility.

Bypass Valve and Flow Meter Station: A new Bypass Valve and Flow Meter Station would be constructed along the new 12-inch diversion pipeline to allow for bypass flow management and monitoring. This would include construction of an underground communications conduit from the exiting treatment facility to the Bypass Valve to allow for remote operation.

Outfall Structure and Riprap: A new headwall, outfall and energy dissipating riprap would be constructed at the end of the new 12-inch diversion pipeline where it discharges to Rector Creek. Proposed outfall riprap would also extend upstream along the north bank to provide added erosion protection.

Impacts and Mitigation

Impact 3.3-1: Project construction activities could adversely affect, either directly or through habitat modifications, species identified as a candidate, sensitive, or special-status wildlife species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*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 CDFW or USFWS, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA Guidelines.*

As discussed above and presented in BRA Table 1 (See DEIR Appendix 3.3-A), there is potentially suitable habitat within the Project Study Area for two special-status amphibians, one special-status reptile, three special-status birds, two special-status mammals, and seven special-status fish species. An analysis of impacts and recommended mitigation measures for these species is presented below.

No potentially suitable habitat for special status invertebrate or plants was identified within the Project Study Area and therefore these species are not discussed further.

Construction.

The special status species impacts due to construction of the Proposed Project improvements are presented below. With the exception of fish, Project operation would not impact special status species. Therefore, the Project operation analysis on special status species is limited to CCC DPS steelhead in the discussion below.

<u>Amphibians - California Red-legged Frog and Foothill Yellow-legged Frog.</u>

There are no documented CNDDB occurrences of CRLF within five miles of the Study Area (CDFW 2020b). However, ponded area within Rector Creek provides potentially suitable breeding habitat for this species and the streambed and banks provide potential dispersal and foraging habitat.

Proposed construction of the Diversion Pipeline and Outfall Structure and associated riprap would result in temporary and permanent impacts to riparian scrub habitat (as identified in Figure 3.3-1) and could injure or kill CRLF which is a significant impact. Implementation of mitigation measures **BIO-1**; **BIO-2**; **BIO-3** and **BIO-4**, would reduce this impact *to* ***less than significant with mitigation incorporated***.

There are six documented CNDDB occurrences of FYLF within five miles of the Study Area (CDFW 2020b). The Northwest/North Coast Clade of foothill yellow-legged frog (FYLF, *Rana boylii*) is not listed under the California ESA, as other clades are, but is considered a CDFW SSC. Rector Creek and associated riparian scrub within the Study Area provides potential habitat for this species. Proposed construction of the Diversion Pipeline and Outfall Structure and associated riprap would result in temporary and permanent impacts to riparian scrub habitat (as identified in Figure 3.3-1) and has the potential to injure or kill FYLF which is a significant impact. Implementation of mitigation measures **BIO-1, BIO-2, BIO-3** and **BIO-5** would reduce this impact to ***less than significant with mitigation***.

<u>Reptiles - Northwestern Pond Turtle.</u>

The project site is located within and adjacent suitable habitat for Northwestern pond turtle. While no in water construction activities are proposed, Project construction would result in temporary and permanent impacts to Northwestern pond turtle suitable habitat and could injure or kill Northwestern pond turtle, which would be a significant impact. Implementation of mitigation measures **BIO-1, BIO-2, BIO-3** and **BIO-6** would reduce this impact to ***less than significant with mitigation***.

<u>Birds: Special-Status Raptors and other Protected Raptors – White-tailed Kite, Nuttall's woodpecker, and Lawrence's goldfinch.</u>

Construction and other ground-disturbing activities associated with installation of the underground electric service line, the Bypass Pipeline, Bypass Valve and Flow Meter Station and the Outfall Structure and associated riprap could disrupt nesting and impact white-tailed kite, Nuttall's woodpecker, and Lawrence's goldfinch or other raptor nests if construction occurs within 500 feet of suitable habitat. This is a significant impact. Implementation of mitigation measures **BIO-2, BIO-3** and **BIO-7** would reduce this impact to ***less than significant with mitigation***.

<u>Other Special-Status Birds and MBTA-Protected Birds.</u>

Project construction and other ground-disturbing activities that occur within 100 feet of a special-status bird and/or MBTA bird nests could disrupt nesting activity. This would be a significant impact. Implementation of mitigation measures **BIO-2, BIO-3** and **BIO-7** would reduce this impact to ***less than significant with mitigation***.

<u>Mammals – pallid bat and western red bat.</u>

Project construction could affect the special-status pallid and western red bats including disruption of nesting activity. This is a significant impact. Implementation of mitigation measures **BIO-2, BIO-3** and, **BIO-8** would reduce this impact to ***less than significant with mitigation***.

Fish

Seven special-status fish species have been identified as potentially occurring within this reach of Rector Creek: (1) CCC DPS steelhead, (2) CV fall/late fall-run ESU Chinook salmon, (3) Pacific lamprey, (4) river lamprey, (5) riffle sculpin, (6) hardhead, and (7) Sacramento splittail. Of these seven special-status fish species, CCC DPS steelhead is the only ESA-listed species documented in lower Rector Creek and, because it requires coldwater refuge for rearing and growth year-round, is considered the most sensitive fish species occurring in lower Rector Creek. Furthermore, CCC DPS steelhead is listed under the federal ESA and lower Rector Creek downstream of Rector Dam is designated critical habitat for this DPS. While CV fall/late fall-run ESU Chinook salmon, Pacific lamprey, and river lamprey may have a potential to occur in Rector Creek, they have not been documented or observed in recent decades and would not occur during the summer construction period due to their life history.

The only improvement with potential for direct effects to steelhead and other resident fish species is construction of the proposed Outfall Structure and associated riprap. These facilities would not result in direct impacts to steelhead, designated critical habitat for this DPS, or other resident fish species because construction would only occur during the summer months when Rector Creek is not flowing at the proposed outfall location and, therefore, no fish would be present within the active construction area. Although an isolated pool that could potentially support over-summering juvenile steelhead and other resident native and nonnative fish occurs directly downstream of the proposed outfall location, this pool is not in the immediate vicinity of active construction and, therefore, fish occurring in this pool would not be directly impacted by construction of the outfall.

While no direct effects to steelhead or other resident fish would occur, proposed construction earthwork (grading, trenching, backfilling, and restoration) could result in erosion and silt-laden runoff entering surface waters of Rector Creek. If not properly implemented and controlled, during the initial fall/winter rainfall events following construction this could result in indirect impacts to fish populations in Rector Creek. This is a significant impact. Implementation of Mitigation Measures **BIO-1, BIO-2** and **BIO-3** would reduce this impact to ***less than significant with mitigation***.

Operation.

The long-term operational effects of the Proposed Project on CCC DPS steelhead, other special-status fish, and aquatic habitat include increased flows in all months, relative to existing conditions, and altered habitat at the outfall location site.

Long-term Project operation would implement the interim environmental flow schedule presented in Table 2-8, Section 2 of this DEIR. Operation of the Project would ensure that minimum releases to Rector Creek are realized. These minimum flow releases would be met by a combination of existing releases from the Fisheries Base return flows and discharges from the newly constructed outfall.

The largest proposed flow increases would occur during the January-March steelhead migration and spawning period, which would increase the wetted channel width and/or water depths, thereby improving conditions for migration and spawning. However, like the existing Fisheries Base discharge, discharges from the new outfall would not create a continuous surface flow connection to Conn Creek during the dry summer period due to the high permeability of the underlying substrates (Stillwater Sciences 2019). Rather, summer flows provided from the new outfall would provide a relatively short reach of surface flow that is likely too shallow to support juvenile rainbow trout, but would increase groundwater infiltration, thereby indirectly improving conditions (e.g., depth, volume, and/or temperature) of isolated pools downstream of the outfall, which provide over-summering habitat for juvenile CCC DPS steelhead, benthic macroinvertebrates (BMI; the primary food source for juvenile salmonids), and other special-status fish, amphibians, and other aquatic/semi-aquatic species. This discharge would have the most notable improvement on the temperature and volume of the large pool located directly downstream of the outfall. Furthermore, the increased surface and groundwater flows would also support and improve growth of riparian vegetation, which would indirectly improve conditions for steelhead and other fish and aquatic organisms by providing shade to cool isolated pools that persist throughout lower Rector Creek during the summer months and cover in the form of riparian vegetation and inputs of large woody debris. As such, the increased flows would increase flows year-round, relative to existing conditions, and, therefore, would provide a beneficial impact to fish and aquatic habitat, including CCC DPS steelhead, critical habitat for this DPS, EFH for Chinook salmon, and all other special-status fish species.

As discussed in Section 2.5.3 (Pipeline Outfall) and illustrated in Figure 2-5, the existing river-right bank at the proposed outfall location would be replaced with a riprap apron approximately 8 feet wide by 10 feet long, by 3.5 feet deep to dissipate the energy of the discharge (i.e., estimated to be 12 feet per second [fps]) and reduce the potential for erosion. The creek banks in the proposed outfall location are steep, composed of fine sediments, and largely highly erodible. Interstitial spaces in riprap may provide habitat for piscivorous “ambush predators” (e.g., Sacramento pikeminnow) that prey on juvenile salmonids and other small fish. However, based on the location of the riprap apron (i.e., near the top of the bank at an elevation of 217 feet MSL and above the OHWM), the riprap would be above the creek’s water surface elevation under most flow conditions (see Figure 3.3-1). During major episodic storm events, high flows may temporarily and shallowly submerge the riprap around the outfall; however, this area would be subject to the high velocities (i.e., 12 fps) of the discharge, which is not conducive to effective predation. Based on these considerations and the small area (0.002 acre) of the bank below the OHWM that would be modified, relative to existing conditions in this reach of lower Rector Creek, the altered bank habitat associated with the outfall would have a ***less-than-significant impact*** on habitat for special-status fish species, including critical habitat for CCC DPS steelhead and EFH for Chinook salmon.

<u>Mitigation Measures</u>

BIO-1: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Non-Wetland Waters

CalVet and its contractors shall ensure that the Project will comply with all construction site BMPs specified in the Storm Water Pollution Prevention Plan (if required) and/or Mitigation Measure HYD-1 to minimize the introduction of construction-related contaminants and mobilization of sediment in wetlands and non-wetland waters in and adjacent to the Project Study Area. These BMPs shall address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-stormwater management, and waste management practices. The BMPs shall be based on the best conventional and best available technology.

BIO-2: Install Fencing and/or Flagging to Protect Sensitive Biological Resources

Prior to construction, CalVet and its contractor shall install high-visibility orange construction fencing and/or flagging, as appropriate, along the perimeter of the work area where adjacent to Environmentally Sensitive Areas (e.g., any special-status species habitat and/or active bird nests that may be identified during per-construction surveys). CalVet shall ensure that the final construction plans show the locations where fencing will be installed. The plans also will define the fencing installation procedure. CalVet and the contractor (at the discretion of CalVet) shall ensure that fencing is maintained throughout the duration of the construction period. If the fencing is removed, damaged, or otherwise compromised during the construction period, construction activities will cease until the fencing is repaired or replaced. Project construction specifications shall provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within Environmentally Sensitive Areas. All temporary fencing shall be removed upon completion of construction.

BIO-3: Conduct Environmental Awareness Training for Construction Personnel

Before any work occurs within the project limits, including equipment staging, grading, and tree and/or vegetation removal (clear and grub), CalVet and its contractors shall retain a qualified biologist (familiar with the resources in the area) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training shall be provided to all construction personnel (contractors and subcontractors) prior to beginning construction to brief them on the need to avoid effects on sensitive biological resources adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist shall inform all construction personnel about the life history and habitat requirements of special-status species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of any resource agency permit or approval. The environmental training shall also cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction.

BIO-4: Conduct Preconstruction Surveys for California Red-legged Frog and Mitigate Impacts

CalVet and its contractors shall retain a qualified biologist to conduct a CRLF assessment according to the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005). The USFWS will provide guidance, based on the initial assessment, whether field surveys are appropriate, where the field surveys should be conducted, and whether incidental take authorization should be obtained through Section 7 consultation or a Section 10 permit pursuant to the ESA.

BIO-5: Conduct Preconstruction "Clearance" Surveys for Foothill Yellow-Legged Frog and Mitigate Impacts

CalVet and its contractors shall retain a qualified biologist to perform a preconstruction survey within 24 hours prior to the initiation of construction to confirm the site is clear of FYLF. Should FYLF be detected during survey, and impacts cannot be avoided or minimized, a qualified biologist with a scientific collecting permit shall relocate frogs to suitable nearby habitat that would not be disturbed by Project construction.

BIO-6: Conduct Northwestern Pond Turtle Surveys and Mitigate Impacts

CalVet and its contractors shall retain a qualified biologist to conduct a pre-construction Northwestern pond turtle survey within 24 hours prior to the initiation of construction activities and retain a qualified biologist to survey immediately prior to ground-disturbing activities in suitable habitat. If Northwestern pond turtle is found, consultation with CDFW shall be undertaken and a relocation plan shall be developed for Northwestern pond turtle encountered during construction.

BIO-7: Conduct Vegetation Removal during the Non-breeding Season, Conduct Preconstruction Surveys for Nesting Migratory Birds, other Special Status Birds and Raptors and Avoid Impacts

CalVet and its contractors shall conduct vegetation removal, where required to construct project features, during the non-breeding season for migratory birds and raptors (generally between September 16 and January 31) to the extent feasible.

For Project activities that begin between February 1 and September 15, including tree and other vegetation removal, CalVet and its contractors shall retain a qualified biologist to conduct preconstruction surveys for white-tailed kite and other raptors to identify active nests on and within 500 feet of the Project site. For other special status birds and/or other nesting migratory birds, a qualified biologist shall conduct preconstruction nesting bird surveys on and within 100 feet of the Project site. These surveys shall be conducted within 14 days before the beginning of any construction activities between February 1 and September 15.

CalVet and its contractors shall avoid impacts to active raptor nests and any special-status bird and MBTA bird nests by establishing appropriate buffers around nests identified during preconstruction surveys; buffers shall be determined by a qualified biologist in consultation with CDFW. Project activity shall not commence within the buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. The size of the buffer may be adjusted if a qualified biologist and CalVet, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during construction activities may be necessary.

BIO-8: Conduct Preconstruction Special Status Mammal Surveys for Roosting Bats and Implement Protection Measures

CalVet and its contractors shall retain a qualified wildlife biologist to conduct bat roost surveys within 14 days before any tree removal or clearing. Locations of vegetation and any required tree removal or excavation shall be examined for potential bat roosts. Specific survey methodologies shall be determined in coordination with CDFW, and may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (e.g., SonoBat, Anabat).

Removal of any significant roost sites located onsite shall be avoided if feasible.

If it is determined that an active roost site cannot be avoided and will be affected, bats shall be excluded from the roost site before the site is removed. The biologist shall first notify and consult with CDFW on appropriate bat exclusion methods and roost removal procedures. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Once it is confirmed that all bats have left the roost, crews will be allowed to continue work in the area.

Impact 3.3-2: The Project could affect riparian habitat or sensitive natural communities. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS.*

Figure 3.3-1 identifies temporary disturbance and permanent impact areas that would result from Project construction and Table 3.3-1 tabulates the associated impact acreages for each project component by land cover type. As shown, construction of ground-disturbing activities associated with installation of the proposed Outfall headwall would result in <0.0001-acre permanent impact and the associated riprap would result in 0.092-acre permanent impact to riparian scrub. In addition, installation of the underground 12-inch Bypass pipeline would result in 0.012-acre temporary impact to riparian scrub. This is a significant impact. Implementation of mitigation measures **BIO-2**, **BIO-3** and **BIO-9** would reduce this impact to ***less than significant with mitigation***.

Mitigation Measures

See Mitigation Measures **BIO-2** and **BIO-3** presented above.

BIO-9: Compensate for the Loss of Riparian Habitat and Restore Temporary Disturbed Areas

To compensate for the permanent loss of riparian habitat communities, prior to construction, CalVet shall purchase habitat credits at an agency approved mitigation bank to ensure no net loss of riparian functions and values. To account for temporal loss, the Project shall purchase riparian credits at a 3:1 ratio. The final mitigation ratio and acreage shall be confirmed during review of final engineering drawings and may be modified during the CDFW Section 1602 permitting process which will dictate the ultimate compensation.

CalVet shall provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. Alternatively, as part of the CDFW Streambed Alteration Agreement process, CalVet may provide a plan/proposal for CDFW approval to conduct on or offsite riparian habitat creation/enhancement to compensate for the Project's direct riparian impacts.

All riparian areas subject to temporary construction disturbance shall be restored by CalVet and its contractors in accordance with a post construction Erosion Control and Habitat Restoration Plan (ECHRP). The ECHRP shall address all temporarily disturbed areas, be prepared by a qualified biologist, be developed as part of the CDFG Streambed Alteration Agreement process and be reviewed and approved by CDFW prior to implementation.

Timing/Implementation: *Prior to and following construction*

Monitoring/Enforcement: *CalVet/Consultant*

Table 3.3-1. Impacts to Land Cover Type

Land Cover Type	Project Components							
	Bypass Valve and Flow Meter Station	Bypass Valve and Flow Meter Station Staging	Hot Tap Connection Staging	Outfall Headwall	Outfall Riprap	Underground Bypass Pipeline	Underground Electric and Communication Lines	Total (acres)
Permanent Impacts								
Disturbed/Ruderal	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.003
Riparian Scrub	0.000	0.000	0.000	<0.0001	0.092	0.000	0.000	0.092
Temporary Impact								
Disturbed/Ruderal	0.000	0.034	0.009	0.000	0.000	0.085	0.114	0.242
Riparian Scrub	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.012
Developed	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006

See Mitigation Measures **BIO-2** and **BIO-3** presented above.

BIO-9: Compensate for the Loss of Riparian Habitat and Restore Temporary Disturbed Areas

To compensate for the permanent loss of riparian habitat communities, prior to construction, CalVet shall purchase habitat credits at an agency approved mitigation bank to ensure no net loss of riparian functions and values. To account for temporal loss, the Project shall purchase riparian credits at a 3:1 ratio. The final mitigation ratio and acreage shall be confirmed during review of final engineering drawings and may be modified during the CDFW Section 1602 permitting process which will dictate the ultimate compensation.

CalVet shall provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. Alternatively, as part of the CDFW Streambed Alteration Agreement process, CalVet may provide a plan/proposal for CDFW approval to conduct on or offsite riparian habitat creation/enhancement to compensate for the Project's direct riparian impacts.

All riparian areas subject to temporary construction disturbance shall be restored by CalVet and its contractors in accordance with a post construction Erosion Control and Habitat Restoration Plan (ECHRP). The ECHRP shall address all temporarily disturbed areas, be prepared by a qualified biologist, be developed as part of the CDFG Streambed Alteration Agreement process and be reviewed and approved by CDFW prior to implementation.

Timing/Implementation: *Prior to and following construction*

Monitoring/Enforcement: *CalVet/Consultant*

Impact 3.3-3: The Project Could require construction and fill within waters of the U.S. and waters of the State. Impact Determination: *less than significant with mitigation*.

Threshold:	*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.*

As discussed above, an ARD was performed to identity waters of the U.S. and waters of the State within the construction Study Area. The ARD is contained in DEIR Appendix 3.3-B and identifies 0.161-acre of seasonal creek within the construction Study Area. It should be noted that the ARD remains subject to verification by the USACE.

Figure 3.3-1 incorporates results of the ARD and shows proposed construction activities in relation to Study Area potentially jurisdictional aquatic resources. While riprap would be installed immediately above the seasonal creek boundary (i.e., the upper limit of USACE jurisdiction), as shown in Figure 3.3-1, none of the proposed improvements would result in direct impact to waters of the U.S. or waters of the state. However, project construction would occur near waters and ground disturbing construction, if not properly controlled, could cause silt laden runoff to enter wetlands which would be a significant impact. Implementation of mitigation measures **BIO-1, BIO-2**, and **BIO-3** would reduce this impact to ***less than significant with mitigation.***

Mitigation Measures

See Mitigation Measures **BIO-1, BIO-2, and BIO-3** presented above.

Impact 3.3-4: The Project could affect wildlife movement and/or migration. Impact Determination: *less than significant*

Threshold:	*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.*

Terrestrial

Project construction would result in temporary disturbance to localized terrestrial wildlife movement along Rector Creek in the vicinity of construction. While this activity would cause temporary disturbance near the banks of Rector Creek downstream of the dam, surrounding undeveloped lands provide adequate parallel forage, cover and movement opportunities. Therefore, temporary impacts related to terrestrial wildlife migration would be ***less than significant***.

Aquatic

As discussed in Impact 3.3-1 above, lower Rector Creek instream flows would be increased in all months of the year to provide minimum monthly flow releases ranging from 0.25 to 4.5 cfs, depending on month and water year type, under the proposed interim environmental flow releases (see Section 2, Table 2-8). These minimum flow releases would be met by a combination of maintaining the existing releases from the Fisheries Base return flows and additional discharges from the newly constructed outfall. By design, the largest proposed flow increases would occur during the January-March steelhead migration and spawning period, which would increase the wetted channel width and/or water depths, thereby improving conditions for migration and spawning in the reach downstream of the newly constructed Outfall. The Proposed Project would not provide passage above Rector Dam, which would remain the upstream limit to anadromous fish.

Under existing conditions, migration and passage of anadromous fish into Rector Creek occurs during the wet winter months when continuous surface flows provide a sufficient hydraulic connection to Conn Creek and the Napa River. While the discharges from the new outfall would not create a continuous surface flow connection to Conn Creek during the dry summer period, the increased flows would incrementally extend the period of surface water connection at the latter end of the wet season. This would result in improved conditions for fish passage and migration.

The road crossing at State Lane, approximately 0.75 mile downstream of the proposed Outfall location, is currently an impediment to fish passage under low flow conditions. This crossing has no bridge or culvert, so surface flow, when present, flows over and/or seeps under the road, depending on flows. As such, this road is a complete or partial barrier to fish migration under low flow conditions when flows seep under the road or shallow sheet flows over the road provide insufficient depths for passage. The minimum threshold discharge for providing passage over the road is not known; however, the proposed increases in flows would improve passage by incrementally increasing the magnitude of flows at this location during periods of continuous surface water flow (e.g., during the steelhead migration period), which would reduce both the frequency and duration of impassible conditions. As such, this would improve conditions for fish passage, and migration and related impacts are beneficial impacts and ***less than significant***.

Based on the above considerations, the increased Rector Creek flows occurring year-round under the proposed minimum environmental flow releases would be beneficial to fish migrations, including CCC DPS steelhead and all other fish species occurring in Rector Creek.

Mitigation Measures

None required.

Impact 3.3-5: The Project would be implemented consistent with the intent of local policies and ordinances associated with protection of biological resources. Impact Determination: *less than significant*.

Threshold:	*Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

Napa County General Plan Goals and Policies

The Conservation Element of the Napa County General Plan (Napa County 2009) provides goals, policies, and action items related to open space conservation as well as a wide range of other topics that together comprise the natural environment of Napa County, including its natural and water resources. The goals and policies of the Conservation Element are intended to recognize and support positive industry trends, private-public partnership efforts, and effective elements of the existing regulatory framework.

Goals applicable to the Proposed Project and biological resources found within the Study Area are presented in the environmental setting section above. These goals include: maintaining and enhancing biodiversity; protection of special status species and their habitats; conservation, protection and improvement of plant, wildlife and fishery habitats for all native species; and, protection of connectivity for wildlife movement. Implementing policy calls for the following:

> "conserve and improve fisheries and wildlife habitat in cooperation with governmental agencies, private associations and individuals; public water development projects shall provide an adequate release flow of water to preserve fish populations and public access to the water via public lands; water development projects shall consider and address impacts to wildlife habitat and avoid impacts to fisheries and habitat supporting special-status species to the extent feasible; require a

biological resources evaluation for discretionary projects in areas identified to contain or potentially contain special-status species."

The Proposed Project is a State project on State owned land and as such is not subject to local Napa County General Plan goals, policies, or ordinances protecting biological resources. While the Project is not required to comply with or obtain related Napa County permits, where feasible it is being designed and implemented consistent with the intent of County policy.

For example, as currently designed, the Project provides improved flows to preserve fish populations. Also, should riprap installation require removal of up to 2 oak trees, replacement trees would be planted onsite at a 3:1 ratio and maintained and monitored for success as discussed in the Project Description (see Section 2.6.3 Outfall and Erosion Control Construction). Therefore, while the Project is not subject to County policies or ordinances, it is consistent with their intent and the impact is ***less than significant***.

Mitigation Measures

None required.

Impact 3.3-6: The Project could conflict with HCPs, NCCPs, or other conservation plans. Impact Determination: *No Impact.*

Threshold:	*Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

The Project is in Napa County which does not have an approved Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). Therefore, the Proposed Project would not conflict with an HCP or NCCP because none are adopted within Napa County and there would be ***no impact***.

Mitigation Measures

None required.

3.3.6 *Cumulative Setting, Impacts and Mitigation Measures*

Cumulative Setting

The cumulative setting associated with the Proposed Project includes approved, proposed, planned, and other reasonably foreseeable projects and development in Napa County as outlined in the Napa County General Plan Update Final EIR (Napa County 2007). Developments and planned land uses, including the Proposed Project, would cumulatively contribute to biological resource impacts.

Cumulative Impacts and Mitigation Measures

Impact 3.3-7: Cumulative Biological Resource Impacts. Impact Determination: less than cumulatively considerable contribution to cumulative impacts with mitigation.

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, result in cumulative impacts to geology, soils and paleontological resources?*

The Napa County General Plan was last updated in December 2007. As part of the update, the County adopted the Napa County General Plan Update Final EIR (Napa County 2007.). The General Plan Update Final EIR contains a year 2030 general plan buildout cumulative impact analysis. The general cumulative setting considered in the analysis was existing conditions as documented in the General Plan Update DEIR. The cumulative context included land use and traffic projections (regional and local), approved and known pending plans and projects (city and County plans/projects), vineyard expansion projections, recreation and open space projects, transportation and other infrastructure projects, flood control projects, as well as relevant regional planning and expected regulatory changes.

In addition to the above cumulative setting conditions, the cumulative setting for biological resources also considered land use and state-wide development activities that are adversely impacting special-status plant and animal species beyond Napa County (e.g., impacts to special-status species associated with coniferous forest habitats, oak woodland habitats, grassland habitats, serpentine soil conditions and wetlands that occur in several areas of the state).

The General Plan Update Final EIR found that land uses and growth resulting from General Plan buildout, along with other land use activities in the region and state-wide, would substantially contribute to cumulative impacts associated with significant effects to special-status plant and wildlife species, sensitive natural communities, and movement corridors. Even with implementation of all feasible mitigation measures, the impact to sensitive biotic communities was found to be cumulatively considerable. The only exception was that with implementation of General Plan Update EIR fishery mitigation measures, implementation of the Napa County Conservation Regulations, and the associated effectiveness of BMPs (see Napa County General Plan Update final EIR Appendix G and I), the 2030 General Plan buildout contribution to cumulative sensitive species fishery impacts would be reduced to less than considerable.

As discussed in this DEIR above under Impact 3.3-1, the Proposed Project would contribute to a cumulatively considerable effect on special-status wildlife species and sensitive natural communities. However, the degree of Project impact to these species and their habitat is minor in comparison to the cumulative sensitive-species and habitat impacts identified in the General Plan Update EIR. Furthermore, as discussed above in this DEIR, feasible project level mitigation is available to reduce Project impacts on all special-status species and their habitats to less-than-significant levels. Therefore, for biological resources, the Proposed Project is found to have a ***less than cumulatively considerable contribution to cumulative impacts with mitigation***.

Cumulative Mitigation Measures

None required with implementation of Project mitigation (BIO-1 through BIO-9).

3.3.7 References

Baldwin, B.G; D.H. Goldman; D.J. Keil; R. Patterson; and T.J. Rosatti, editors. 2012. *The Jepson Manual: Vascular Plants of California, Second Edition*. University of California Press, Berkeley.

Barber, Teri Jo. 2017. *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* July 23. Prepared by Teri Jo Barber, Professional Surface Water Hydrologist #00H-1535 American Institute of Hydrology, Professional Storm Water Design and Practitioner and QSD/P #21493. Prepared for Veterans Home and Rector Reservoir Surface Water Treatment Plant, California Department of Health Services Drinking Water Division.

Bay Area Open Space Council. 2011. *The Conservation Lands Network: San Francisco Bay Area Upland Habitat Goals Project Report*. Berkeley, CA.

Blank P. and Koehler J. Napa River Steelhead and Salmon Monitoring Program 2019-20 Report. Napa County Resource Conservation District. Napa, California.

Bury, R. B., D. T. Ashton, H. H. Welsh Jr., D. A. Reese, and D. J. Germano. 2012. Synopsis of Biology. Pages 9 – 19 in Bury, R. B., H. H. Welsh Jr., D. J. Germano, and D. A. Ashton, editors. Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management. Northwest Fauna No. 7.

Busby, P. J., Wainwright, T. C., Bryant, B. J., Lierheimer, L. J., Waples, R. S., Waknitz, F. W., Lagomarsino, I. V. August 1996. "Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California." NOAA Technical Memorandum. NMFS-NWFSC-27. P1-255 (255).

CDFW. 2020a. Rarefind 5. Online Version, commercial version dated: January 3, 2020. California Natural Diversity Database. The Resources Agency, Sacramento. Accessed September 2020.

_____. 2020b. California Sensitive Natural Communities. Available online: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background#sensitive%20natural%20communities. Accessed September 2020.

_____. 2019. California Natural Community List.

CNPS. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed September 2020].

Dunk, J. R. 2020. White-tailed Kite (*Elanus leucurus*), version 1.0. In *Birds of the World* (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.whtkit.01.

DWR. 2013. *Rector Reservoir Water Yield Study, Napa County, California*. Prepared for the California Department of Veterans Affairs, Veterans Home of California, Yountville, California.

ECORP Consulting, Inc. 2021a. Biological Resources Assessment Hemphill Diversion Project Placer County, California. Prepared for Nevada Irrigation District, January.

_______. 2021b. Aquatic Resources Delineation, Rector Reservoir Bypass Valve Project, Placer County, California. Prepared for Nevada Irrigation District. April.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.

Garza, J.C. and E.D. Crandall. 2013. Genetic analysis of Chinook salmon from the Napa River, California. Southwest Fisheries Science Center, Fisheries Ecology Division and Institute of Marine Sciences, University of California, Santa Cruz.

Hayes, M.P. and M.R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylii*): Implications for management. Pages 144-158 *In*: R.C. Szaro, K.E. Severson, and D.R. Patton (technical coordinators), Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America. U.S. Dept. of Agriculture, Forest Service, General Technical Report (RM-166):1-458.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. A Report to the California Department of Fish and Game, Rancho Cordova, California. 255 pp.

Koehler, J. 2007. Fish species currently or historically present in streams of the Napa River basin. March.

Lowther, P. E., P. Pyle, and M. A. Patten. 2020. Nuttall's Woodpecker (Dryobates nuttallii), version 1.0. In *Birds of the World* (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.nutwoo.01.

McEwan, D. 2001. Central Valley Steelhead in Contributions to the biology of Central Valley salmonids. R.L. Brown (ed.), CDFG, 1–43.

McEwen, D., and T. Jackson. 1996. Steelhead Restoration and Management Plan for California. Sacramento, CA: California Department of Fish and Game.

Moyle, P.B. 2002. *Inland Fishes of California: Revised and Expanded*. University of California Press. 502pp.

Moyle, P.B., R.M. Quinones, J.V Katz, and J. Weaver. 2015. Fish Species of Special Concern in California, Third Edition. Sacramento: California Department of Fish and Wildlife.

Moyle, P. B. R. D. B., Sommer T., Foin T. C., Matern S. A. 2004. Biology and Population Dynamics of Sacramento Splittail (*Pogonichthys macrolepidotus*) in the San Francisco Estuary: A Review. San Francisco Estuary and Watershed Science: San Francisco Bay-Delta Science Consortium by the John Muir Institute of the Environment. p. 49. May.

Napa County. 2009. Napa County General Plan. June.

Moyle, P.B., J.E. Williams, and E.D. Wikramanayake. 1989. Fish Species of Special Concern of California. Final report submitted to California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

______. 2007. Napa County General Plan Update Final EIR. December 20.

NMFS. 1998. Essential fish habitat: new marine fish habitat conservation mandate for federal agencies. EFH Federal Agency Primer 12/98. Northeast Region, Gloucester, MA.

NOAA. 2020. NCDC 1981-2010 Climate Normals for Sacramento 5 ESE. Available online: https://www.ncdc.noaa.gov/cdo-web/datatools/normals. Accessed October 19, 2020.

NRCS. 2020a. Soil Survey Geographic Database. Available Online: https://sdmdataaccess.sc.egov.usda.gov/. Accessed September 2020.

_____. 2020b. Soil Data Access Hydric Soils List. Available at https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed September 2020.

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

Snider, W.M., and R. Titus. 1996. Fish Community Survey: Lower American River, January through June 1995. California Department of Fish and Game.

Stillwater Sciences. 2019. *Rector Creek preliminary instream flow and stream habitat assessment*. Prepared for the California Department of Veteran Affairs, Sacramento, CA. Prepared by Stillwater Sciences, Davis, CA. July.

_____. 2021. Rector Creek Stream Fish Technical Memorandum

_____. May 2021. Rector Creek Stream Fish Population Technical Memorandum Thorne, J. H., J. A. Kennedy, J. F. Quinn, M. McCoy, T. Keeler-Wolf, and J. Menke. 2004. A Vegetation map of Napa County Using the Manual of California Vegetation Classification and its Comparison to Other Digital Vegetation Maps. *Madrono*. Vol. 51, No. 4, pp. 343-363. California Botanical Society.

USACE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USFWS. 2020. Information, Planning, and Consultation System (IPaC) Resource Report List for the Study Area. Available online: https://ecos.fws.gov/ipac/location/P5KSICPOUJA23DXW5JXBR7LOKI/resources.

_____. 2008. Birds of Conservation Concern 2008. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. (Online version available at http://migratorybirds.fws.gov/reports/bcc2008.pdf).

_____. 2005. Recovery plan for vernal pool ecosystems of California and Southern Oregon. Portland, OR. Dated December 15, 2005. http://ecos.fws.gov/docs/recovery_plan/060614.pdf.

Watt, D. J., P. Pyle, M. A. Patten, and J. N. Davis. 2020. Lawrence's Goldfinch (*Spinus lawrencei*), version 1.0. In *Birds of the World* (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.lawgol.01.

WBWG. 2020. Western Bat Species Accounts. Available online at http://wbwg.org/western-bat-species/. Accessed September 2020.

Western Hydrologics. 2021. *Operations Simulation Modeling Rector Reservoir Bypass Valve Project*. April.

Zeiner, D.C, and W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, Eds. 1988. California's Wildlife. Volume I Amphibians and Reptiles. Department of Fish and Game, Sacramento, CA, USA.

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3.4 Cultural Resourcs

This section considers and evaluates the impacts of the Proposed Project on cultural resources. Cultural resources are defined as pre-contact (prehistoric) and historic sites, buildings, objects, structures, and districts or any other physical evidence associated with human activity considered important to a culture, or a community for scientific, traditional, or religious reasons. This section is based on the Cultural Resources Inventory and Evaluation Report prepared by ECORP Consulting, Inc. (2021). The information provided below is an abridged version of this report and is provided here to afford a brief context of the cultural resources in the Project Area, defined as approximately 3.7 acres of property located in the southwestern quarter of Section 19 of Township 7 North, Range 4 West, Mount Diablo Base and Meridian, as depicted on the 1951 (photo revised 1968) Yountville, California USGS 7.5-minute topographic quadrangle map .

Due to the sensitive nature of cultural resources, which is restricted from public distribution by state and federal law, the cultural resources report is not included in the EIR appendices; however, all pertinent information necessary for impact determinations is included in this section. A redacted version of the cultural resources report that does not include site records or locations may be obtained by contacting Terry Ash with the State Department of General Services (DGS), at 916-201-0085 or Terry.ash@dgs.ca.gov.

While much of this section includes Native American pre-contact and historic information, Section 3.10 Tribal Cultural Resources of this document includes further analysis of the ethnography of the Project Area.

3.4.1 Environmental Setting

Regional Pre-Contact History

It is generally believed that human occupation of California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 8,000 BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and floral foods were probably exploited on a limited basis. A lack of deep cultural deposits from this period suggests that groups included only small numbers of individuals who did not often stay in one place for extended periods.

Around 8,000 BP, there was a shift in focus from hunting towards a greater reliance on plant resources. This period, which extended until around 5,000 years BP, is sometimes referred to as the Millingstone Horizon. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period. In sites dating to after about 5,000 BP, archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments. During this period, new peoples from the Great Basin began entering southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples (ECORP 2021).

Ethnography

The Project Area is in the central portion of the territory occupied by the ethnographic Penutian-speaking Hill Patwin. The Hill Patwin territory includes the lower hills of the eastern Coast Range mountain slope (Long, Indian, Bear, Capay, Cortina, and Napa Valley).

Politically, the Patwin were divided into "tribelets," made up of a primary village and a series of outlying hamlets, presided over by a more-or-less hereditary chief. The chief had unrestricted power and presided over economic and ceremonial decisions. Villages typically included family dwellings, acorn granaries, a sweathouse, and a dance house, owned by the chief. Patwin houses were built in the form of a dome, using tree branches for the framing, then covered with thatch and earth.

Subsistence activities centered around hunting and fishing. Game animals included deer, Tule elk, antelope, bear, ducks, geese, quail, turtles, fish, and other small animals. Fishing was an important part of normal subsistence activities. Types of fish included sturgeon, salmon, perch, chub, sucker, hardhead, pike, trout, steelhead and mussels. Although acorns were the staple of the Patwin diet, they also harvested sunflower, alfilaria, clover, bunchgrass, wild oak, and yellow flower, which was parched or dried, then pounded into a meal (ECORP 2021).

Regional History

The first European to visit California was Spanish maritime explorer Juan Rodriguez Cabrillo in 1542. Cabrillo was sent north by the Viceroy of New Spain (Mexico) to look for the Northwest Passage. Cabrillo visited San Diego Bay, Catalina Island, San Pedro Bay, and the northern Channel Islands. The English adventurer Francis Drake visited the Miwok Native American group at Drake's Bay or Bodega Bay in 1579. Sebastian Vizcaíno explored the coast as far north as Monterey in 1602. He reported that Monterey was an excellent location for a port.

Colonization of California began with the Spanish Portolá land expedition. The expedition, led by Captain Gaspar de Portolá of the Spanish army and Father Junipero Serra, a Franciscan missionary, explored the California coast from San Diego to the Monterey Bay Area in 1769. As a result of this expedition, Spanish missions to convert the native population, presidios (forts), and pueblos (towns) were established. The Franciscan missionary friars established 21 missions in Alta California (the area north of Baja California) beginning with Mission San Diego de Alcalá in 1769 and ending with the Mission San Francisco Solano in Sonoma established in 1823. The Spanish took little interest in the area and did not establish any missions or settlements in the Central Valley.

After Mexico became independent from Spain in 1821, what is now California became the Mexican province of Alta California with its capital at Monterey. In 1827, American trapper Jedediah Smith traveled along the Sacramento River and into the San Joaquin Valley to meet other trappers of his company who were camped there, but no permanent settlements were established by the fur trappers.

The Mexican government closed the missions in the 1830s and former mission lands, as well as previously unoccupied areas, were granted to retired soldiers and other Mexican citizens for use as cattle ranches. Much of the land along the coast and in the interior valleys became part of Mexican land grants or "ranchos". During the Mexican period there were small towns at San Francisco (then known as Yerba

Buena) and Monterey. The rancho owners lived in one of the towns or in an adobe house on the rancho. The Mexican Period includes the years 1821 to 1848.

John Sutter, a European immigrant, built a fort at the confluence of the Sacramento and American Rivers in 1839 and petitioned the Mexican governor of Alta California for a land grant, which he received in 1841. Sutter built a flour mill and grew wheat near the fort. Gold was discovered in the flume of Sutter's lumber mill at Coloma on the South Fork of the American River in January 1848. The discovery of gold initiated the 1849 California Gold Rush, which brought thousands of miners and settlers to the Sierra foothills east and southeast of Sacramento.

The American period began when the Treaty of Guadalupe Hidalgo was signed between Mexico and the United States in 1848. As a result of the treaty, Alta California became part of the United States as the territory of California. Rapid population increase occasioned by the Gold Rush of 1849 allowed California to become a state in 1850. Most Mexican land grants were confirmed to the grantees by U.S. courts, but usually with more restricted boundaries, which were surveyed by the U.S. Surveyor General's office. Land outside the land grants became federal public land which was surveyed into sections, quarter-sections, and quarter-quarter sections. The federal public land could be purchased at a low fixed price per acre or could be obtained through homesteading (after 1862) (ECORP 2021).

Project Area History

Historic-period Napa County developed out of several land grants from the Mexican government to pioneering individuals and entrepreneurs.

Pioneer George C. Yount arrived in the Napa Valley around 1831 and became the first American living in the Mexican territory of Alta California at the time to receive a land grant from the Mexican Government in 1836. He was granted Rancho Caymus, near present-day Yountville. The Napa land grant in the Napa Valley was granted to Salvador Vallejo in 1838 by Governor Alvarado. The town of Napa was later established here; laid out in 1848 by Nathan Coombs, a settler from Massachusetts, who purchased a portion of Salvador Vallejo's Napa land grant in 1843 when he was only 22 years of age.

Napa County was formed in 1849 as one of the original 27 California counties. The county government was organized in 1850 and the first courthouse was built in the town of Napa. Steamers carried passengers to Napa from San Francisco beginning in 1850 until the railroad was established in 1868. A telegraph line and electrical services were also brought in in the 1850s and 1860s.

The Napa Valley Railroad connected Napa with Napa Junction on the California Pacific Railroad in 1868. The California Pacific Railroad went to Vallejo, where a steamboat could be taken to San Francisco. The Napa Valley Railroad was arguably the most important transportation development in the region. It brought more people into the area, and increased commerce and land values.

The town and county of Napa received a wide variety of immigrants of European, Native American, and Asian descent. Chinese immigrants commonly worked as house servants, laborers and gardeners, as well as developed some of the earliest vineyards in the county. A number of freed slaves also made their home in Napa, and several residents purchased a Methodist church in 1867, and began the African Methodist Episcopal Zion Church with a 30-member congregation.

The County established itself as a popular tourist destination from the 1850s, when hot and mineral springs were discovered outside of the city, including White Sulfur Springs, Calistoga Hot Springs, and Napa Soda Springs. The most important economic activity in Napa County was agriculture. Newcomers bought parcels of the large ranchos and established farms, ranches, and vineyards. Napa County was the state's second largest producer of wheat by the late 1880s. Other crops included fruit and nuts, prunes, and of course, wine.

Land from the land grants was partitioned and sold to settlers such as John Patchett, who either planted a vineyard of mission grapes or expanded abandoned vineyards. Patchett turned Nicolas Higuera's old cottage (near Napa Creek) into the first commercial winery in Napa County. In 1857, he produced six barrels of wine that sold to upscale San Francisco restaurants, thus beginning the growth of Napa's worldwide reputation for producing fine wines.

Present-day Yountville was owned by Mexico in the early 1800s. In 1836, George C. Yount received an 11,887-acre land grant that included the area from the Mexican government. Yount called the area Caymus Rancho and laid out a six-block area surrounding a public square that became the village of Yountville. Salvador Vallejo owned the Rancho de Napa adjacent to the south of Yountville. He sold his property to pioneers, who founded a small village community called Sebastopol. Both villages are now a part of present-day Yountville. The town of Yountville became the fourth incorporated community in Napa County in 1865. The town was largely an agricultural community that eventually established vineyards and grew into one of the most renowned wine-producing regions in the world. Rector Creek Dam was built across Rector Creek in 1946 to provide water to Yountville.

Known Cultural Resources in the Project Area

The efforts to identify cultural resources within the Project Area consisted of a records search of the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC), a review of historic maps, photographs, records on file with the Office of Historic Preservation, ethnographic information, literature pertaining to the Project Area and surrounding region, a review of geological and soils data, and an archaeological pedestrian survey using transects spaced 15 meters apart. These efforts are outlined in the *Methods* section below. The cultural resources study (ECORP 2020) identified two historic period cultural resources within the Project Area: RR-01 and RR-02, both segments of dirt two-track roads that appear in maps circa 1948.

3.4.2 Regulatory Framework

Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires that federal agencies take into account the effects of their undertakings in advance on the National Register of Historic Places (NRHP), which is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service (NPS) and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

Structures, sites, buildings, districts, and objects over 50 years of age can be listed in the NRHP as significant historic resources. However, properties under 50 years of age that are of exceptional importance or are contributors to a historic district can also be included in the NRHP.[1] The criteria for listing in the NRHP include resources that:

a) are associated with events that have made a significant contribution to the broad patterns of history;
b) are associated with the lives of persons significant in our past;
c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d) have yielded or may likely yield information important in prehistory or history.

State

California Register of Historical Resources

The California Register of Historic Resources (CRHR) is used by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historical resources. The CRHR is the authoritative guide to the state's significant historical and archaeological resources. This program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under CEQA.

California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both historical resources and unique archaeological resources. Pursuant to PRC § 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

"Historical resource" is a term with a defined statutory meaning (PRC § 21084.1). Under CEQA Guidelines Section 15064.5(a), historical resources include the following:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (PRC § 5024.1).
- A resource included in a local register of historical resources, as defined in PRC § 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC § 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must

[1] A [historic] district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development (NPS 1983).

treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant

- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the CRHR (PRC Section 5024.1), including the following:

  a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

  b) Is associated with the lives of persons important in our past;

  c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

  d) Has yielded, or may be likely to yield, information important in prehistory or history.

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC § 5020.1(k)), or identified in a historical resources survey (meeting the criteria in PRC § 5024.1(g)) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC §§ 5020.1(j) or 5024.1.

Historical resources are usually 45 years old or older and must meet at least one of the criteria for listing in the CRHR, described above (such as association with historical events, important people, or architectural significance), in addition to maintaining a sufficient level of integrity.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be historical resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC § 5024.1 and California Code of Regulations (CCR), Title 14, § 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

CEQA Guidelines Section 15126.4(b) establishes requirements for mitigation of significant impacts on historical resources. For historical resources that are historic structures, if maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, the project's impact on the historical resource generally is considered mitigated below a level of significance. In some circumstances, documentation of an historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not be sufficient mitigation.

For historical resources of an archaeological nature, preservation in place is the preferred manner of mitigating impacts to archaeological sites. When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource, must be prepared and adopted prior to any excavation being undertaken. If an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation.

CEQA also requires lead agencies to determine if a proposed project would have a significant effect on unique archaeological resources. If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083.2 regarding unique archaeological resources. A unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria.

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person."

If the project would result in a significant impact on a unique archaeological resource, treatment options under PRC Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to § 15064.5(f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

State Requirements for Human Remains

Health and Safety Code section 7050.5 requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains. If the Coroner determines, or has reason to believe, the remains to be those of a Native American, the Coroner shall contact the **NAHC** within 24 hours. When the NAHC is notified of human remains under Health and Safety Code Section 7050. Public Resources Code Section 5097.98 requires it to immediately notify those persons it believes to be the Most Likely Descendants (MLDs). PRC Section 5097.98 further requires the landowner, upon the discovery of the Native American remains, to ensure that the immediate vicinity where the Native American human remains are located, is not damaged or disturbed by further activity until the landowner has discussed and conferred with the MLDs regarding their recommendations for treatment. These requirements are summarized in CEQA Guidelines Section 15064.5(e).

Local

Goal CC-5: *Encourage the re-use of historic buildings by providing incentives for their rehabilitation and use.*

Policy CC-17: Significant cultural resources are sites that are listed in or eligible for listing in either the National Register of Historic Places or the California Register of Historic Resources.

3.4.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

Following PRC §§ 21083.2 and 21084.1, and § 15064.5 and Appendix G of the CEQA Guidelines, cultural resource impacts are considered to be significant if the project would result in a positive response to any of the following questions:

1. Would the project cause a substantial adverse change in the significance of a Historical Resource pursuant to CEQA Guidelines Section 15064.5?

2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

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

State CEQA Guidelines Section 15064.5 defines *substantial adverse change* as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired.

CEQA Guidelines Section 15064.5(b)(2) defines *materially impaired* for purposes of the definition of substantial adverse change as follows:

The significance of an historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a Historical Resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Methods

Records Search and Literature Review

CEQA requires that if a project would result in an effect that may cause a substantial adverse change in the significance of a historical resource or would cause significant effects on a unique archaeological resource, then alternative plans or mitigation measures must be considered. Therefore, prior to assessing effects or developing mitigation measures, the significance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify historical resources and unique archaeological resources;
- Evaluate the significance of the historical resources; and
- Evaluate the effects of the project on eligible (significant) historical resources and unique archaeological resources.

A records search was conducted for the property at the NWIC of the CHRIS at California State University, Sonoma by NWIC staff on October 9, 2020. The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile radius of the proposed Project location, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area.

In addition to the official records and maps for archaeological sites and surveys in Napa County, the following historic references were also reviewed: Historic Property Data File for Napa County (OHP 2012); *The National Register Information System* (NPS 2020); *Office of Historic Preservation, California Historical Landmarks* (OHP 2020); *California Historical Landmarks* (OHP 1996 and updates); *California Points of Historical Interest* (OHP 1992 and updates); *Directory of Properties in the Historical Resources Inventory* (1999); *Caltrans Local Bridge Survey* (Caltrans 2019); *Caltrans State Bridge Survey* (Caltrans 2018); and *Historic Spots in California* (Kyle 2002).

Other references examined included a RealQuest Property Search, historic General Land Office (GLO) plat maps and land patent records (Bureau of Land Management [BLM] 2020), historical maps and aerial photographs of the Project Area to inform about past property uses and built environment. Ethnographic literature and maps were reviewed to determine whether Native American pre-contact villages or resources were located in the vicinity of the Project Area.

In addition to the record search, ECORP contacted the California Native American Heritage Commission (NAHC) on October 9, 2020 to request a search of the Sacred Lands File for the Project Area to determine whether or not Sacred Lands have been recorded by California Native American tribes within the Project Area. Native American Sacred Lands may coincide with archaeological sites.

ECORP mailed letters to the Napa County Historical Society on October 9, 2020 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area.

Pedestrian Survey

On October 9, 2020, ECORP subjected the Project Area to an intensive pedestrian survey under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties* (NPS 1983) using transects spaced 15 meters apart. ECORP expended 0.5 person-day in the field. At that time, the ground surface was examined for indications of surface or subsurface cultural resources. The general characteristics of the ground surface were inspected for indications of subsurface deposits that may be present on the surface, such as circular depressions or ditches. Whenever possible, the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances were examined for artifacts or for indications of buried deposits. No subsurface investigations or artifact collections were undertaken during the pedestrian survey.

Results

The records search identified two pre-contact (prehistoric) archaeological resources within 0.5 mile of the Project Area, but none within the Project Area. The nearest NRHP listed properties are 2.75 miles southwest of the Project Area in Yountville. The nearest California Landmark, the George Yount Blockhouse, is located on the northeastern corner of Cook Road and Yount Mill Road one mile south of the Project Area. The historic period maps and literature indicated that the Project Area was historically initially vacant land from the 1850s, and a reservoir and dam were created adjacent to and east of the Project Area in the 1940s, re-routing Rector Creek through the southern end of the Project Area. Two dirt access roads were present in the Project Area as early as 1948 and remain in their locations to the present day. The water treatment plant building partially within the Project Area was constructed between 1982 and 2002.

The nearest Native American Villages indicated in ethnographic literature were *Napato* and *Tulukai*. Both villages are located on the banks of the Napa River within five miles southeast of the Project Area. The RealQuest property search did not indicate any buildings or structures within the Project Area.

A search of the Sacred Lands File by the NAHC indicated the presence of Native American cultural resources in the vicinity of the Project Area (letter dated October 13, 2020). No responses to the letters sent to the Napa County Historical Society have been received as of the preparation of this document.

At least two historical resources were identified within 0.5 mile of the Project Area through the records search and literature review, although none were identified within the Project Area itself.

During the pedestrian survey, two historic-period cultural resources, road segments RR-01 and RR-02, were identified within the Project Area. RR-01 consists of a 300-foot-long segment of a two-track dirt access road that first appears on historic-period aerial photographs from 1948. It is 15 feet across and in use, and in good condition as it has been well maintained. RR-02 is a 343-foot-long segment of a two-track dirt access road that first appears on historic-period aerial photographs from 1948. It is 10 to 12 feet across and in use, in good condition and has been well maintained. The eastern extent of the road is undiscernible due to modern imported gravels. Both of these roads were apparently constructed in order to access the Rector Reservoir, dam, and associated facilities. ECORP carried out historical and archival research to evaluate both resources within their respective historic contexts (road development in the United States and California). Archival research uncovered no evidence that these resources are associated with an important historical person or event or contributed to the broad patterns of history; they do not represent examples of any established architectural style or have uniquely artistic traits, and they do not have the potential to yield information important in pre-contact history or history. Therefore, they were evaluated as not eligible for the NRHP or CRHR as individual resources and do not contribute to any known or suspected historic districts. They are not considered historical resources or unique archaeological resources under CEQA. The methods and results of the study are provided in the confidential Cultural Resources Inventory and Evaluation Report (ECORP 2021).

The Project Area is along Rector Creek. Archaeological sites are known to occur near waterways. The underlying geologic units of the Project Area are unconsolidated and semi-consolidated quaternary alluvium and marine deposits, which date to the Pliocene and Holocene. Human occupation of the area was known to have occurred during the Holocene. These factors, coupled with the fact that alluvium deposited from Rector Creek may have obscured older ground surfaces, leads to the potential for the Project Area to contain buried cultural resources.

Project Impact Analysis

Impact 3.4.1: Impacts to historical resources. Impact determination: *less than significant with mitigation.*

Threshold:	*Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?*

The Cultural Resources Inventory Report identified two resources from the historic period and evaluated them for historical significance. RR-01 and RR-02 are both roadways built by the late 1940s, likely to provide access to the Rector Reservoir, dam, and associated facilities. Both resources have been evaluated for significance and neither is considered a historical resource or unique archaeological resource.

Therefore, the construction and operation of the Project will not result in the removal or alteration of any known Historical Resource.

However, excavations that occur in association with development of the Project could affect unknown historical resources buried on the property, and if so, the resulting damage to the resources could be a significant impact. With implementation of Mitigation Measure **CUL-1** below, however, the impact is reduced to less than significant. As such, the impact on historical resources is ***less than significant with mitigation***.

Mitigation Measure

CUL-1 **Inadvertent Discovery**

CalVet and its contractors shall implement the following measures. If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, then work may resume immediately, and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, then he or she shall immediately notify DGS. The agencies shall consult to determine whether the resource is an historical resource or a unique archaeological resource. Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historic Property according to Section 106 or a Historical Resource according to CEQA; or 2) that appropriate treatment measures have been completed to their satisfaction. Appropriate treatment measures are those consistent with CEQA Guidelines Section 15126.4(b) and Public Resources Code Section 21083.2.
- If any archaeological find that includes Native American or potentially Native American resource that does not include human remains, the archaeologist shall notify the Mishewal-Wappo Tribe of Alexander Valley consistent with Mitigation Measure **TCR-1**.

Impact 3.4.2: **Impacts to archaeological resources. Impact determination: *less than significant with mitigation*.**

Threshold:	*Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?*

The Project Area was investigated by a professional archaeologist, who concluded that there were no known unique archaeological resources within the Project Area. However, the Project Area is adjacent to Rector Creek, and not only are archaeological sites known to occur near waterways, but alluvium deposited by the creek may have obscured older ground surfaces and buried archaeological deposits. Further, the NAHC's sacred lands file search identified sacred lands in the vicinity. Therefore, there is a potential for buried pre-contact archaeological resources on the property. For this reason, the Project would result in a significant impact on unknown unique archaeological resources. With implementation of Mitigation Measure **CUL-1** above, however, the impact on those resources is reduced to less than significant. As such, the impact is ***less than significant with mitigation***.

<u>Mitigation Measure</u>

Implement Mitigation Measure **CUL-1**.

Impact 3.4.3: Impacts to human remains. Impact determination: *less than significant with mitigation.*

Threshold:	*Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?*

No human remains have been identified in the Project Area. However, implementation of the Proposed Project would include ground-disturbing construction activities that could result in the inadvertent disturbance of currently undiscovered human remains, and if so, this would result in a significant impact. Procedures of conduct following the discovery of human remains on non-federal lands are mandated by Health and Safety Code § 7050.5, by PRC § 5097.98, and by CEQA in California Code of Regulations (CCR) § 15064.5(e).

According to these provisions, should human remains be encountered, all work in the immediate vicinity of the remains must cease, and any necessary steps to ensure the integrity of the immediate area must be taken. The remains are required to be left in place and free from disturbance until a final decision as to the treatment and their disposition has been made. The Napa County Coroner would be immediately notified, and the coroner would then determine whether the remains are Native American. If the coroner determines the remains are Native American, the coroner has 24 hours to notify the NAHC, which will in turn notify the person identified as the most likely descendant (MLD) of any human remains. Further actions would be determined, in part, by the desires of the MLD, who has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery.

Implementation of Mitigation Measure **CUL-2** would assure that any discovery of human remains within the Project Area would be subject to these procedural requirements. Implementation of this mitigation measure would reduce impacts associated with the discovery or disturbance of human remains to be ***less than significant with mitigation***.

Mitigation Measure

CUL-2 Human Remains

CalVet and its contractors shall implement the following measures. If the find includes human remains, or remains that are potentially human, CalVet and its contractors shall retain a professional archaeologist to ensure reasonable protection measures are taken to protect the discovery from disturbance. The archaeologist shall notify the Napa County Coroner (as per § 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 shall be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner shall notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD shall have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If CalVet does not agree with the recommendations of the MLD, then the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, CalVet must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This shall also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located. Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction. This mitigation measure should be carried out consistent with Mitigation Measure **TCR-1.**

3.4.4 Cumulative Impact

Impact 3.4.5: Project construction and operation could contribute to the cumulative impact on cultural resources. Impact determination: *less than considerable*.

Threshold:	*Would Implementation of the proposed project, along with reasonably foreseeable probable future projects in the project vicinity, result in cumulative impacts to cultural resources (i.e., historical or archaeological resources)?*

Significant cumulative impacts to cultural resources typically occur when important sites, features, or artifacts are lost, damaged, or destroyed without appropriate mitigation such as recording or data recovery. As these resources are destroyed or displaced, important information is lost and connections to past events, people and cultures are diminished. As construction and development activities expand geographically, cultural resources may be lost. Napa County contains extensive cultural resources, including Native American archaeological sites and historical sites associated with early Euro-American settlement, viticulture, and agriculture. Native American archaeological sites in the county include village sites, burial grounds, procurement sites, and lithic scatters. Historic sites in the region are quite diverse and include roads, historic vineyards, farmsteads, and water conveyance, among others. Impacts to these cultural resources are likely to occur as land use changes occurs in Napa County.

As discussed above, cultural resources are located adjacent to the Project Area. Moreover, the records search and archival research indicate that the region is sensitive for both prehistoric and historical resources. Ground disturbing activities could affect known cultural resources and has the potential to affect unknown buried archaeological resources, as archaeological sites may be present with no surface manifestation. However, project design avoiding destruction of and protective measures would result in no significant impacts to known cultural resources. Furthermore, other probable future projects would be required to conform to the appropriate regulatory framework(s), including local preservation ordinances, CEQA, and regulations regarding human remains. Adherence to these frameworks would help ensure that impacts to cultural resources are considered and mitigated.

As discussed under Impact 3.4-1 above, research indicates there exists the possibility that unknown historical resources may be significantly impacted by Project construction. This impact would contribute to a significant cumulative impact on historical resources in Napa County when added to the impacts of other probable future projects. To address this impact, Mitigation Measures **CUL-1** and **CUL-2** were developed. Implementation of these measures would reduce any potential impact on historical resources to less than significant. Given that any potential impact on historical and cultural resources due to the Project would be minimized or avoided through implementation of **CUL-1** and **CUL-2,** the contribution of the Project to the cumulative impact on Napa County historical and cultural resources would be ***less than considerable with mitigation***.

Cumulative Impact Mitigation Measures

None required with implementation of Project mitigation measures **CUL-1** and **CUL-2**

3.4.5 References:

BLM. 2020. Bureau of Land Management, General Land Office Records, Records Automation website. http://www.glorecords.blm.gov/, accessed October 6, 2020.

Caltrans. 2019. Structure and Maintenance & Investigations, Historical Significance–Local Agency Bridges Database March 2019. http://www.dot.ca.gov/hq/structur/strmaint/hs_local.pdf, accessed October 6, 2020.

_______. 2018. Structure and Maintenance & Investigations, Historical Significance–State Agency Bridges Database September 2018. http://www.dot.ca.gov/hq/structur/strmaint/hs_state.pdf, accessed October 6, 2020.

ECORP Consulting, Inc. 2021. *Cultural Resources Inventory and Evaluation Report for the Rector Reservoir Bypass Valve Project, Napa County, California*. Prepared for California Department of General Services Real Estate Services Division. April 27.

Kyle, Douglas. 2002. *Historic Spots in California*. Stanford University Press. Redwood City, California.

NPS. 2020. National Register of Historic Places, Digital Archive on NPGallery https://npgallery.nps.gov/NRHP/BasicSearch/. accessed October 6, 2020.

_______. 1983. Archaeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines. Federal Register. p. 44716-44768.

OHP. 2020. *Office of Historic Preservation California Historical Landmarks Website*. http://ohp.parks.ca.gov/?page_id=21387, accessed October 6, 2020.

_____. 2012. Directory of Properties in the Historic Property Data File for Sonoma County. On file at NWIC, California State University, Sonoma, California.

_____. 1999. Directory of Properties in the Historical Resources Inventory

_____. 1996. California Historical Landmarks. California Department of Parks and Recreation, Sacramento, California.

_____. 1992. California Points of Historical Interest. California Department of Parks and Recreation, Sacramento, California.

3.5 Greenhouse Gas Emissions

This section documents the results of a greenhouse gas (GHG) emissions analysis. This analysis was prepared using methodologies and assumptions recommended in the rules and regulations of the Bay Area Air Quality Management District (BAAQMD) (2017). Regional and local existing conditions are presented, along with pertinent GHG emissions-related standards and regulations. The purpose of this assessment is to estimate Project-generated GHG emissions and to determine the level of impact the Project would have on the environment.

3.5.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 3.5-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2 (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential. Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Table 3.5-1. Greenhouse Gases

Greenhouse Gas	Description
CO_2	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about 12 years.[2]
N_2O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1]US EPA 2016a, [2] USEPA 2016b, [3] USEPA 2016c

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Sources of Greenhouse Gas Emissions

In 2020, CARB released the 2020 edition of the California GHG inventory covering calendar year 2018 emissions. In 2018, California emitted 425.3 million gross metric tons of CO_2e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2018, accounting for approximately 30 percent of total GHG emissions in the state. This sector was followed by the industrial sector (21 percent) and the electric power sector including both in-state and out-of-state sources (15 percent) (CARB 2020). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing CO_2 from the atmosphere.

3.5.2 Regulatory Setting

State

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that carbon dioxide (CO_2) is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 3.2-3 lists the federal attainment status of the Napa County portion of the SFBAAB for the criteria pollutants.

State

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlines measures to meet the 2020 GHG reduction goals. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by the end of 2020.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Senate Bill X1-2 of 2011, Senate Bill 350 of 2015, and Senate Bill 100 of 2018

In 2018, SB 100 was signed codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

Local

Bay Area Air Quality Management District

To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, BAAQMD CEQA Guidelines include guidance on assessing GHGs and climate change impacts as required under CEQA Section 15183.5(b) and establish thresholds of significance for impacts related to GHG emissions. These guidelines are based on substantial evidence to "attribute an appropriate share of greenhouse gas emission reductions necessary to reach AB 32 goals to new land use development projects in the BAAQMD's jurisdiction that are evaluated pursuant to CEQA" (BAAQMD 2017).

The BAAQMD project-level operational threshold of significance for GHG emissions is the project generation of 1,100 metric tons of CO_2e per year during operations (bright-line numeric threshold); or the project generation of 4.6 metric tons of CO_2e per service population (employees + residents) per year during operations (efficiency-based threshold); or compliance with a Qualified GHG Reduction Strategy.

BAAQMD 2017 Clean Air Plan

The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets. The 2017 Clean Air Plan includes a wide range of control measures designed to reduce emissions of methane and other "super GHGs" that are potent climate pollutants in the near term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

Napa County Climate Action Plan

The Napa County General Plan and EIR called for development and adoption of a Climate Action Plan (CAP). A revised draft CAP was prepared in July 2018 but has not yet been adopted. This CAP builds upon the County's past efforts and fulfills the requirements of the Napa County General Plan and EIR. The draft CAP includes the following key components:

- A baseline GHG emissions inventory, which estimated that communitywide sources in unincorporated Napa County emitted 484,283 MT CO_2e in 2014.
- GHG emissions forecasts and reduction targets and goals for 2020, 2030, and 2050, consistent with state targets under AB 32 and SB 32.
- Local GHG emissions reduction strategies and measures, to help Napa County achieve the 2020 and 2030 targets.
- A climate change vulnerability assessment and climate adaptation measures to improve community sustainability.
- Implementation and monitoring mechanisms that will help the County ensure that the measures and targets are achieved.

The Planning Commission recommended a proposed CAP for adoption in early 2012; the CAP was later considered by the Board of Supervisors, which sent the document back for further review. Among other things, the board requested that the CAP be revised to better address transportation emissions, and to "credit" past accomplishments and voluntary efforts. The Board of Supervisors also requested that the Planning Commission consider best management practices when reviewing projects until a revised CAP can be prepared and adopted.

3.5.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the proposed Project may have a significant adverse impact related to GHG emissions if it would do any of the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment or
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

- The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130(f)). As a note, the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

As previously described, the BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions; however, the air district recommends the quantification and disclosure of construction-generated GHG emissions. The BAAQMD project-level operational threshold of significance for GHG emissions is the project generation of 1,100 metric tons of CO_2e per year during operations (bright-line numeric threshold); or the project generation of 4.6 metric tons of CO_2e per service population (employees + residents) per year during operations (efficiency-based threshold); or compliance with a Qualified GHG Reduction Strategy. These thresholds are consistent with the reduction goals of AB 32, which promulgates the statewide GHG-reduction goal of achieving 1990 levels of statewide GHG emissions by the end of the year 2020.

For the purposes of this analysis, the BAAQMD bright-line numeric threshold of 1,100 metric tons annually is employed to provide a comparison of Project construction GHG emissions. It is noted that this threshold is based, in part, on the GHG-reducing target established for the year 2020 under AB 32, but the Project would be implemented after the year 2020. Statewide goals for GHG reductions in the years beyond 2020 were codified into state law with the passage of SB 32, which as described previously mandates that California achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. This equates to 40 percent below the statewide GHG reduction target for the year 2020. Therefore, the Project's contribution to GHG emissions will be compared to a significance threshold of 660 metric tons of CO_2e per year, which equates to 40 percent less than 1,100 metric tons.

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, PRC section 21003(f) provides it is a policy of the state that "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. For the Proposed Project, the BAAQMD bright-line numeric threshold of 1,100 metric tons annually, developed based on the GHG-reducing target established for the year 2020 under AB 32, is reduced to 660 metric tons of CO_2e consistent with the statewide goals for GHG reductions in the years beyond 2020 that were codified into state law with the passage of SB 32 and used as the significance threshold.

Methods of Analysis

GHG-related impacts were assessed in accordance with methodologies recommended by the BAAQMD. Where GHG emission quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction generated GHG emissions were calculated using CalEEMod model defaults for Napa County coupled with Project specific information contained in Section 2.0. Potential operational emissions associated with the Project are addressed qualitatively. See *Appendix 3.5-A* for more information regarding the construction assumptions, including construction equipment and duration, used in the analysis (CAPCOA 2017).

3.5.4 Project Impacts and Mitigation Measures

Impact 3.5-1: Implementation of the proposed Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Impact determination: *less than significant impact*.

Threshold:	*Would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.*

Implementation of the proposed Project would generate short-term emissions of GHG emissions. Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying materials to and from the Project site, and off-road construction equipment (e.g., excavators, dump trucks). Construction-generated emissions associated with the Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See *Appendix 3.5-A* for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis. Table 3.5-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project.

Table 3.5-2. Construction-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (Metric Tons/Year)
Pipeline Construction Activities (2022)	15
Bypass Valve Construction Activities (2022)	52
Outfall Construction Activities (2022)	68
Total Construction Related GHG Emissions	**135**

Source: CalEEMod version 2016.3.2. Refer to *Appendix 3.5-A* for Model Data Outputs.
Notes: Emission estimates account for the construction equipment and duration listed in Section 2.0, Project Description.

As shown in Table 3.5-2, Project construction would result in the generation of approximately 129 metric tons of CO_2e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease. As shown, the preferred Project would not exceed the significance threshold of 660 metric tons of GHG emissions per year.

The proposed Project would not include the provision of new permanent stationary or mobile sources of GHG emissions, and therefore, by its very nature, would not generate quantifiable criteria emissions from Project operations. Thus, there would be no operational impacts concerning GHG emissions.

This impact is ***less than significant***.

Mitigation Measures

None required.

Impact 3.5-2: Implementation of the proposed Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impact Determination: *no impact*.

Threshold:	*Would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.*

As provided by the BAAQMD, the "BAAQMD's approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move us towards climate stabilization. If a project would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact and would be considered significant (BAAQMD 2017)." Therefore, if a project is less than BAAQMD's threshold of significance for GHGs, it stands to reason that the project would not substantially conflict with existing California legislation adopted to reduce statewide GHG emissions. As shown in Impact 3.5-1, the Project would result in the generation of approximately 129 metric tons of CO_2e over the course of construction and would not generate quantifiable GHG emissions from Project operations. Therefore, the Project would not substantially conflict with the emission reduction requirements adopted to reduce statewide GHG emissions. The Project would not conflict with applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. There is ***no impact.***

Mitigation Measures

None required.

Cumulative Impact

Climate change is a global problem. GHGs are global pollutants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have much longer atmospheric lifetimes of one year to several thousand years that allow them to be dispersed around the globe.

Impact 3.5-3: Result in a considerable contribution to cumulative impacts associated with greenhouse gas emissions. Impact Determination: *less than cumulatively considerable.*

Threshold:	*Would result in significant greenhouse gas emissions in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130). The additive effect of Project-related GHGs would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change as the Project was not found to have any cumulatively significant impacts. For comparison purposes, CARB established a GHG emission limit of 431 million metric tons of CO_2e for the year 2020 to meet requirements of AB 32. Thus, the Project would have a nominal contribution, as show in Table 3.5-2, to GHG limits proposed in the state. In addition, the Project, as well as other cumulative related projects, would also be subject to all applicable regulatory requirements, such as those listed in Section 3.5.2 *Regulatory Setting*, which would further reduce GHG emissions. Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. As previously discussed, the Project would not conflict with applicable plans. Therefore, the Project's cumulative contribution of GHG emissions would be less than significant and the Project's cumulative GHG impacts would also be ***less than cumulatively considerable***.

Mitigation Measures

None required.

3.5.5 References

BAAQMD. 2017. CEQA Air Quality Guidelines.

CAPCOA. 2017. California Emissions Estimator Model (CalEEMod), version 2016.3.2.

CARB. 2020. California Greenhouse Gas Emission Inventory 2020 Edition. https://ww3.ab.ca.gov/cc/inventory/data/data.htm

Crockett, Alexander G. 2011. Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World.

IPCC. 2014. Climate Change 2014 Synthesis Report: Approved Summary for Policymakers. http://www.ipcc.ch/.

_____. 2013. Carbon and Other Biogeochemical Cycles. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. http://www.climatechange2013.org/ images/report/WG1AR5_ALL_FINAL.pdf.

USEPA. 2016a. Climate Change – Greenhouse Gas Emissions: Carbon Dioxide. http://www.epa.gov/climatechange/emissions/co2.html.

_____. 2016b. Methane. https://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html.

_____. 2016c. Nitrous Oxide. https://www3.epa.gov/climatechange/ghgemissions/gases/n2o.html.

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3.6 Geology, Soils, and Paleontological Resources

This section evaluates the effects of Project construction and operation on soil erosion, geological/soils stability, and significant paleontological resources. The existing environmental and regulatory conditions specific to those issues are described and the impact posed by Project construction and operation are addressed. This section does not further address impacts found to be less than significant in the Initial Study circulated with the NOP prepared for this Project (see *Appendix 1.1-A*). These impacts include potential effects of locating the Project on expansive soils. Refer to Section 3.1 of this DEIR, which provides additional details on issues eliminated from further review in this DEIR.

It is important to note that the impact of the Project on the loss of top soil due to erosion discussed in this section focuses on impacts related to site grading and facilities construction activities in upland areas of the Project site. Changes in stream hydraulics due to the installation and operation of in-channel facilities (i.e., the Project outfall and bank protections) and the effect that those changes could have on bank erosion, stream channel incision, and the downstream transport of sediment are addressed in Section 3.7 of this DEIR.

Information contained in this section is based in part on *Geotechnical Investigation Report Rector Dam Diversion Valve and Pipeline Project* (Fugro 2020) (*Appendix 3.6-A*) and the *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* (Barber 2017) (*Appendix 3.6-B*) of this DEIR.

3.6.1 Environmental Setting

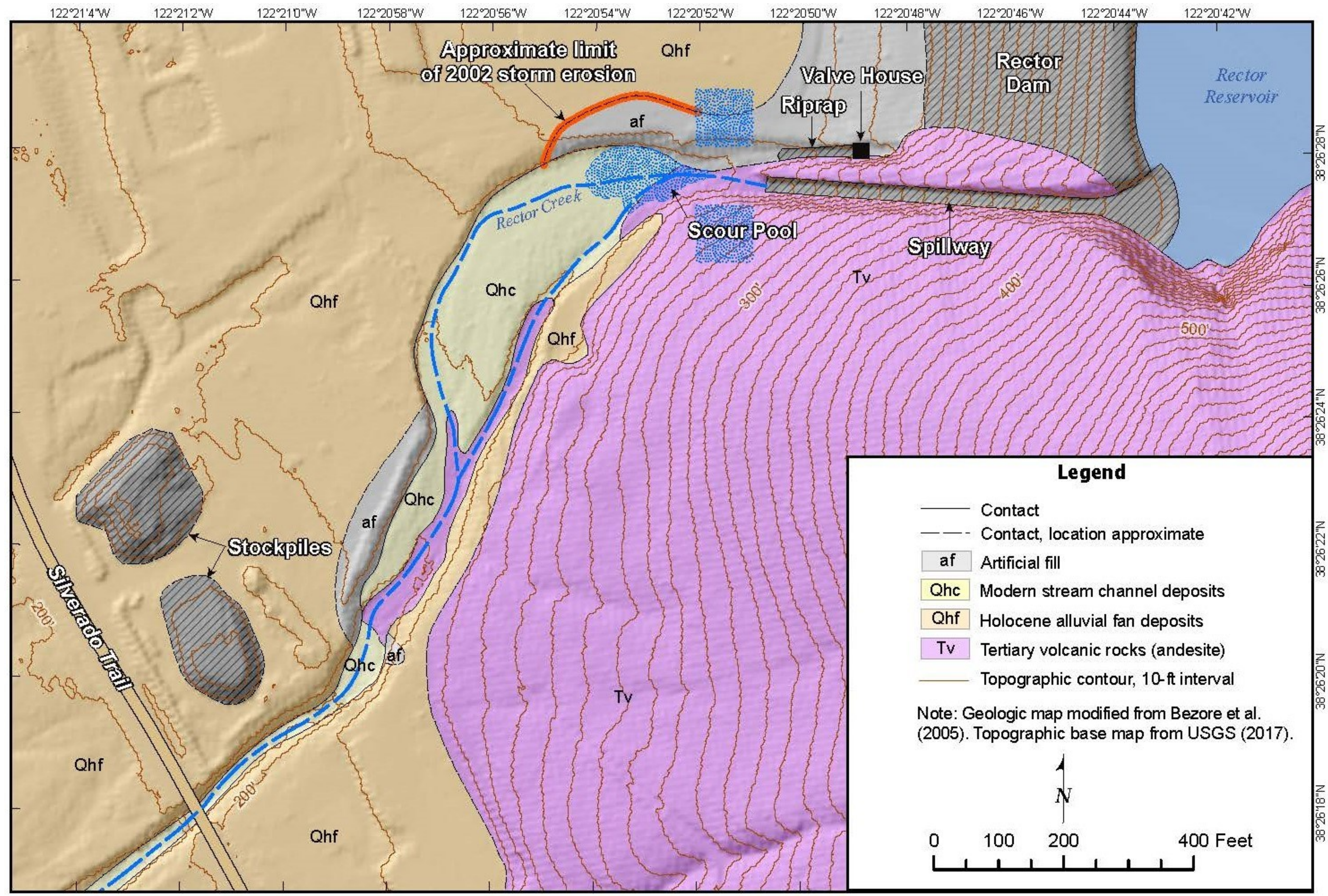
Geology

As described in Fugro (2020), Rector Reservoir is located on the eastern margin of Napa Valley where Rector Creek flows in the valley from its headwaters in the Coast Range (Fugro 2020). The dam is sited at the mountain front with bedrock of the Sonoma Volcanics mapped at both abutments, here composed of andesitic and basaltic lava flows with minor tuff[1]. The reservoir extends east into the lower portion of Rector Canyon and the creek flows west from the dam into Napa Valley.

Between the dam and its confluence with Conn Creek approximately 1.7 miles downstream in the center of Napa Valley, Rector Creek flows across a large alluvial fan composed of sediment deposited by the creek. Isolated conical hills of Sonoma Volcanics protrude above the alluvial fan surface. Rector Creek flows into Conn Creek, which then joins the Napa River approximately 1.2 miles further downstream.

Fugro prepared a geological map of the Project site and surrounding areas based on field reconnaissance, lidar topographic data and aerial imagery. The map is presented here as Figure 3.6-1. *Geological Units on the Project Site*. Each of the map units shown in the figure are described in Table 3.6-1, below.

[1] "Tuff" is defined as a light, porous rock formed by consolidation of volcanic ash.



Source: Fugro

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 3.6-1. Geological Units of the Project Site

2018-116.011 Rector Reservoir Bypass Valve Project

Table 3.6-1. Geologic Map Unit Descriptions

Symbol	Unit	Description
af	Artificial fill	Engineered fill
Qhc	Modern stream channel deposits	Alluvium deposited by Rector Creek in the stream channel. In the study area, clast size ranges from sand to small boulders.
Qhf	Holocene alluvial fan deposits	Alluvium deposited by Rector Creek on its alluvial fan prior to dam construction. Sediments are stratified and clast sizes range from sand to small boulders.
Tv	Tertiary volcanic rocks	Andesite and basalt flows of the Sonoma Volcanics, including minor tuff.

Source: Fugro (2020)

Water impounded in Rector Reservoir is released directly to Rector Creek by one of two ways:

1. Via a pipe through the dam that discharges at the valve house into a rip-rap-lined channel just upstream of the proposed bypass valve outfall location, or

2. Via the dam's spillway into a concrete-lined spillway that is separated from the rip-rap channel by a natural ridge of bedrock.

The spillway discharges into a bedrock floored channel that joins the rip-rap lined channel into which the valve house discharges are released.

The flow from the spillway and the valve house converges in a scour pool located about 325 feet downstream of the valve house and 200 feet downstream of the end of the spillway. The pool is floored with bedrock that transitions to alluvium downstream. Downstream from the pool, the creek channel widens to about 175 feet as it makes a southward bend at the proposed location of the Project outfall. Here the channel has two main thalwegs[2] flowing on either side of a three-to-five-foot-high gravel bar. The northern thalweg appears to be armored by a lag deposit of rounded cobbles and boulders derived from the alluvium. The southern thalweg is primarily floored by bedrock. The entire channel is inset in the alluvial fam deposits whose terrace surface sits about 10 feet above the channel bottom at this location.

The north bank of the channel bend has experienced erosion in past high discharge events, resulting in widening of the creek channel at the bend. Photographs of the damage in one such event that took place in 2002 are included in *Appendix 3.6-A* of this DEIR. Based on these photographs, Fugro estimated that approximately 50 feet of the alluvial fan surface above the north bank was eroded during the 2002 event. The damage was subsequently repaired with artificial fill and the channel wall restored to its former position. The area of repair is just over 100 feet downstream of the proposed outfall location. Field

[2] "Thalweg" refers to line formed by the lowest points in the cross-section of a stream or river channel.

photographs included in the Fugro report show an area of the channel wall covered with boulders placed to prevent further erosion.

Downstream of the bend (and proposed outfall location) the stream channel narrows, the two thalwegs join, and the single thalweg is floored by bedrock. A narrow body of alluvium contours along the flank of the bedrock hill on the south side of the channel. Artificial fill on the west bank is identified by the presence of the berm along the creek bank and by comparison of current to older historical aerial photographs that show the former position of the creek bank. Continuing downstream, the channel narrows further and becomes floored by alluvium where it passes beyond the mountain front into the broader valley of the Conn and Napa Rivers. The channel is straight, tree-lined and incised into the alluvial fan sediments as it approaches the bridge at Silverado Trail. Good exposures of the alluvial fan terrace deposits near the bridge show in-place examples of the small, rounded boulders that form lag deposits in the modern channel. (Fugro 2020)

Soils

According to the Web Soil Survey (NRCS 2020a), two soil units, or types, have been mapped within the Project site. These are:

- 125 – Cortina very stony loam, 0 to 5 percent slopes and
- 174 – Riverwash

Cortina series soils consist of excessively drained soils on flood plains and alluvial fans. These soils formed from recent stratified alluvium. Cortina very stony loam (125) contains riverwash hydric components in drainageways (NRCS 2020b). Average organic matter is less than 1 percent to a depth of more than 7 inches and the soil type is very permeable.

Riverwash (174) is included in miscellaneous areas that are in active stream channels, on flood plains, and adjacent to drainageways. These areas are inundated during periods of waterflow and are subject to constant deposition and removal of material. Riverwash consists of erratically stratified layers of water-deposited sand, gravel, stones, and cobbles. Layers of sandy loam and silt loam are deposited for short periods but are subject to intermittent scouring and removal. Riverwash (174) contains riverwash hydric components in channels and floodplains (NRCS 2020b).

Paleontological Resources

A paleontological records search was conducted by Paleontologists Kenneth Finger on April 5, 2021. The search included a records search of the University of California Museum of Paleontology (UCMP) database and paleontology specimen collection records for Napa County, including the Project area and vicinity. In addition, a query of the UCMP catalog records; a review of regional geologic maps from the California Geological Survey (CGS); and a review of local soils data was completed. The purpose of the assessment was to determine the sensitivity of the Project area, whether or not known occurrences of paleontological resources are present within or immediately adjacent to the Project area, and whether or not implementation of the Project could result in significant impacts to paleontological resources.

Paleontological resources include mineralized (fossilized) or unmineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

The surface of the project site consists solely of Holocene alluvial fan deposits (Qhf). Also present in the half-mile search area (solid red outline) are Holocene artificial fill (af) from construction of the Rector Reservoir dam and three subunits of the Pliocene Sonoma Volcanics (Psv).

Holocene deposits are too young to contain paleontological fossils. The paleontological records search on the UCMP database therefore focused on the older Sonoma Volcanics. It revealed two vertebrate localities and no plant localities; however, these localities were not found within the project area. In Napa County, localities were found about 10 miles northwest of the project site, a tuffaceous agglomerate yielded a molar and metatarsal of Equus (horse). Much farther away in Solano County in an unrecorded lithology yielded 33 specimens including Equus occidentalis (western horse); two other skeletal elements are identified as Equus, and while the remainder are 26 only identified as mammalian and four as unspecified vertebrates.

3.6.2 Regulatory Framework

Federal

Occupational Safety and Health Administration (OSHA) Regulations

Excavation and trenching are among the most hazardous construction activities. The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations (CFR), Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State

California Building Code

The State of California provides minimum standards for building design through the California Building Code (CBC, California Code of Regulations [CCR], Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, construction on unstable soils, such as expansive soils and areas subject to liquefaction, and Chapter 04 regulates grading activities, including drainage and erosion control.

Local

Napa County

The Napa County General Plan Conservation Element (updated June 2009) contains the following goals and policies pertaining to soils and paleontological resources:

Goal CON-13: Promote the development of additional water resources to improve water supply reliability and sustainability in Napa County, including imported water supplies and recycled water projects.

Policies:

CON-48. Proposed developments shall implement project-specific sediment and erosion control measures (e.g., erosion control plans and/or stormwater pollution prevention plans) that maintain pre-development sediment erosion conditions or at minimum comply with state water quality pollution control (i.e., Basin Plan) requirements and are protective of the County's sensitive domestic supply watersheds. Technical reports and/or erosion control plans that recommend site-specific erosion control measures shall meet the requirements of the County Code and provide detailed information regarding site specific geologic, soil, and hydrologic conditions and how the proposed measure will function.

CON-50 (e) In conformance with National Pollution Discharge Elimination System (NPDES) requirements, prohibit grading and excavation unless it can be demonstrated that such activities will not result in significant soil erosion, silting of lower slopes or waterways, slide damage, flooding problems, or damage to wildlife and fishery habitats.

In 1991, the Board of Supervisors enacted the Conservation Regulations (Napa County Code Chapter 18.108), which are implemented by the Conservation, Development and Planning Department to address issues related to erosion control and stream setbacks. The intent of these regulations was to protect lands from excessive soil loss and maintain or improve water quality of watercourses by minimizing soil erosion from earthmoving, vegetation removal, and grading activities related to agriculture and structural projects. In addition, these regulations include setbacks from streams and rivers to preserve riparian areas and other natural habitats. In 1994 and 2002, additional sensitive domestic and municipal watershed protection measures were added to the county's Conservation Regulations to ensure enhanced water quality protection in these areas. Some of those additional protections include vegetation retention requirements, shortened grading season, oversight of erosion control installations, special geologic stability assessments, and conservative sizing of water conveyance and detention facilities.

3.6.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on Geology and Soils and Paleontological Resources if it would do any of the following:

- Result in substantial soil erosion or the loss of topsoil;

- Be located in a geological 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; or
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Project Impact Analysis

Impact 3.6-1: Project construction could result in soil erosion or the loss of top soil. Impact Determination: *less than significant with mitigation*.

Threshold:	*Substantial soil erosion or the loss of topsoil.*

Initial preparation of the Project construction site staging areas; vegetation removal along the north channel bank; bypass valve pad construction; trenching activities for pipeline installation, outfall construction and grading activities in advance of rip rap placement would result in ground disturbance and could create ground instability and soil erosion. More detailed information about the Project's soil erosion impacts is included in the discussion of Impact 3.8-2.

A predominate instigator of erosion on construction sites is storm events and the resulting stormwater runoff. Project construction activities including trenching for the underground water pipeline and electrical conduit installations, pad construction for the bypass valve, outfall construction and bank clearing for installation of rip rap adjacent to outfall each would disturb soil and groundcover which, in turn could result in significant erosion during a storm event.

All projects in California over one acre in size require a stormwater pollution prevention plan (SWPPP) in order to comply with the RWQCB's General Construction Storm Water Permit. The SWPPP will identify best management practices (BMPs) to be implemented on the project site to minimize soil erosion.

The BMPs required for coverage under the Construction General Permit would include measures to prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within Rector Creek, Conn Creek and the Napa River. Compliance with the Construction General Permit and Napa County Code (Chapter 18.108, Conservation Regulations) governing construction runoff control would result in the implementation of feasible and effective means of eliminating or substantially reducing construction-related pollutants in stormwater runoff. The potential for significant impact on water quality would be avoided through the acquisition of and Construction General Permit and implementation of the BMPs contained within the SWPPP. These measures are described in detail under mitigation measure **HYD-1** included in Section 3.8. The impact on water quality resulting from activities associated with Project construction is, therefore, found to be ***less than significant with mitigation***.

<u>Mitigation Measures</u>

With implementation of mitigation measure **HYD-1** (see Section 3.8 of this DEIR), the impact of Project construction on water quality is reduced to ***less than significant***.

Impact 3.6-2: Project facilities could be subject to seismic hazards, instability of existing fills, and settlement that could potentially result in future failure of those facilities. Impact Determination: *less than significant*.

Thresholds:	*Exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides.* *Project location in a geological 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.*

In their report *Geotechnical and Geological Feasibility Report Rector Dam Diversion Valve and Pipeline Project* (see *Appendix 3.6-A* of this DEIR), Fugro (2020) addressed the geotechnical and geologic feasibility of Project construction and operation. As discussed below, the report found that the primary considerations from a geotechnical/geological perspective were seismic hazards, erosion, the stability of existing fills, and settlement.

Seismic hazards for the Project considered in the Fugro Report (2020) include surface fault rupture, ground shaking, liquefaction, slope instability, and ground settlement. There are no known Quaternary faults projecting through or near the Project site. The nearest know Quaternary fault is the Green Valley fault, which is classified as having latest Quaternary movement and is located eight miles south of the Project. Based on this information, the risk of fault rupture at the Project site was found to be low. The Project site would experience moderate to high levels of ground shaking in the event of a major earthquake on nearby active faults.

Regional mapping of geology and liquefaction susceptibility shows the Project site to be underlain by Holocene alluvial fan deposits having moderate liquefaction susceptibility (Fugro 2020). Alluvial fan deposits may exhibit significant local variability in composition, grain size distribution, degree of induration or compaction, and degree of saturation, which are factors that govern liquefaction susceptibility. Based on the Fugro review, subsurface conditions for the pipeline alignment are likely to consist of unsaturated artificial fill, unsaturated boulder to gravelly alluvium, and shallow bedrock, which are generally not considered susceptible to liquefaction.

The only slopes in the vicinity of the proposed pipeline alignment are the reconstructed and natural slopes of the Rector Creek streambank. Based on Fugro's review and observations contained in their 2020 report, the risk of slope failure due to lateral spreading or collapse is low.

The native alluvial deposits on the Project site consist of boulder to gravelly alluvium; no significant seismically induced settlement would occur in these deposits as a result of strong ground shaking. The nature and extent of the artificial fill placed along the north bank are not known. It is possible that seismically induced settlement of existing fill may be a hazard for the Project.

The north bank of Rector Creek at the bend downstream of the proposed Project outfall location has been subject to substantial erosion during past high flow events. This issue as it relates to Project outfall construction and operation is addressed in detail in Section 3.7 of this DEIR.

Based on observations and field mapping, Fugro determined the native alluvial deposits consist of large-grained materials that are not likely to undergo significant settlement. The potential for settlement in areas containing artificial fill, however, is unknown. The placement of the pipeline in fill areas, particularly where those areas may abut natural alluvium, could result in damage to the proposed pipeline due to settlement.

Based on the above information, seismic-related hazards are less than significant, but future settlement along the proposed pipeline alignment could have a significant impact on pipeline integrity. In response to this concern, CalVet's Project design consultant, Wood Rodgers, refined the pipeline design to incorporate "thrust blocks" at water pipeline joints and bends within the proposed alignment. The design and specifications of these features are illustrated in Sheet C-5 of the Project 100 percent design drawings included as *Appendix 3.6-C* of this DEIR. The final Project design as shown in *Appendix 3.6-C* would avoid future impact on pipeline integrity and, therefore, the impact is found to be ***less than significant***.

Mitigation Measures

None required.

Impact 3.6-3: The project could directly impact a unique paleontological resource during excavation activities. Impact Determination: *no impact.*

Threshold:	*Direct or indirect destruction of a unique paleontological resource.*

As described above, a search of the UCMP failed to indicate the presence of paleontological resources in the areas affected by construction activities. Additionally, soils mapped in the project study area are too young to be fossiliferous. Furthermore, as there are no older sedimentary units mapped in the vicinity, the adjacent andesite flow breccias continue in the subsurface directly below the Holocene layer on the Project site. That particular lithology in the Sonoma Volcanics is not known to preserve fossils nor is it likely to. For this reason, the Project will have ***no impact***.

Mitigation Measures

None required.

Cumulative Impact

Impact 3.6.4: Cumulative geology, soils and paleontological resources impacts. Impact determination: *less than considerable*

Threshold:	*Would Implementation of the proposed project, along with reasonably foreseeable probable future projects in the project vicinity, result in cumulative impacts to geology, soils and paleontological resources?*

The cumulative setting associated with the Project includes approved, proposed, planned, and other reasonably foreseeable probable projects and development in the Napa County. Developments and planned land uses, including the proposed Project, would cumulatively contribute to impacts to geology, soils and paleontological resources in or near the Project area. However, no other local projects that would add to the Project's localized soils and geology impacts are approved, proposed, planned, or probable at this time.

Construction activities associated with the proposed project would result in localized soil erosion and instability. Implementation of appropriate erosion control and pollution prevention BMPs would minimize the potential for soil erosion during and after project construction. Soil erosion would be temporary only and contained within the project boundary. Because it is reasonable to conclude that all site development for the Proposed project and other probable future projects would be required to adhere to applicable State regulations, CBC standards, and design and siting standards required by local agencies, a less than significant cumulative impact would occur. For these reasons, the Project's contribution to the cumulative impact on geology and soil resources would be ***less than considerable***.

As stated above, the Project would have no impact on paleontological resources and, thus, would not contribute to any cumulative impact on such resources. The Project's contribution, therefore, is found to be ***less than considerable***.

Cumulative Mitigation Measures

None required.

3.6.4 References

Barber, Teri Jo. 2017. *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* July 23. Prepared by Teri Jo Barber, Professional Surface Water Hydrologist #00H-1535 American Institute of Hydrology, Professional Storm Water Design and Practitioner and QSD/P #21493. Prepared for Veterans Home and Rector Reservoir Surface Water Treatment Plant, California Department of Health Services Drinking Water Division.

Fugro 2020. *Geotechnical and Geological Feasibility Report Rector Dam Diversion Valve and Pipeline Project.* Prepared by Fugro. Prepared for the California Department of General Services. July 21, 2020.

NRCS. 2020a. Soil Survey Geographic Database. Available Online: https://sdmdataaccess.sc.egov.usda.gov/. Accessed September 2020.

_____. 2020b. Soil Data Access Hydric Soils List. Available at https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed September 2020.

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3.7 Hazards and Hazardous Materials

This section evaluates the environmental effects of Project construction and operation related to the transport and use of hazardous materials and waste. Hazardous materials and wastes are those substances that, because of their physical, chemical, or other characteristics, pose a risk of endangering human health or safety or of endangering the environment (California Health and Safety Code Section 25260). Types of hazardous materials include petroleum hydrocarbons, persistent bioaccumulative toxins such as lead and mercury, industrial carcinogens, pesticides, and volatile organic carbons. The existing environmental and regulatory conditions specific to the handling of hazardous materials are described and the impact posed by that handling are addressed.

This section specifically addresses whether the Project would create a significant hazard to the public or environment through the routine transport, use of disposal of hazardous materials. This section also considers whether the Project would 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. This section does not further address impacts found to be less than significant in the Initial Study circulated with the NOP prepared for this project (see *Appendix 1.1-A*). These impacts include the potential release of hazards within one-quarter mile of a school; the location of the Project on a designated hazardous materials site; location of the Project within an airport land plan area or in the vicinity of a private airstrip; impairment to an adopted emergency response or evacuation plan; or exposure of people or structures to significant risk of wildfire. No public comments contesting the findings of less-than-significant impact for these issues in the NOP were received by the Lead Agency.

3.7.1 Regulatory Setting

3.7.2 Regulatory Framework

Federal

Federal laws require planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and if such materials are accidentally released, to prevent or mitigate injury to health or the environment. The primary federal agencies with responsibility for hazardous materials management include the U.S. Environmental Protection Agency (USEPA), U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation. Applicable federal regulations pertaining to hazardous materials are primarily contained in the Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the Code, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws, among others:

- The Toxic Substances Control Act of 1976 (15 USC Sections 2601–2697) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials. Section 403 of the Toxic Substances Control Act establishes standards for lead-based paint hazards in paint, dust, and soil. This is the federal law that mandates use of the Universal Hazardous Waste Manifest to track hazardous substances from “cradle to grave.”

- The Resource Conservation and Recovery Act of 1976 (42 USC Sections 6901–6992k) is the law under which USEPA regulates hazardous waste from the time the waste is generated until its final disposal ("cradle to grave").
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC Sections 9601–9675) gives USEPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.
- The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

The federal Hazardous Materials Transportation Act (49 USC Sections 5101–5127) is the basic statute regulating transport of hazardous materials in the United States. Hazardous materials regulations are enforced by the Federal Highway Administration, the U.S. Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration. OSHA is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 29 USC Sections 651–678). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for excavation and trenching.

State

In California, both federal and state community right-to-know laws are coordinated through the California Governor's Office of Emergency Services (OES). The federal law, SARA Title III or EPCRA, described above, encourages and supports emergency planning efforts at the state and local levels and to provide local governments and the public with information about potential chemical hazards in their communities. The provisions of EPCRA apply to four major categories: emergency planning, emergency release notification, reporting of hazardous chemical storage, and inventory of toxic chemical releases. Information gathered in these four categories helps federal, state, and local agencies and communities understand the chemical hazards in a particular location or area and what chemicals individual facilities are using, storing, or producing on site.

The DTSC, a division of the California Environmental Protection Agency, has primary regulatory responsibility over hazardous materials in California, working in conjunction with USEPA to enforce and implement hazardous materials laws and regulations, including use of the Universal Hazardous Waste Manifest system.

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted U.S. Department of Transportation regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 CCR. State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the Caltrans. Together, these agencies determine container types, placarding, and signage used, and license hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by Cal OES, which coordinates the responses of other agencies in the project area.

Porter-Cologne Water Quality Act

Through the Porter-Cologne Water Quality Act and the NPDES program, the RWQCB has authority to require proper management of hazardous materials during project construction. For a detailed description the Porter-Cologne Water Quality Act, the NPDES program, and the role of the RWQCB, see Section 3.8: of this DEIR.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Local

Napa County

The Napa County General Safety Element (2007) contains the following applicable goal and policy pertaining to the transport and handling of hazardous materials:

Goal SAF-5: *To protect residents and businesses from hazards caused by human activities.*

Policies:

SAF-30. Potential hazards resulting from the release of liquids (wine, water, petroleum products, etc.) from the possible rupture or collapse of aboveground tanks should be considered as part of the review and permitting of these projects.

3.7.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the Project may have a significant adverse impact due to the use and transport of hazardous materials if it would do any of the following:

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

Methods of Analysis

This impact analysis examines the potential for the construction and/or operation of the Project to result in release of hazardous materials into the environment. Construction and operation of the project will comply with all applicable laws, permits, and legal requirements pertaining to hazards and hazardous materials discussed above.

Project Impact Analysis

Impact 3.7-1: The Project would require the transport, storage and use of hazardous materials common for such activities and could result in their inadvertent release to the environment. Impact Determination: *less than significant*.

Threshold:	*Creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.*
Threshold:	*Creation of 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.*

Construction

Construction of the Project would involve the transport, storage, and use of hazardous materials such as gasoline, diesel fuel, and various other construction materials. Protections are required by regulation to mitigate the potential for the accidental release of chemicals, fuels, lubricants, and other potentially hazardous materials during project construction.

Typical incidents that could result in accidental release of hazardous materials involve leaking storage tanks, spills during transport, inappropriate storage, inappropriate use, and/or natural disasters. If not remediated immediately and completely, these and other types of incidents could cause toxic fumes and contamination of soil, surface water, and groundwater. Depending on the nature and extent of the contamination, groundwater supplies could become unsuitable for use as a domestic water source. Human exposure to contaminated soil or water could have potential health effects depending on a variety of factors, including the nature of the contaminant and the degree of exposure.

Hazardous materials must be stored in designated areas designed to prevent accidental release to the environment. California Building Code (CBC) requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards.

Hazardous materials regulations, which are codified in CCR Titles 8, 22, and 26, and their enabling legislation set forth in Chapter 6.95 of the California Health and Safety Code, were established at the state level to ensure compliance with federal regulations and to reduce the risk to human health and the environment from the routine use of hazardous substances. Protection against accidental spills and releases provided by this legislation includes physical and mechanical controls of fueling operations, including automatic shutoff valves; requirements that fueling operations are contained on impervious surface areas; oil/water separators or physical barriers in catch basins or storm drains; vapor emissions controls; leak detection systems; and regular testing and inspection of fueling stations.

As a result of existing hazardous materials regulations discussed above, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Construction-related hazards could be created during Project construction at the Project site, given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures, including all state and federal controls for heavy equipment operation within a streambed area, that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

For the reasons presented above, the impact of the Project on public safety and the environment due to the transport, handling, use and storage of hazardous materials during Project construction is ***less than significant***.

Project Operation

With the completion of Project construction, no hazardous materials would be stored on the Project site. Future onsite use of materials such a fuel, lubricants, solvents, etc., would be limited to instances where repair or maintenance of Project facilities is needed and would be consistent with ongoing operations at the reservoir and water treatment plant, and subject to local, state and federal regulations listed above. As such, the impact of the future use of hazardous materials in support of Project operation is ***less than significant***.

Mitigation Measures

None required.

Cumulative Impact

Impact 3.7-2: Project contribution to the cumulative impact of the transport, handling and storage of hazardous materials. Impact determination: *less than considerable*.

Threshold:	*Would Implementation of the proposed project, along with reasonably foreseeable probable future projects in the project vicinity, result in cumulative impact on the environment due to the transport, handling and storage of hazardous materials?*

The cumulative setting associated with the Project includes approved, proposed, planned, and other reasonably foreseeable probable future projects and development in Napa County. Developments and planned land uses, including the Project, would cumulatively contribute to impacts resulting from the transport, use and storage of hazardous materials.

Any hazardous material used, transported, or uncovered during the construction or operation of the Project would be handled in accordance with applicable federal, state, and local policies or ordinances. In addition, the quantities of such materials would be limited. As stated, the Project would not change the long-term operation of the site, and any changes in site conditions would be limited and temporary. Other probable future projects would similarly be required to comply with applicable federal, state, and local policies or ordinances regulated hazardous materials. For these reasons, the Project's contribution to cumulative impacts associated with hazards and hazardous materials would be ***less than considerable.***

3.7.4 References

Napa County 2007. *Napa County General Plan Update EIR*. February 2007

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3.8 Hydrology and Water Quality

This section describes the effects of the construction and operation of the Project on local and regional hydrology and water quality. The existing environmental and regulatory conditions specific to those issues are described, and the impacts posed by the Project are addressed. An overview of the methods used herein to assess Project impact are provided, as are impact significance thresholds. The Project impact on hydrology and water quality is assessed relative to those thresholds.

This section does not further address impacts found to be less than significant in the Initial Study circulated with the Notice of Preparation (NOP) prepared for this Project (see *Appendix 1.1-A*). These impacts, all found to be less than significant, include any substantial decrease in groundwater supplies or interference with groundwater recharge; substantial increases in the rate or amount of surface runoff that could cause on- or off-site flooding; and Project-caused increases in the amount of runoff that could adversely affect existing or planned stormwater drainage systems. Other issues addressed in the Initial Study and found to be less than significant include the potential for inundation of the Project site due to flood hazard, tsunami, or seiche zones and subsequent release of pollutants.

No public comments contesting the Initial Study findings of "less-than-significant impact" for the issues listed above were received during the NOP comment period.

The impact of the Project on the loss of topsoil due to erosion related to construction site preparation and the installation of the proposed bypass valve, electrical conduit, water pipeline and outfall structure are addressed in Section 3.6 of this DEIR. Project effects on CalVet's raw and treated water deliveries to existing and projected future users are addressed in Section 3.11, Utilities and Service Systems of this DEIR.

The evaluation presented below, focuses on changes in stream hydraulics and hydrology that could occur as a result of the placement of the proposed outfall on the north bank of Rector Creek and implementation of the proposed minimum environmental release schedule. Information contained in this section is based in part on technical reports and assessments including:; *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment: Technical Memorandum* (Stillwater Sciences, July 2019); Technical Memorandum: *Rector Reservoir Operations Simulation Modeling* (Western Hydrologics 2021); *Napa County General Plan Update Draft EIR* (Napa County 2007); *Geotechnical and Geological Feasibility Report Rector Dam Diversion Valve and Pipeline Project* (Fugro 2020); *Rector Creek Water Year Type and Watershed Model Technical Memorandum Rector Reservoir Bypass Valve Project* (Stillwater 2021, Appendix 2.7); and the *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* (Barber 2017).

3.8.1 Environmental Setting

Climate

Napa County has a Mediterranean climate, with distinct wet and dry seasons. Approximately 90 percent of the precipitation occurs between November and April, and precipitation varies significantly throughout the County, both in a north-south direction and with elevation (Napa County 2007). Storms approach the County both from the west, rising over the Mayacamas Mountains and moving into the Napa Valley and beyond, and from San Pablo and San Francisco Bay to the south, and moving northward up the valleys. Rainfall distribution is strongly correlated with elevation. For example, average annual rainfall along a transect may range from the hills south of Calistoga (approximately 45 inches per year [in/yr]), across the valley floor near Calistoga (approximately 30 in/yr), and then up the hills north of Calistoga (more than 45 in/yr). A strong "rain shadow" effect is also observed in the County, whereby rainfall amounts decrease eastward because frontal storms arriving from the Pacific Coast lose moisture and saturation as they pass over progressive ridgelines to the east (Napa County 2007). The average annual precipitation in the Rector Creek watershed is approximately 36 inches (Stillwater Sciences 2019).

Regional Hydrology

Rector Creek and Rector Reservoir are located in the Napa River watershed, which extends in a northwesterly direction roughly 45 miles from San Pablo Bay to the hills north of Calistoga and includes primarily a central valley floor and eastern and western mountains to either side of the valley floor (Ascent Environmental, Inc. 2017). The watershed is bounded by Mount St. Helena to the north; the Mayacamas Mountains to the west; Howell Mountain, Atlas Peak, and Mt. George to the east; and the Napa-Sonoma Marsh to the south. The Napa River, the largest river in the Napa County, drains the watershed and empties into San Pablo Bay to the south. The lowest reaches of the Napa River and tributaries in the lower Napa Valley are tidally influenced due to the proximity to San Pablo Bay. Along the Napa River, the tidal influence is observed northward into the City of Napa. In addition to Rector Reservoir, major storage facilities within the Napa River watershed include Kimball Reservoir, Bell Canyon Reservoir, Lake Hennessey, and Milliken Reservoir.

In general, tributaries to the Napa River form canyons in their steeper upstream reaches, where they flow over the more resistant bedrock of the mountainous areas. In terms of geomorphic form, County streams typically descend from steep headwater reaches (possibly through side valley canyons) onto alluvial fan surfaces, and then on to a valley floor setting (Napa County 2007). Some of the upstream reaches of tributaries are seasonal (ephemeral or intermittent), and others are perennial; downstream reaches, especially of the larger streams, are generally perennial. In some areas, mountain streams drain into alluvial fan deposits and are perennial in upstream reaches and intermittent in downstream reaches, because water tables fall below the level of the streambed during the dry season due to the contrasting permeabilities of mountain bedrock and adjacent unconsolidated alluvial fan deposits. (Napa County 2007).

Rector Creek Watershed

As shown in Figure 3.8-1, the drainage area contributing to Rector Creek reservoir encompasses about 11 square miles or roughly 6,971 acres (Barber 2017). The dam and reservoir are approximately 2.5 miles northeast from the Town of Yountville on Silverado Trail, in Napa County between Napa and St. Helena. Rector Creek crosses Silverado Trail approximately 700 feet downstream of the spillway. Rector Reservoir is fed by three main tributaries: North Fork; mainstem Rector Canyon and South Fork (known locally as LeRette Creek). The watershed boundary around Rector's contributing drainage area extends upstream easterly 4.7 miles to Atlas Peak Mountain.

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Map Date: 6/8/2021 Photo Source: USGS Topo; ESRI Base Imagery

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Figure 3.8-1. Rector Reservoir Watershed

2018-116.011 Rector Reservoir Bypass Valve Project

Rector Canyon is steep and narrow, is bounded by the wide plateau all around which continues to be developed for wine grape agriculture. Short tributaries have very steep climbing inlets, while longer winding tributaries ascend the canyon more gently and then wind their way across the flat plateau.

Rector Reservoir Operations

The main stem, North Fork, and South Fork contain about 77, 10, and 13 percent of the Rector Creek drainage area, respectively. As noted, the average annual precipitation in the watershed is approximately 36 inches, and the average annual inflow to Rector Reservoir is estimated at 14,240 acre-feet. The reservoir typically fills and spills during the winter and spring months when most of the precipitation falls (DWR 2013, as cited in Stillwater Sciences 2019).

Rector Dam is a 164-foot-high earth-fill structure with a crest elevation of 381.5 feet above Mean Sea Level (MSL). As built in 1946, the spillway crest elevation was 370.0 feet above MSL, but the spillway elevation was raised 2.5 feet in 1989 to increase water storage. The spillway currently has a crest elevation of 372.5 feet above MSL and a curvilinear crest length of 141.5 feet (DWR 2013). Water is withdrawn from the reservoir by a tower with intake invert elevations of 270, 291, 307, 323, 335, and 339 feet above MSL. A 2000 bathymetric survey of Rector Reservoir conducted by California Department of Water Resources (DWR) determined that the lowest intake at 270 feet above MSL was buried by sediment, so the lowest operational intake is at 291 feet above MSL (DWR 2000). The 2000 bathymetric survey also calculated stage-surface area and stage-storage volume curves for Rector Reservoir from 245 feet above MSL to 375 feet above MSL (DWR 2013).

According to the stage-storage volume relationship, the minimum pool storage which is inaccessible below the lowest operational intake (291 feet above MSL) is approximately 478 acre-feet. At the spillway crest elevation (372.5 feet above MSL), the reservoir storage capacity is approximately 4,535 acre-feet (DWR 2013). The 2000 bathymetric survey showed that approximately 245 acre-feet of sediment had accumulated in Rector Reservoir during the 54 years since the dam was constructed, with an average sediment accumulation of 4.5 acre-feet/year (DWR 2000). While the sedimentation rate estimated in 2000 was consistent with the small deltas observed in 2011 at the three stream inlets to the reservoir, DWR (2013) noted that a comparison of the full pool surface areas estimates from the Division of Safety of Dams, aerial photography, and full pool elevation contours suggested that sedimentation in the reservoir near the three stream inlets may be creating some uncertainty in the upper range of the stage-surface area and stage-storage volume relationships for Rector Reservoir. The largest volume of sediment input to the reservoir occurred during a period of high runoff following a fire, but the development of vineyards in the Rector Creek watershed above the dam since the early 1990s may also be contributing to the sediment entering the reservoir (DWR 2013).

Water is stored in Rector Reservoir during wet winter months (October 1 to May 31) and withdrawn from storage during dry summer months (June 1 to September 30). Hydrologic Assessment

In developing the proposed Project's interim fish release schedule, Stillwater Sciences conducted an assessment of annual inflow to Rector Reservoir, reservoir outflow, and Rector Reservoir water uses and evaporative losses. This evaluation is detailed in their report (Stillwater 2019) included as *Appendix 3.3-C* of this DEIR and is summarized here.

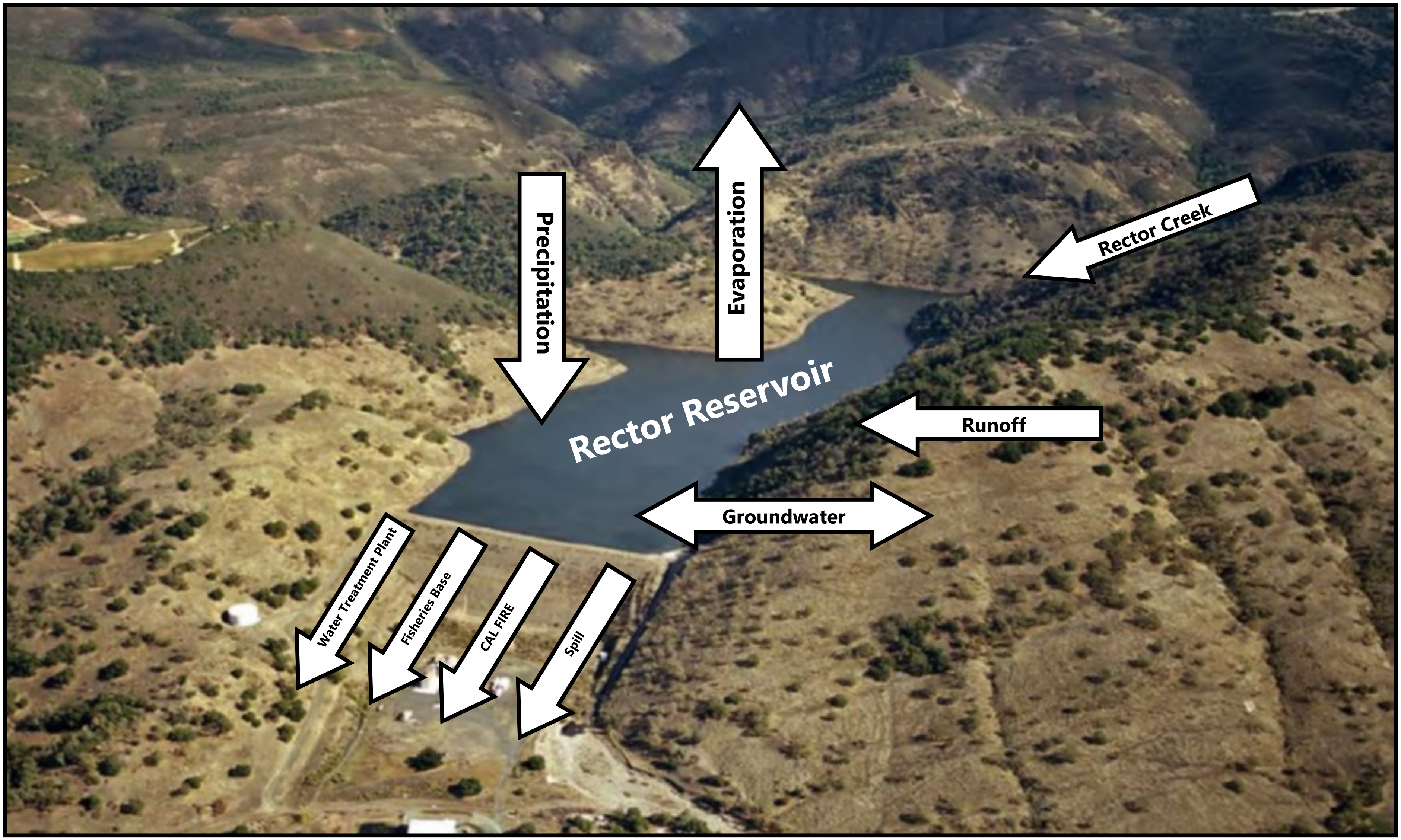
In preparing their Rector Creek/Reservoir hydrologic assessment, Stillwater Sciences compiled and reviewed existing relevant Rector Creek watershed data for use in developing a daily time-scale water-balance model of Rector Reservoir, including: reservoir stage and bathymetric data; reservoir outflow and spill records; water-use records from the CalVet water treatment facility; water-use records of the Fisheries Base and CAL FIRE training facilities; precipitation and evaporation data; water quality and temperature data; and general physical and biological study reports.

As described in *Appendix 3.3-C*, the inflows to Rector Reservoir are composed of many different components (see Figure 3.8-2), including:

- stream discharge into Rector Reservoir from Rector Creek, North Fork Rector Creek, and South Fork Rector Creek;
- runoff from the surrounding subwatershed directly into Rector Reservoir;
- direct precipitation onto Rector Reservoir; and
- groundwater inflow.

Water outflows from Rector Reservoir including:

- direct evaporation from the surface of Rector Reservoir;
- diversion to the water treatment plant to supply drinking water to the Veterans Home of California in Yountville, the Town of Yountville, CDFW's Bay Delta Region office, and several local wineries;
- diversion of untreated water to the Fisheries Base;
- diversion of untreated water to the CAL FIRE training facility;
- spillway outflows; and
- groundwater outflow.



Source: Stillwater Sciences

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Figure 3.8-2. Inflows and Outflows

2018-116.011 Rector Reservoir Bypass Valve Project

A complete dataset of hydrologic records was not available. Data were available for precipitation, evaporation, diversion to the CalVet water treatment plant (WTP), diversion to the Fisheries Base, and diversion to the CAL FIRE training facility. Data were not available for stream discharge entering Rector Reservoir, runoff from the surrounding subwatersheds into Rector Reservoir, groundwater inflows, or groundwater outflows. While the time when spillway outflows occurred was documented, spillway outflow volume data were unavailable for most years.

Rector Reservoir stage and spill timing has been recorded at irregular intervals with 3,253 measurements between January 1, 2003 and April 30, 2018. These data were used to estimate daily reservoir stage for all days during the analysis period.

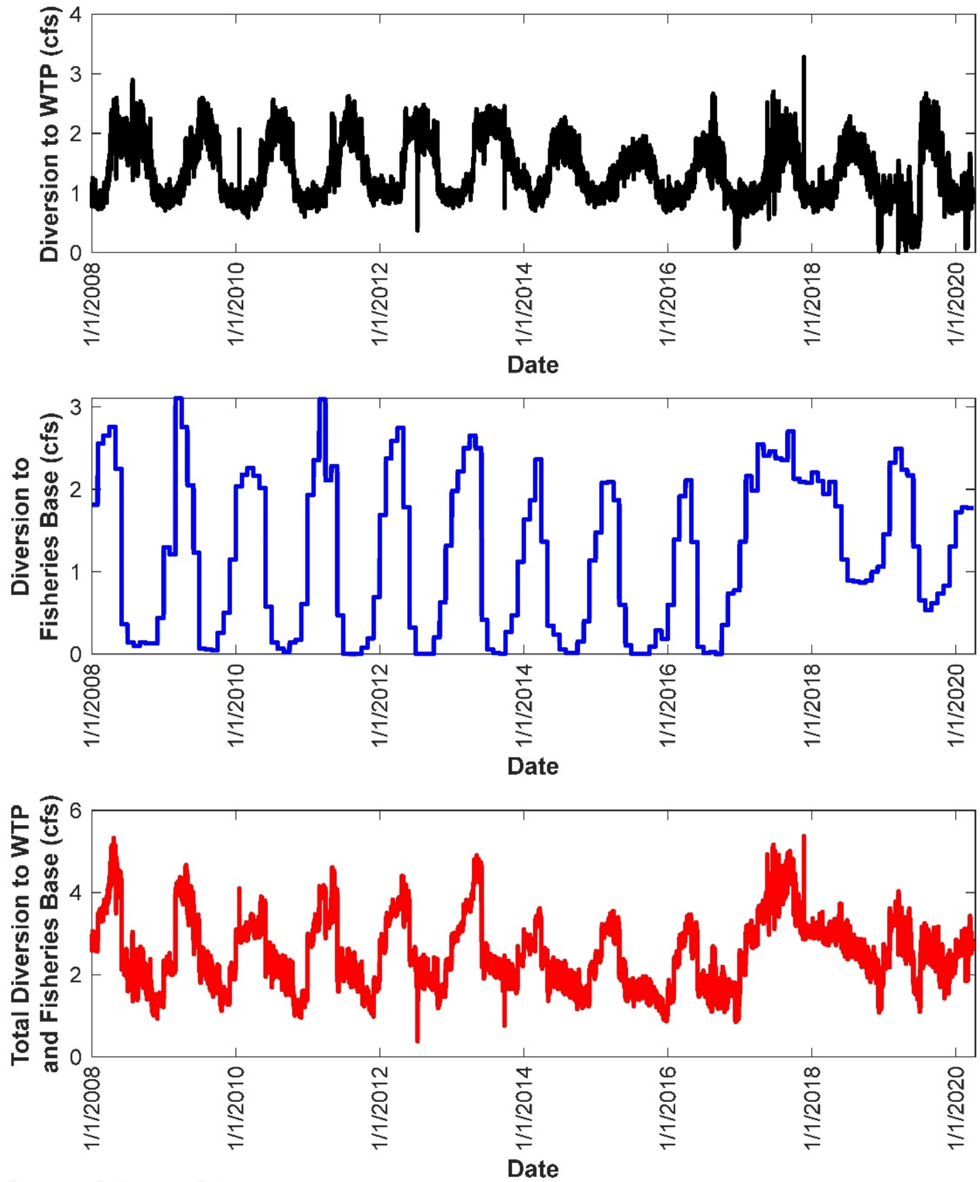
The volume of water passing over the Rector Reservoir spillway during spill events (as opposed to the simple occurrence of spill events) was generally not known because stage was not typically recorded during spill events, there are no upstream or downstream flow gages on Rector Creek, and sufficient data to estimate the flow during spill events were unavailable for most years. There were not sufficient data to estimate the flow or volume of the spill events in 2003 or 2005-2018. While DWR (2013) presents the computed spillway flows from recorded or interpolated daily reservoir elevations for the water years when sufficient data were available to estimate the flow during spill events, sufficient data were only available for three years after the spillway elevation was raised (1990, 1991, and 2004). The limited number of spillway flow estimates prevented the development of a daily estimate of spillway flows or volumes for additional years due to the high uncertainty associated with any estimate. While the spillway flows or volumes could not be determined for most of the data record, it was possible to evaluate the frequency, timing, and probability of spill events occurring during the year because the occurrence of spill events was well documented in the stage data with Rector Reservoir listed as spilling on 1,361 days between January 1, 2003 and April 30, 2018.

Rector Reservoir operations are further described in Section 3.11 of this DEIR.

Current Water Usage

The current users of water stored at Rector Reservoir include the CalVet Veterans Home of California and Water Treatment Plant, and the Town of Yountville, domestic and fish culture uses at the CDFW Silverado Fisheries Base and Bay-Delta offices, the Napa County Corporation Yard, and local wineries. Untreated water from the reservoir that is diverted through the Fisheries Base is discharged back into Rector Creek approximately 0.35 mile downstream of the spillway. The Fisheries Base's operations are variable, but the facility is typically offline from the beginning of June to early October, during which time CDFW performs needed maintenance. The Fisheries Base may also be offline at other times as needed, for example, to perform emergency maintenance work or to eradicate fish pathogens. Water from the reservoir is also diverted to a nearby small training facility operated by CAL FIRE, though recorded draw is negligible. Rector Reservoir water use rates are explored in greater detail in Section 3.11 of this DEIR.

The flow diverted from Rector Reservoir to the WTP, the Fisheries Base, and CAL FIRE training facility was recorded daily from January 1, 2008 to March 26, 2016 (see Figure 3.8-3, below). No flow was diverted to the CAL FIRE training facility between January 1, 2008 and March 26, 2016.

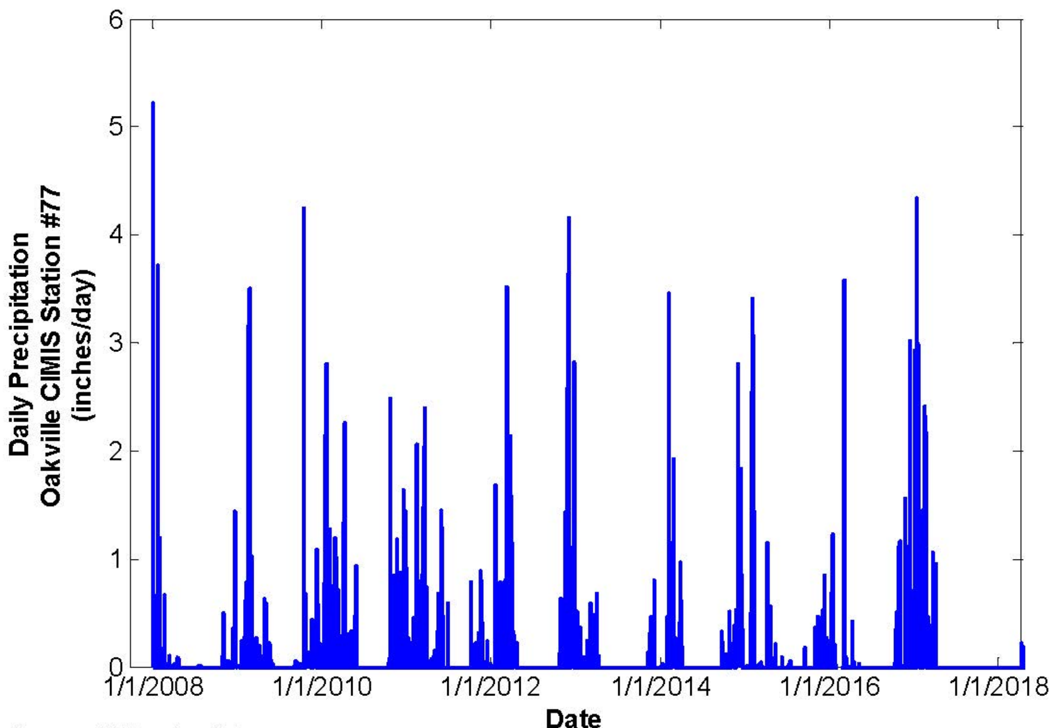


Source: Stillwater Sciences

Figure 3.8-3. Rector Reservoir Diversions

Precipitation

Precipitation rates for the Rector Creek watershed were estimated from an existing California Irrigation Management Information System (CIMIS) atmospheric monitoring station near Yountville, California (Oakville CIMIS Station No. 77), located approximately 3.5 miles west of Rector Reservoir. Precipitation rates from this CIMIS station were used because it was the nearest CIMIS station to Rector Reservoir with a complete record during the time period being analyzed. The CIMIS station recorded precipitation in inches on an hourly time-scale and provides the precipitation rates on either hourly or daily time-scales. In this study, daily precipitation rates were used from CIMIS for 2008 to 2016 to match the time-scale of other data sources (Figure 3.8-4. *Daily Precipitation 2008-2018)*.



Source: Stillwater Sciences

Figure 3.8-4. Daily Precipitation 2008-2018

Precipitation and runoff vary from year to year, so the annual precipitation was sub-divided into water-year types (e.g., a dry year versus a wet year). Water-year types are often used to guide flow releases, since higher precipitation in a Wet water year would typically correspond to higher natural stream flows in a Wet water year. A water year (WY) is defined as beginning on October 1 of the preceding year and ending on September 30 of the water year (e.g., WY 2008 started on October 1, 2007 and ended on September 30, 2008). The water-year classification can be calculated from either runoff or precipitation and it is typically sub-divided into either "Dry", "Average", and "Wet" water-year types, or "Critical", "Dry", "Below Normal", "Above Normal", and "Wet" water-year types. The Sacramento Valley Index water year is determined by the DWR annually and it provides a best estimate of the water-year type for the region until the specific Rector Creek water-year types can be determined. Water-year types from 2003 through 2016 are shown in Table 3.8-1 below.

Table 3.8-1. Sacramento Valley Index water-year type.

Year Water	Year Type
2003	Above Normal
2004	Below Normal
2005	Above Normal
2006	Wet
2007	Dry
2008	Critical
2009	Dry

Table 3.8-1. Sacramento Valley Index water-year type.

Year Water	Year Type
2010	Below Normal
2011	Wet
2012	Below Normal
2013	Dry
2014	Critical
2015	Critical
2016	Below Normal

Following development of the interim minimum release schedule, Stillwater Sciences conducted a study to determine water year types specific to the Rector Creek watershed (Stillwater 2021). The results of that study were used by Western Hydrologics (2021) to dynamically assign water year types during the water year. This information was used in the analysis of the impact on reservoir operations under the proposed Project Rector Reservoir storage conditions.

Rector Creek Natural Hydrograph

The proposed interim environmental flow release schedule was developed to benefit fish while more information is collected to evaluate whether the environmental flows are appropriate to keep fish downstream of the dam in good condition. While there were not sufficient flow data to quantify the natural hydrograph of Rector Creek at the dam location, the proposed schedule was designed to enhance habitat for native fishes present within the stream and to replicate the variability of a natural hydrograph by varying release flows both between water-year types and seasons. For example, wetter water-year types would have higher flow releases than drier water-year types. Similarly, higher flows would be released during the winter and spring wet period than during the summer and fall dry period.

At present and historically, releases from Rector Reservoir to Rector Creek have been from spills and discharges from the Fisheries Base exclusively, the exception being periodic operation of the existing bypass valve located in the Valve House located adjacent to the Rector Dam spillway. In advance of the implementation of the proposed Project, CalVet has also released water to the creek via a firehose connection to release raw water to the creek during periods when the reservoir is not spilling and the Fisheries Base is not discharging to the Creek. These releases, however, have been irregular.

To estimate the range of flows that would occur in the natural hydrograph in Rector Creek downstream of the Rector Dam during the summer period Stillwater (2019) used the range of average effective inflows to Rector Reservoir. The average effective inflow in August across all water years was typically around 1 cfs; the average effective inflow for a Wet water year in August ranged from approximately 0.25 cfs to 2 cfs, whereas the average effective inflow for a Critical water year in August ranged from approximately 0.5 cfs to 1.5 cfs. There was not a strong trend in the summer average effective inflow with water-year type, but this may be due to natural hydrologic variability or uncertainty from using the Sacramento Valley Index water-year types in the Rector Creek watershed.

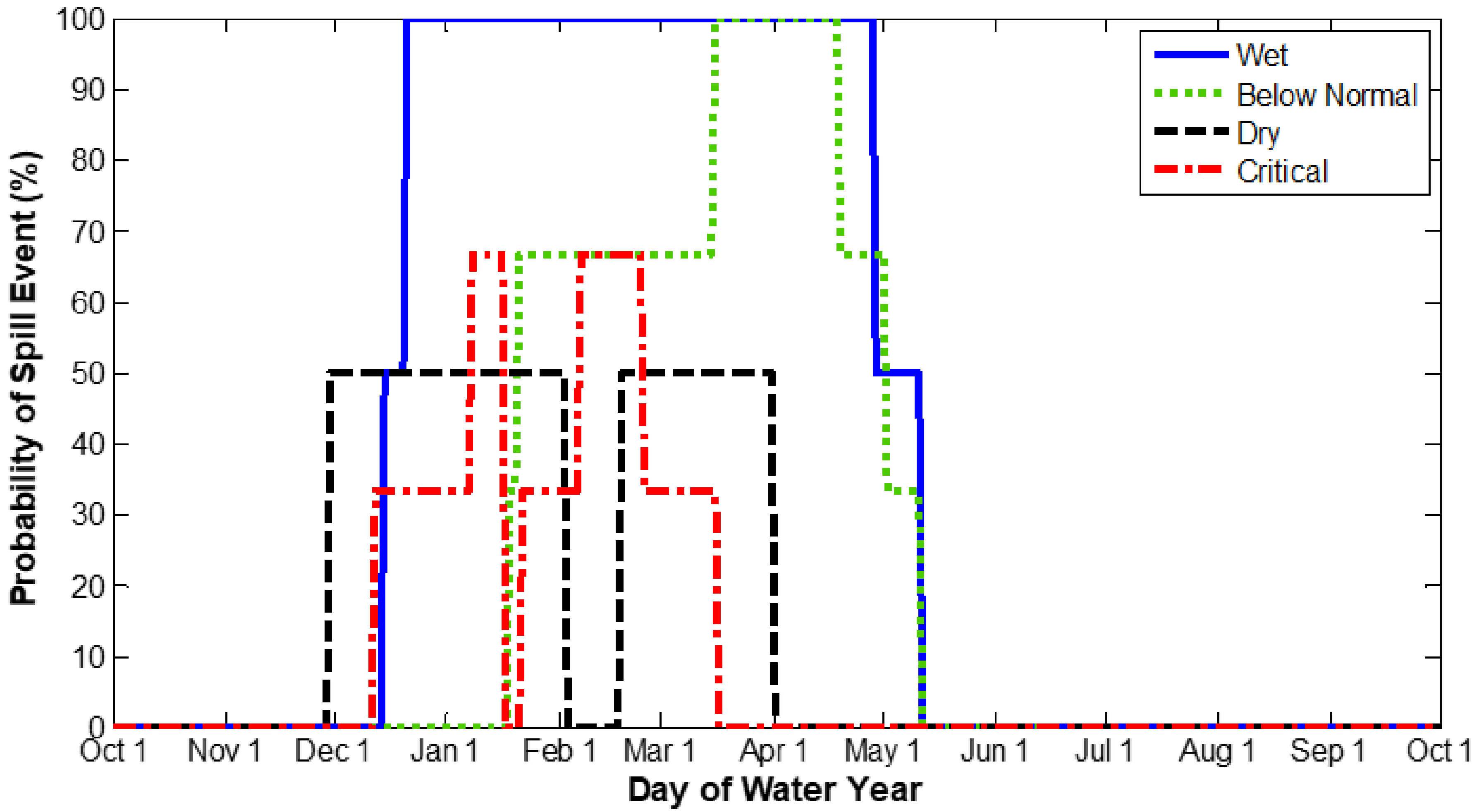
Stage data were analyzed to quantify the frequency of spill events per water-year type for Rector Reservoir. While sufficient data did not exist to quantify flows over the spillway, the frequency, timing, and probability of spill events at Rector Reservoir could be quantified from available stage data. The average number of days with spill for each water year and the average number of days with spill per water-year type were calculated from stage data and associated recordings of spill events from WY 2004 to WY 2017. The average number of days spilling occurred ranged from 0 days in WY 2014 to 189 days in WY 2005. The average number of days spilling occurred generally increased as the water-year type became wetter, but the average number of days with spill was greater for Above Normal water years than Wet water years. The higher frequency of spilling during Above Normal water years than Wet water years is likely due to an exceptionally high number of days with spill in the single Above Normal water year in the data record (WY 2005) rather than an actual trend for Above Normal years to have more days with spill. While the average number of days with spill was greater than 0 for all water-year types, one Critical year in the data record (WY 2014) had no days with spill.

Stillwater (2019) calculated the timing and probability that spilling would occur per water-year type from the stage data and associated recordings of spill events, specifically for the period when the effective inflow was calculated from January 1, 2008 to February 29, 2016. The daily probability of spill event occurring in any given water year type is illustrated in Figure 3.8-5, below.

The existing spill flows, Fisheries Base discharge, and surface water-groundwater exchange in lower Rector Creek provide higher flows in the winter–spring and isolated pool and run habitat throughout most of the reach in the summer–fall. The intermittent flow conditions in lower Rector Creek are similar to other Napa River tributaries. Implementation of the proposed interim environmental flow schedule would establish winter releases that reflect the base winter inflow to Rector Reservoir (i.e., excluding storm peaks) of 3 to 4 cfs during the winter–spring months, and the base summer inflow to Rector Reservoir of 0.25 to 1 cfs during the summer–fall months. This flow regime also encompasses the minimum flow below the dam that resulted in stream connectivity within portions of the reach with surface flow (approximately 0.25 cfs). The release schedule was then scaled across multiple water-year types to reflect the variability of flows and water availability across water-year types using 0.25 cfs and 4.5 cfs as "book-ends," where releases include 0.25 cfs in the summer–fall months of the Critical and Dry water years and range up to 4.5 cfs in the winter–spring months of the wetter years (Above Normal and Wet) (Stillwater Sciences 2019).

Geomorphology

As described in Fugro (2020) (see *Appendix 3.6-A* of this DEIR), water impounded in Rector Reservoir is released directly to Rector Creek either via a pipe through the dam that discharges at the valve house into a rip-rap-lined channel or via the dam's spillway into a concrete-lined spillway that is separated from the riprap channel by a natural ridge of bedrock. The spillway discharges into a bedrock floored channel that joins the rip-rap lined channel into which infrequent valve house discharges are released (see Figure 3.8-6. *Valve House and Channel*, below).



Daily probability of a spill event occurring per water year based on spill events from January 1, 2008 to February 29, 2016.
No Above Normal water years existed for the analysis period from January 1, 2008 to February 29, 2016.

Source: Stillwater Sciences

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Figure 3.8-5. Daily Probability of a Spill Event at Rector Dam

The flow from the spillway and the valve house converges in a scour pool located about 325 feet downstream of the valve house and 200 feet downstream of the end of the spillway. The pool is floored with bedrock that transitions to alluvium downstream. A review of a time series of aerial imagery and USGS stream gaging records for the Napa River, show that the scour pool is a persistent and dynamic feature of the channel, experiencing renewed scour in high discharge years and fluctuation in size with the seasons.

Photo 4/23/2020 by M. Wilson

Figure 3.8-6. Valve House and Channel

Downstream from the pool, the creek channel widens to about 175 feet as it makes a southward bend at the proposed location of the Project outfall. Here the channel has two main thalwegs flowing on either side of a three-to-five-foot-high gravel bar. The northern thalweg appears to be armored by a lag deposit of rounded cobbles and boulders derived from the alluvium. The southern thalweg is primarily floored by bedrock. The entire channel is inset in the alluvial fan deposits whose terrace surface sits about 10 feet above the channel bottom at this location (see Figure 3.8-7. *Rector Creek at the Proposed Outfall Location*).

The north bank of the channel bend has experience erosion in past high discharge events, resulting in widening of the creek channel at the bend. Donald Callison of CalVet provided photographs of the damage in one such event that took place in 2002. Based on these photographs, Fugro estimated that approximately 50 feet of the alluvial fan surface above the north bank was eroded during the 2002 event. The damage was subsequently repaired with artificial fill and the channel wall restored to its former position. Field photographs included in the Fugro report show an area of the channel wall covered with boulders placed to prevent further erosion.

Downstream of the bend (and proposed outfall location) the stream channel narrows, the two thalwegs join, and the single thalweg is floored by bedrock (see Figure 3.8-8. *Rector Creek Downstream of the Outfall*). A narrow body of alluvium contours along the flank of the bedrock hill on the south side of the channel. Artificial fill on the west bank is identified by the presence of the berm along the creek bank and by comparison of current to older historical aerial photographs that show the former position of the creek bank. Continuing downstream, the channel narrows further and becomes floored by alluvium where it passes beyond the mountain front into the broader valley of the Conn and Napa Rivers. The channel is straight, tree-lined and incised into the alluvial fan sediments as it approaches the bridge at Silverado Trail. Good exposures of the alluvial fan terrace deposits near the bridge show in-place examples of the small, rounded boulders that form lag deposits in the modern channel (Fugro 2020).

Rector Creek below Rector Reservoir is a low-gradient stream within the Napa Valley that traverses a coarse-grained alluvial fan (Stillwater 2019). The coarseness of the sediment within and adjacent to the stream channel results in high infiltration rates, and subsequently, intermittent streamflow between Rector Dam and the confluence with Conn Creek. During an April 2018 survey conducted by Stillwater Sciences, the total streamflow released to the stream channel downstream of Rector Dam was 2.0 cfs: approximately 0.23 cfs measured downstream of the spillway and 1.8 cfs released from the Fisheries Base. However, measured streamflow in lower Rector Creek ranged between 0 and 1.2 cfs, with the highest flow measurement immediately downstream of the Fisheries Base discharge point. Between the spillway and Fisheries Base discharge point, surface flow varied spatially due to water exchange between groundwater and the stream. A similar pattern was repeated numerous times downstream of the Fisheries Base discharge point, where portions of the channel contained flow, and others were dry; generally, flow ranged between 0 cfs (dry) and 1 cfs, based on visual estimates.

Photo 4/23/2020 by M. Wilson

Figure 3.8-7 Rector Creek at the Proposed Outfall Location

Source: Fugro USA Land, Inc.

Figure 3.8-8. Rector Creek Downstream of the Outfall

Surface Water Quality

The Napa River and its tributaries which includes Rector Creek have been listed under Section 303(d) as water quality impaired for nutrients, pathogens, and sedimentation/siltation. As described by Stillwater (2019), water quality within lower Rector Creek varies seasonally and is highly correlated with in-channel flow. In situ dissolved oxygen measurements varied from a low of approximately 4 mg/L (September) to a high of approximately 12 mg/L (February) during surveys in 2004. Mean water temperature between August 21, 2003 and October 25, 2004 was 15.8°C, and the maximum weekly average temperature was 18.1°C. Portions of the reach dewater during the summer and fall months, but several deep, perennial pools persist throughout the year).

Water quality in Rector Reservoir is good (Barber 2017). Of the water discharged into lower Rector Creek, there are two constituents that exceed USEPA Maximum Contaminant Levels for source drinking water: iron and manganese. Both minerals occur naturally in high concentrations within the watershed and may affect drinking water aesthetics and/or odor (iron may cause orange or brown staining, and manganese may cause gray staining); however, both are considered nutritionally beneficial (Barber 2017).

Turbidity, sedimentation, and nutrient contamination are a growing concern within the watershed as adjacent lands are developed into agricultural fields, and anecdotal evidence suggests algal blooms in the reservoir have increased in recent years (Barber 2017)). CalVet occasionally treats the reservoir water with the algaecide copper sulfate to control the algae and remove undesirable odors from drinking water. Copper and sulfate quickly disassociate in water; the disassociated copper ions quickly bind to organic matter or remain dissolved in water. Copper sulfate can be toxic to fish and other aquatic life, including mollusks and crustaceans (Jaensson and Olsén 2010, and Chapman 1978, as cited in NPIC 2018). However, Rector Reservoir water has been tested for sulfate and copper since 1987 with sulfate commonly detected at low concentrations and no detections of copper (Barber 2017). Additionally, the Fisheries Base regularly tests the water as part of their operations and has not detected elevated levels of copper (Stillwater 2019).

Water is drawn from the reservoir via a variable-depth intake that is manually set by the operator to optimize water quality for the treatment plant. During summer months when thermal stratification occurs within the water column, turbidity increases with depth. During these times, water of lower turbidity is drawn near the top of the water column. Although this water is warmer, the temperatures are generally within operational limits for the Fisheries Base operations (Stillwater 2019). Benthic macroinvertebrate (BMI) sampling in lower Rector Creek indicates that aquatic insect biodiversity varies greatly from year to year and is dependent on spill event timing. Surveys performed in 2003 and 2004 produced Modified Hilsenhoff Index values ranging from 4.24 to 6.06, indicating stream condition (including water quality based on BMI assessments) varied from "very good" to "fairly poor". Although not a direct indicator of food availability for fish in lower Rector Creek, BMI are a food source for fish and therefore can affect fish condition (Stillwater 2019).

Water samples taken from Rector Creek downstream of the Fisheries Base discharge on April 27, 2018 reflected a cool, highly oxygenated stream: water temperature was 13.5°C, dissolved oxygen was 11.86 milligrams per liter (mg/L), conductivity was 106.9 microSiemens per centimeter (µS/cm), adjusted for water temperature, and pH was 7.92 (Stillwater 2019).

3.8.2 Regulatory Setting

Federal

Clean Water Act

The federal CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The CWA also directs states to establish water quality standards for all Waters of the United States and to review and update such standards on a triennial basis. Section 319 mandates specific actions for the control of pollution from nonpoint sources.

The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the NPDES Program, to the State Water Resources Control Board (SWRCB) and the Regional Water quality Control Boards (RWQCBs).

Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numeric standards. Water quality standards applicable to the proposed Project are listed in the basin plan (RWQCB 2018).

National Pollutant Discharge Elimination System

The goal of the NPDES diffuse source regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of best management practices

(BMPs). The NPDES permit system was established in the CWA to regulate point source discharges (a municipal or industrial discharge at a specific location or pipe) and certain types of diffuse source dischargers. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements. Nonpoint pollution sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Urban stormwater runoff and construction site runoff, however, are diffuse sources regulated under the NPDES permit program because they discharge to receiving waters at discrete locations in a confined conveyance system. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

Section 307 of the CWA describes the factors that the USEPA must consider in setting effluent limits for priority pollutants. For diffuse-source discharges (e.g., municipal stormwater and construction runoff), the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of:

1. characterizing receiving water quality,
2. identifying harmful constituents,
3. targeting potential sources of pollutants, and
4. implementing a Comprehensive Stormwater Management Program.

State implementation of the NPDES program as it relates to the proposed Project is discussed below under State and Regional regulations.

National Toxics Rule and California Toxics Rule

In 1992, pursuant to the CWA, USEPA promulgated the National Toxics Rule (NTR) criteria to establish numeric criteria for priority toxic pollutants for California. The NTR established water quality standards for 42 priority pollutants not covered at that time under California's statewide water quality regulations. In May 2000, USEPA issued the California Toxics Rule (CTR), which promulgated numeric criteria for additional priority pollutants. The CTR documentation (Volume 65, pages 31682–31719 of the Federal Register [65 FR 31682–31719], May 18, 2000, along with amendments in February 2001 "carried forward" the previously promulgated criteria of the NTR, thereby providing a single document listing of water quality criteria for 126 priority pollutants for California surface waters.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect existing uses and the level of water quality necessary to protect existing uses and provide protection for higher quality and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions (40 Code of Federal Regulations [CFR] 131.12):

1. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

2. Where the quality of waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the state finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.
3. Where high quality waters constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is California's statutory authority for the protection of water quality. Under the act, California must adopt water quality policies, plans, and objectives (synonymous with the term "criteria" used by USEPA) that ensure beneficial uses of state waters are reasonably protected. The Porter-Cologne Water Quality Control Act requires the nine RWQCBs to adopt water quality control plans ("basin plans") that define the beneficial uses of the water bodies throughout the region to be protected, the water quality objectives necessary for reasonable protection of the beneficial uses, and a program of implementation for achieving the water quality objectives. In addition, the act authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements for discharges of waste to surface waters and land. Rector Creek is within the jurisdiction of the San Francisco Bay RWQCB.

Water Quality Control Plan for San Francisco Bay

The *Water Quality Control Plan for San Francisco Bay* (2018) defines the beneficial uses, water quality objectives, implementation programs, and surveillance and monitoring programs for waters of San Francisco Ban and its tributary basins. The basin plan contains specific numeric water quality objectives for bacteria, dissolved oxygen, pH, pesticides, electrical conductivity, temperature, turbidity, and trace elements, as well as numerous narrative water quality objectives, which are applicable to certain water bodies or portions of water bodies.

Statewide National Pollutant Discharge Elimination System Storm Water Permit for General Construction Activity

The SWRCB has issued a general NPDES permit for stormwater discharges associated with construction activity of greater than one acre in size, including Linear Unground Projects —Order 2009-0009-DWQ, as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ (General Construction Permit). The General Construction Permit requires the preparation of a SWPPP that identifies and describes the BMPs to be implemented at construction sites to control pollution from stormwater runoff. Coverage is obtained by submitting a Notice of Intent (NOI), risk assessment, post-construction calculations, a site map, the Stormwater Pollution Prevention Plan (SWPPP), and a signed certification statement by the legally responsible person to the SWRCB prior to construction. Because the Project does not result in 1-acre of ground disturbance, a SWPPP is not required.

California Antidegradation Policy

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High Quality Water in California, was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the Federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the state, not just surface waters. The policy requires that, with limited exceptions, whenever the existing quality of a water body is better than the quality established in individual basin plans, such high quality must be maintained and discharges to that water body must not unreasonably affect any present or anticipated beneficial use of the water resource.

Local

Napa County General Plan Conservation Element

The Napa County General Plan (2008) serves as a broad framework for planning the future of Napa County. The Conservation Element contains the following policies that are applicable to the proposed project:

CON-48: Proposed developments shall implement project-specific sediment and erosion control measures (e.g., erosion control plans and/or stormwater pollution prevention plans) that maintain pre- development sediment erosion conditions or at minimum comply with state water quality pollution control (i.e., basin plan) requirements and are protective of the County's sensitive domestic supply watersheds. Technical reports and/or erosion control plans that recommend site-specific erosion control measures shall meet the requirements of the County Code and provide detailed information regarding site specific geologic, soil, and hydrologic conditions and how the proposed measure will function.

Napa County Code

Napa County Code (Chapter 18.108, *Conservation Regulations*) addresses erosion control and protection of the County's streams and waterways. The intent of these regulations is to protect lands from excessive soil loss and maintain or improve water quality of watercourses by minimizing soil erosion from earthmoving, land disturbing, and grading activities. The following are key provisions of the conservation regulations.

Section 18.108.075 – *Requirements for Structural Erosion Control Measures* establishes erosion control requirements for structural developments (anything built or constructed on, above, or below the surface of the land), and requires the submission of Evidence of Erosion Control Measures, and the incorporation of such measures in all applicable building, grading, septic, or other required plans or plot plans submitted for County approval.

Napa County Flood Control and Water Conservation District

The Napa County Flood Control and Water Conservation District (NCFCWCD) is governed by a board of 11 elected officials: the five Napa County Supervisors; the Mayors of Napa, St. Helena, American Canyon, Yountville, and Calistoga; and one Napa City Council member. The NCFCWCD's mission is the conservation and management of flood and storm waters to protect life and property; the maintenance of the County watershed using the highest level of environmentally sound practices; and the provision of coordinated planning for water supply needs of the community. Additionally, while the NCFCWCD is primarily charged with flood protection in the County, it also provides management and monitoring of groundwater, and assistance to the community in complying with NPDES requirements, and watershed maintenance activities among other services.

3.8.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this DEIR, implementation of the proposed Project would have a significant adverse impact on hydrology and water quality if it would result in any of the following:

- violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality; or
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site; create or contribute runoff water which could provide substantial additional sources of polluted runoff; or impede or redirect flood flows.
- conflict with or obstruct implementation of a water quality control plan.

Methods of Analysis

Overview and Assumptions

The assessment of l Project impacts on hydrology and water quality is based on information contained in various reports including but not limited to: *Technical Memorandum: Rector Reservoir Operations Simulation Modeling* (Western Hydrologics 2021; *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment: Technical Memorandum* (Stillwater Sciences, July 2019); *Napa County General Plan Update Draft EIR* (Napa County 2007); *Geotechnical and Geological Feasibility Report Rector Dam Diversion Valve and Pipeline Project* (Fugro 2020); *Rector Creek Water Year Type and Watershed Model Technical Memorandum Rector Reservoir Bypass Valve Project* (Stillwater Sciences, May 2021) and the *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* (Barber 2017).

The construction of Project facilities including the bypass valve, water lines, electrical conduit and outfall structure would conform to all applicable state and federal laws and comply with all conditions and requirements of all mandatory permits for Project construction and operation. Construction within Rector Creek channel would occur during the dry season from June 1 through October 15. Construction of the outfall structure would occur within the north streambank and streambed that is typically dry during that time period. No in-water work is proposed to occur during installation of the outfall. Dewatering of any part of the outfall construction site is unlikely to be needed in order to complete construction.

The construction-related water quality effects are assessed qualitatively, considering many aspects of the work involved and potential environmental exposure to contaminants, including, but not limited to, the following factors:

- Types of materials and contaminants that may be handled, stored, used, or produced during project construction and could be released to the environment, and the related fate, transport, and harmful characteristics of the contaminants;
- Magnitude, timing, and duration of the potential contaminant discharges, and exposure sensitivity of beneficial uses that could be affected by the discharge; and
- Routes of exposure for contaminants, sediment, and other constituents, including likelihood of seasonal exposure to rainfall and runoff, proximity of inland work to drainage ways, occurrence of direct instream discharges, and whether exposure would involve long-term effects.

The assessment of water quality effects of construction considers all beneficial uses of Rector Creek, Conn Creek and the Napa River as identified in the basin plan. Given the temporary and intermittent nature of discharges that could occur during construction, aquatic life uses are considered as the most sensitive beneficial uses that could be affected. Specifically, large or sudden, temporary increases in sediment or contaminant concentrations from construction activities are most likely to affect short-term, sensitive water quality characteristics and acute health responses of aquatic organisms and their habitats. Other beneficial uses, such as municipal/industrial water supplies, recreational activities, or livestock/agricultural irrigation, would be less sensitive to these types of short-term water quality disturbances.

Long-term Project operation would implement the interim environmental flow schedule presented in Table 2-8, Section 2 of this DEIR. Operation of the Project would ensure that minimum releases to Rector Creek are realized. The Project is not intended to supplement natural flow in the Creek beyond maintaining the minimum flows identified in the proposed release schedule. By establishing minimum releases to Rector Creek downstream of Rector Reservoir, operation of the Project would benefit, or at a minimum, have no adverse effect on beneficial uses of the creek downstream of Rector Reservoir: particularly uses such as cold freshwater habitat, fish migration, fish spawning, freshwater replenishment, and groundwater recharge. The effect of Project operation on municipal and domestic water supply is addressed separately in Section 3.12 of this DEIR.

3.8.4 Project Impacts and Mitigation Measures

Impact 3.8-1 The Project could adversely affect water quality during construction by increasing the concentration of pollutants in surface runoff from the Project site, but would not significantly impact water quality during operation. Impact Determination: *less than significant with mitigation.*

Thresholds:	*Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality or otherwise degrade water quality.* *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would; create or contribute runoff water which could provide substantial additional sources of polluted runoff; or impede or redirect flood flows.* *Conflict with or obstruct implementation of a water quality control plan.*

Project Construction

Initial site preparation of Project construction staging areas would result in ground disturbance and could create a potential for ground instability and soil erosion. This would also occur with activities associated with trenching to accommodate installation of the proposed 12-inch-diameter water pipeline and electrical conduit, construction of bypass valve concrete pad, site preparation for placement of the Rector Creek outfall structure, outfall construction and, the placement of riprap around the outfall and along the north creekbank upstream of the outfall. Ground disturbance caused by these activities creates the potential for ground instability and accelerated erosion during storm events and is a ***significant impact***.

As described in Section 3.8 above, because the Project would not result in ground disturbance of greater than 1 acre, a SWPPP is not required. In lieu of obtaining a SWPPP permit, Mitigation Measure HYD-1 is required to address potential construction related water quality impacts. Mitigation Measure HYD-1 is complemented by elements of the Project described in Section 2 of this DEIR designed to restore areas temporarily affected by construction activities to pre-project conditions. Further, all construction equipment and materials would be removed from the project staging areas upon Project completion, and these areas would be cleaned, and restored to pre-project conditions. Therefore, with implementation of Mitigation Measure HYD-1, the impact on water quality resulting from Project construction activities is ***less than significant with mitigation***.

Project Operation

As described in Section 2 of this DEIR, lower Rector Creek is intermittent on the Napa Valley floor with isolated pools. Year-round connected surface flow is unlikely under natural conditions, particularly in the summer–fall months, given:

1. the coarseness of the sediment and subsequent high infiltration rates,

2. low summertime flows into Rector Reservoir, and

3. low bank strength and high coarse sediment supply during peak flows that form broad/shallow wetted channel meanders (i.e., braids) within the straight banks.

The existing spill flows, Fisheries Base discharge, and surface water-groundwater exchange in lower Rector Creek provide higher flows in the winter–spring and isolated pool and run habitat throughout most of the reach in the summer–fall that support a predominantly native fishery.

Implementation of the proposed interim environmental flow schedule would enhance flow conditions in Rector Creek below Rector Reservoir to improve conditions for native resident species by maintaining flow within isolated pool and run habitats in the dry months, which would also benefit any rearing steelhead. The recommended minimum instream flow release schedule takes into account:

- water-year types to reflect variation in the natural hydrograph;
- seasonal releases based on the natural runoff patterns, including increased flow in winter and spring in Critical, Dry, Below Normal, Above Normal, and Wet water-year types; and
- minimum instream flows in all months to maintain habitat for native fish populations.

The proposed interim environmental flow release schedule is shown in Table 2-8 in Section 2 of this DEIR and is reproduced below. This flow regime generally recommends winter releases that reflect the base winter inflow to Rector Reservoir (i.e., excluding storm peaks) of 3 to 4 cfs during the winter–spring months, and the base summer inflow to Rector Reservoir of 0.25 to 1.0 cfs during the summer–fall months. This flow regime also encompasses the minimum flow below the dam that resulted in stream connectivity within portions of the reach with surface flow (approximately 0.25 cfs). The release schedule was then scaled across multiple water-year types to reflect the variability of flows and water availability across water-year types using 0.25 cfs and 4.5 cfs as “book-ends,” where releases include 0.25 cfs in the summer–fall months of the Critical and Dry water years and range up to 4.5 cfs in the winter–spring months of the wetter years (Above Normal and Wet).

Table 3-8-2. Proposed interim environmental flow release schedule for outflows below Rector Creek Dam

Water-Year Type1	Minimum Environmental Flow Releases2 (cfs)														
	Oct	Nov	Dec 1-15	Dec 16-31	Jan	Feb 1-15	Feb 16-30	Mar 1-15	Mar 16-31	Apr	May	Jun	Jul	Aug	Sep
Wet	0.8	0.8	1.5	2.5	3.5	4.0	4.0	4.5	4.5	2.5	2.5	1.0	0.8	0.8	0.8
Above Normal	0.7	0.7	1.3	1.3	3.5	4.0	4.0	4.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Below Normal	0.7	0.7	1.3	1.3	2.5	2.5	4.0	3.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Dry	0.25	0.50	1.0	1.0	2.0	2.5	2.5	3.0	3.0	2.5	1.5	1.0	0.25	0.25	0.25
Critical	0.25	0.50	1.0	1.0	2.0	2.2	2.2	2.8	2.8	2.5	1.0	0.5	0.25	0.25	0.25

Note: Flows shaded blue represent the increased flow levels for winter and spring migration and spawning.

The Fisheries Base discharge is included as part of the environmental flows since the majority of lower Rector Creek will benefit from the release. Specifically, the recommended environmental flow releases are intended to be met using a combination of releases from Rector Dam and the Fisheries Base discharge. As a result, when the Fisheries Base is discharging water, releases from Rector Dam can be reduced by the amount of the Fisheries Base discharge to meet the environmental flows goal while conserving water.

As described in Section 3.8.1 above, water quality in Rector Reservoir is good. Turbidity, sedimentation, and nutrient contamination are a growing concern within the watershed as adjacent lands are developed into agricultural fields, and anecdotal evidence suggests algal blooms in the reservoir have increased in recent years. CalVet occasionally treats the reservoir water with the algaecide copper sulfate to control the algae and remove undesirable odors from drinking water. Copper and sulfate quickly disassociate in water; the disassociated copper ions quickly bind to organic matter or remain dissolved in water (Stillwater 2019). Copper sulfate can be toxic to fish and other aquatic life; however, Rector Reservoir water has been tested for sulfate and copper since 1987 with sulfate commonly detected at low concentrations and no detections of copper. Additionally, the Fisheries Base regularly tests the water as part of their operations and has not detected elevated levels of copper.

Water is drawn from the reservoir via a variable-depth intake that is manually set by the operator to optimize water quality for the treatment plant. During summer months when thermal stratification occurs within the water column, turbidity increases with depth. During these times, water of lower turbidity is drawn near the top of the water column. Although this water is warmer, the temperatures are generally within operational limits for the Fisheries Base operations.

With implementation of the proposed environmental flow schedule, water drawn from Rector Reservoir for treatment at the CalVet WTP and the Fisheries Base would be supplemented and diverted to Rector Creek via the Project bypass valve, pipeline and outfall. The effect of these releases on Rector Reservoir operations and Rector Creek hydrology are further discussed in Section 3.11 above. Existing flows in Rector Creek below Rector Reservoir are supported in large part reservoir spills and discharges the Fisheries Base and supplemented by stormwater runoff and groundwater intrusion. Implementation of the interim environmental flow release schedule would continue to release water from Rector Reservoir to Rector Creek albeit at an enhanced rate. For reasons presented above, the proposed enhanced releases from the reservoir to Rector Creek would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality, or conflict with the Basin Plan. The impact of project operations on water quality is, therefore, considered ***less than significant***.

<u>Mitigation Measures</u>

HYD-1: Prepare and implement a Construction Stormwater Erosion Control Plan and implement construction Best Management Practices (BMPs).

Should a SWPPP not be required per Mitigation Measure BIO-1, the construction contractor shall submit a Construction Stormwater Erosion Control Plan to CalVet for review and approval. At a minimum, the Construction Stormwater Erosion Control Plan shall include the following erosion prevention BMPs which shall be implemented throughout Project construction:

- Diversion of offsite runoff away from the construction area;
- Silt containment measures including silt traps, ponds, perimeter straw wattles, silt fences and/or temporary basins shall be implemented onsite to trap sediment before it leaves the site;
- Regular sprinkling of exposed soils to control dust during construction during the dry season;
- Stockpile management to ensure materials stockpiles are upland of the Rector Creek ordinary high-water mark and contained with straw wattles or other silt containment measures;
- Erosion control measures maintained throughout the construction period;
- Construction scheduling to minimize soil disturbance during the wet weather season; and
- Regular inspections and maintenance BMPs and storm event monitoring.

Impact 3.8-2: Project outfall construction and operation within the north bank of Rector Creek could result in increased erosion due to alteration of the course of Rector Creek during high flow conditions and or as a result of outfall discharges. Impact determination: *less than significant.*

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

Project Construction

As noted above, Fugro (2020), in their report titled *Geotechnical and Geological Feasibility Report Rector Dam Diversion Valve and Pipeline Project* (see *Appendix 3.6-A* of this DEIR), stated that the north bank of the Rector Creek channel below the spillway has been eroded in past high discharge events. This has resulted in a broadening of the channel over time and the removal of terrace deposits along the bank immediately downstream of the proposed outfall location. As noted, the damage from one high discharge event in 2002, approximately 50 linear feet of the alluvial fan surface above the north bank was eroded. This damage was subsequently repaired with artificial fill and the channel wall was restored to its former position. The repaired area was covered with boulders, placed there to prevent further erosion.

In addition to the bank erosion and retreat, the stream bed at that location has been scoured and eroded. This is shown in Figure 3.8-5 above in the area shown as the "scour pool" adjacent to, and downstream of the proposed outfall site. The scour pool is a persistent and dynamic feature of the channel, experiencing renewed scour in high discharge years and fluctuating in size from year to year.

Downstream of the scour pool, the creek channel widens to about 175 feet as it makes a southward bend (see Figure 3.8-5 above). Here the channel has two main thalwegs flowing on either side of a three-to-five-foot-high gravel bar. The northern thalweg appears to be armored by a deposit of rounded cobbles and boulders derived from the alluvium. The southern thalweg is primarily floored by bedrock. The entire channel is inset into the alluvial fan deposits whose terrace surface sits about 10 feet above the channel bottom at that location. (Fugro 2020)

As described in Section 2 above, the proposed outfall structure would be placed within the north bank of Rector Creek. immediately downstream of the Rector Dam Spillway. The north bank of the channel bend, immediately downstream of the outfall location, has experienced erosion in the past due to high discharge events. This has resulted in significant erosion of the channel slope and damage to the access road at the top of the slope.

The proposed outlet structure would include a pipe outlet protected by a concrete headwall and riprap to dissipate the flow. To protect the concrete headwall from scour and erosion during future high discharge events, the channel slope adjacent to, and upstream of the headwall would be covered in riprap. The riprap slope protection would extend from the base of the spillway to limits of previous erosion events, including an area around the outlet structure extending a minimum of 10-feet on all sides.

The area to be covered in riprap would be cleared of all vegetation, trees and cobbles. The recommended riprap material consists of 0.5 ton of angular rock. The riprap would be placed from the top of the slope to the existing riprap on the bottom and would be placed in a bench a minimum of five feet wide, and with a minimum depth (thickness) of 3.5 feet. Prior to placement of the riprap, the base of the bench and the back of the cut slope would be lined with a filter fabric to reduce the amount fine-grained materials from migrating through the riprap.

As identified by Fugro (2020), placement of the outfall structure within the north bank of Rector Creek would make it susceptible to damage or failure, and such failure could result in erosion of the alluvial fan surrounding the outfall site and the transport of sediment downstream. In response to this concern, the initial Project design was revised to include 0.5-ton of riprap along the north channel bank upstream of the outfall structure. The placement of riprap along the north bank of the channel immediately downstream of the Valve House would conform to the existing contours of the channel bank and, would also not substantially restrict or alter flow during operation of the valve or during spill events. The installation of riprap in this location would be effective in preventing erosion at the outfall during high-flow events. The impact of placement of the outfall on the north bank on erosion during future high flow events is, therefore, ***less than significant***.

Project Operations

As described above, implementation of the interim environmental release schedule would result in discharges at the proposed outfall structure of up to a maximum of 4.5 cfs. Discharges of this magnitude would occur in March during “Wet” and “Above Normal” water years. The upper physical limit of the proposed bypass valve as proposed is shown in Section 2 of this DEIR and described in Wood Rodgers (2020) is 9.01 cfs. At the pipeline terminus, a concrete headwall with a check valve would be installed. Immediately downstream of the headwall, riprap or engineered energy dissipation/slope protection would be constructed to dissipate the energy of water released from the outfall and avoid potential streambed incision and sediment transport that could result from such incision. The extent (square footage, depth, and rock size) of the proposed riprap of the is determined by the velocity of the water. The proposed design of the energy dissipation structure is based on a maximum flow rate of 10 cfs, yielding a velocity of just over 12 feet/second (fps). To accommodate this velocity without significant streambed erosion or sediment transport, a riprap apron approximately eight feet wide by 10 feet long, and 3.5 feet deep, utilizing 0.5 ton of rock is proposed. As designed, the impact of outfall discharges on the streambed adjacent to the outfall would therefore be ***less than significant***.

Mitigation Measures

None required.

3.8.5 Cumulative Impacts

Impact 3.8-3: Cumulative Project impact on Rector Creek hydrology and water quality. Impact determination: *less than considerable.*

Threshold:	*Would Implementation of the proposed project, along with reasonably foreseeable probable future projects in the project vicinity, result in cumulative impacts to hydrology and water quality?*

The cumulative setting associated with the Project includes approved, proposed, planned, and other reasonably foreseeable probable projects and development in the Napa County. Developments and planned land uses, including the Project, would cumulatively contribute to impacts to hydrology or water quality in or near the Project Area. However, no other local projects that would add to the Project's localized soils and geology impacts that could affect erosion and sediment transport due to stormwater runoff are approved, proposed, planned, or probable at this time. The impacts of Project construction and operation on surface hydrology and water quality presented in Section 3.8.4, above, would have the potential to contribute to hydrology and water quality impacts caused by past, present, and reasonably foreseeable probable future projects within the Rector Creek watershed and downstream waterways including Conn Creek and the Napa River. As detailed above, Rector Creek hydrology has been substantially altered from its previously unimpaired condition by the construction of Rector Dam in 1946 which facilitated the storage and diversion of Rector Creek streamflow for consumptive use of various CalVet water users.

As discussed above, temporary impacts on water quality associated with Project construction activities would be prevented through mitigation. Long-term operation of the Project would supplement natural streamflow in Rector Creek below Rector Dam for the purpose of enhancing conditions for fish migration, spawning and rearing below the dam. Potential adverse effects on Rector Creek bank erosion due to Project outfall releases and the potential vulnerability of the outfall structure due to possible bank erosion during high flow events have been avoided through Project design. For these reasons, the Project's contribution to the cumulative impact on Rector Creek hydrology and water quality is ***less than considerable***.

Cumulative Impact Mitigation Measures

None required.

3.8.6 References

Ascent Environmental Inc. 2017. *Napa County Jail Project Draft EIR*. Prepared for Napa County.

Barber, Teri Jo. 2017. *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* July 23. Prepared by Teri Jo Barber, Professional Surface Water Hydrologist #00H-1535 American Institute of Hydrology, Professional Storm Water Design and Practitioner and QSD/P #21493. Prepared for Veterans Home and Rector Reservoir Surface Water Treatment Plant, California Department of Health Services Drinking Water Division.

DWR. 2013. *Rector Reservoir Water Yield Study, Napa County, California*. Prepared for the California Department of Veterans Affairs, Veterans Home of California, Yountville, California.

_______. 2000. *Rector Reservoir Yield Study, Napa County, California.* Prepared for the California Department of Veterans Affairs, Veterans Home of California, Yountville, California.

Fugro USA Land, Inc. 2020. *Geotechnical and Geological Feasibility Report Rector Dam Diversion Valve and Pipeline Project.* Prepared by Fugro. Prepared for the California Department of General Services. July 21.

Napa County 2007. *Napa County General Plan Update Draft EIR.* February.

Stillwater Sciences 2019. *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment: Technical Memorandum*. July.

_______. 2021. Rector Creek Water Year Type and Watershed Model Technical Memorandum Rector Reservoir Bypass Valve Project. May.

Western Hydrologics 2021. *Technical Memorandum: Rector Reservoir Operations Simulation Modeling.* Prepared for ECORP Consulting, Inc. by Jeff Meyer, Western Hydrologics. April.

Wood Rodgers 2020. Technical Memorandum – Subject: Rector Dam Diversion - Basis of Design Memorandum – DRAFT. Prepared by Wood Rodgers. Prepared for Michele Leong, Department of General Services. July 15.

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3.9 Noise

This section documents the results of a Project noise evaluation and was prepared as a comparison of predicted Proposed Project noise levels to noise standards promulgated by the County of Napa Municipal Code. The purpose of this section is to estimate Project-generated noise levels and determine the level of impact the Proposed Project would have on the environment. The existing environmental and regulatory conditions specific to noise are described and the potential impact posed by the Proposed Project are addressed.

3.9.1 Fundamentals of Noise and Environmental Sound

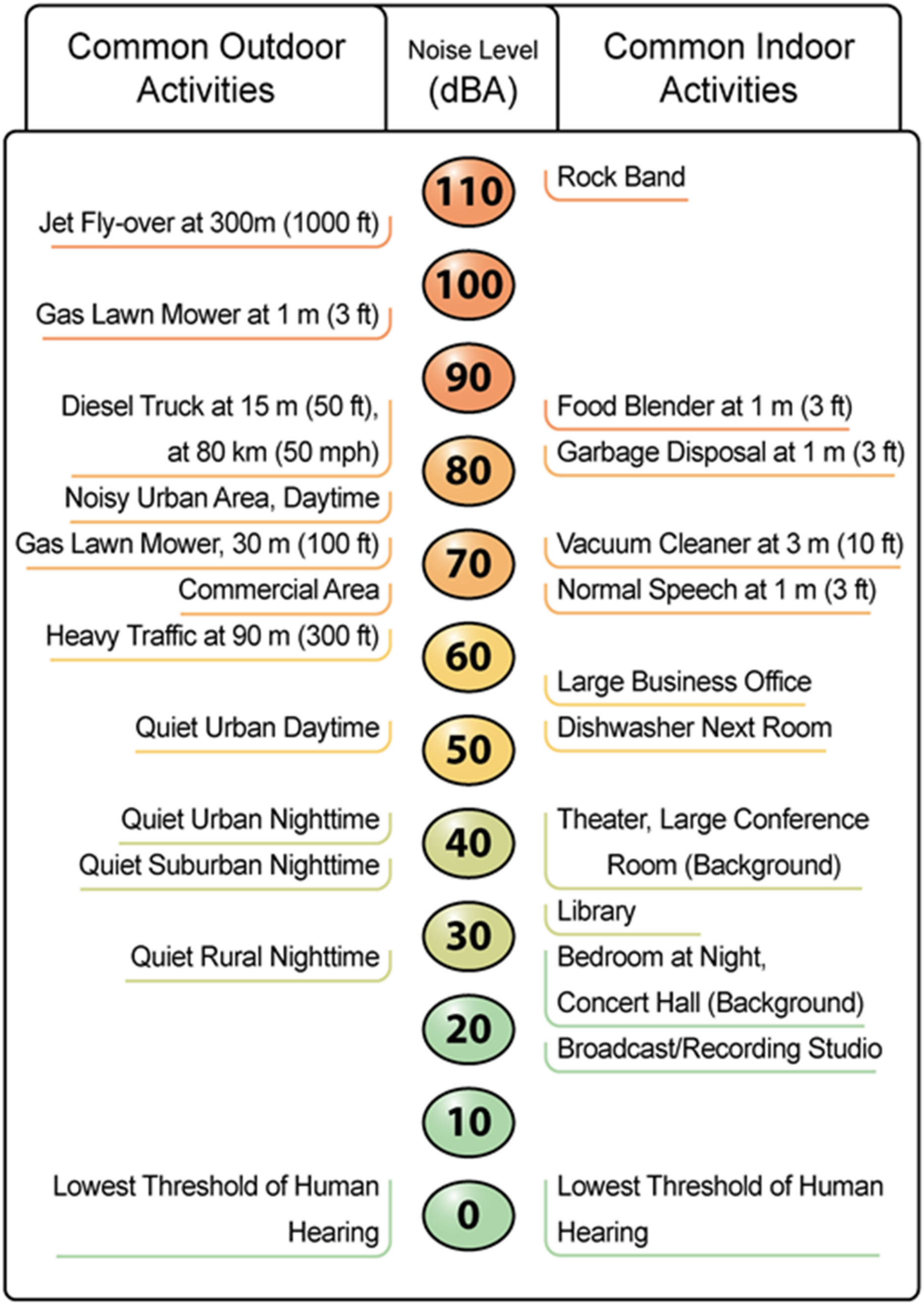
Addition of Decibels

The decibel (dB) scale is logarithmic, not linear; therefore, sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted in Figure 3.9-1. *Common Noise Levels.*

Sound Propagation and Attenuation

Noise can be generated by a number of sources including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).



Source: California Department of Transportation (Caltrans) 2020a

Figure 3.9-1. Common Noise Levels

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2008), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the line of sight between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typical residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 p.m. to 10:00 p.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Table 3.9-1 provides a list of other common acoustical descriptors.

Table 3.9-1. Common Acoustical Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where one pascal is the pressure resulting from a force of one newton exerted over an area of one square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded one percent, 10 percent, 50 percent, and 90 percent of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} with a five dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.

Table 3.9-1. Common Acoustical Descriptors

Descriptor	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The dBA sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about approximately one dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about approximately one to two dBA.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA noise levels, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of one dBA cannot be perceived by humans.
- Outside of the laboratory, a three-dBA change is considered a just-perceivable difference.
- A change in level of at least five dBA is required before any noticeable change in community response would be expected. An increase of five dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effect of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

OSHA has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources.

3.9.2 Fundamentals of Environmental Ground Vibration

Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV), another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 3.9-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, loaded trucks generally generate groundborne vibration velocity levels of 0.076 PPV at 25 feet under typical circumstances, which as identified in Table 3.9-2 is a velocity level unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth moving, which requires the use of heavy-duty earthmoving equipment.

Table 3.9-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

PPV (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: Caltrans 2020

For the purposes of this analysis, a PPV descriptor with units of inches per second is used to evaluate construction-generated vibration for building damage and human complaints.

3.9.3 Environmental Setting

Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The closest sensitive receptor to the Project is a single-family residence with a property line located 900 feet west of the Proposed Project site, beyond the water treatment plant and Silverado Trail Road and adjacent to the California Fish and Wildlife facility. Additionally, an industrial receptor, the Rector Dam Water Treatment facility, is located 100 feet west of the site.

Existing Ambient Noise Environment

Existing ambient noise levels along the entire Project area may widely vary for several reasons, such as changes in traffic volumes, seasonal activities, population density, or environmental conditions. For example, there may be an elevated noise level from wind rustling vegetation on one day, and in the same location, a calm day may result in different noise levels from alternative noise sources all together.

The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present" provides a table of approximate background sound levels in L_{dn}, daytime L_{eq}, and nighttime L_{eq}, based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 3.9-3. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "*95% prediction interval [confidence interval] is on the order of ±10 dB*." The majority of the Project area would be considered ambient noise Category 4 or 5.

Table 3.9-3. ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
1	Noisy Commercial & Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or for other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	67 dBA	66 dBA	58 dBA
2	Moderate Commercial & Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	62 dBA	61 dBA	54 dBA
3	Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas	Light traffic conditions where no mass transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic compose this category.	6,384	57 dBA	55 dBA	49 dBA
4	Quiet Urban & Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3.	2,000	52 dBA	50 dBA	44 dBA
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small wooded valley.	638	47 dBA	45 dBA	39 dBA
6	Very Quiet Sparse Suburban or rural Residential Areas	These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound.	200	42 dBA	40 dBA	34 dBA

Source: ANSI 2013

3.9.4 Regulatory Setting

Federal

Occupational Safety and Health Act of 1970

OSHA regulates onsite noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 dB with A-weighting (dBA) over an eight-hour work shift (29 CFR 1910.95). Employers are required to develop a hearing conservation program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

State

State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise-control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

State Office of Planning and Research Noise Element Guidelines

The State OPR Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land-use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

Local

Napa County Code

The County's regulations with respect to noise are included in Chapter 8, *Health and Safety,* of the County Code. Specifically, Section 8.16.080, *Specific Types of Noise Prohibited,* prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of 7:00 p.m. and 7:00 a.m., such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance issued by the appropriate authority. Where technically and economically feasible, construction activities are required to be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in Table 3.9-4.

Table 3.9-4. Noise Limits for Construction Activities

Affected Property	Daytime (7:00 a.m. to 7:00 p.m.) dBA	Nighttime (7:00 p.m. to 7:00 a.m.) dBA
Residential	75	60
Commercial	80	65
Industrial	85	70

Source: Napa County 2020

3.9.5 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact related to noise if it would do any of the following:

- Generate 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.
- Generate an excessive groundborne vibration or groundborne noise levels.
- Expose people residing or working in the Project area to excessive noise levels as a result of being located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.

For purposes of this analysis and where applicable, the County noise standards were used for evaluating noise impacts as a result of the Proposed Project.

Methods of Analysis

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. Predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Noise Model (RCNM [2006]). Groundborne vibration levels associated with construction-related activities for the Proposed Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

Project Impacts and Mitigation Measures

Impact 3.9-1: The Project could result in short-term construction generated noise in excess of County standards. Impact Determination: *less than significant*.

Threshold:	*Exceed noise standards during construction.*

Project Construction

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, trenching, wood chipping). Noise generated by construction equipment, including excavators, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

The Project proposes to develop a flow regime to allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition and prevent unlawful take of federally or state designated protected species (Compliance Goal). The Project also seeks to maintain the other purposes of the dam's operations while accomplishing the Compliance Goal, specifically to reduce or avoid adverse water supply impacts to all lawful users of water sourced from Rector Creek (Water Management Goal). The closest sensitive receptor is a single-family residence with a property line located 900 feet west of the Proposed Project site, beyond the water treatment plant and Silverado Trail Road and adjacent to the California Fish and Wildlife facility. Additionally, an industrial receptor, the Rector Dam Water Treatment facility, is located 100 feet west of the site.

To estimate the worst-case construction noise levels as experienced at these receptors, typical construction equipment noise levels were calculated using the RCNM. Construction noise generated is compared against the construction-related noise level thresholds established in the County Code (Municipal Code Chapter 8.16.080) for day/nighttime noise limits for construction activities. As shown in Table 3.9-4, construction noise is limited to 75 dBA between 7:00 a.m. to 7:00 p.m. and 60 dBA between 7:00 p.m. and 7:00 a.m. as experienced at residential properties, 80 dBA and 65 dBA at commercial properties, and 85 dBA and 70 dBA at industrial properties.

The anticipated short-term construction noise levels generated for the necessary equipment were calculated using the RCNM. The anticipated short-term construction noise levels generated for the necessary equipment are presented in Table 3.9-5. Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the Project site (FTA 2018).

Table 3.9-5. Construction Average (dBA) Noise Levels at Nearest Receptors

Construction Activity	Equipment	Distance to Nearest Receptor from Center of Construction Site	Const-ruction Noise Level at Nearest Receptor	Construction Noise Standards (dBA L_{eq})			
				County Daytime Standard	Exceeds Standard at Nearest Sensitive Receptor?	County Nighttime Standard	Exceeds Standard at Nearest Sensitive Receptor?
Diversion Pipeline							
Hot Tap Connection and 12" Pipeline Installation	• ¾ ton Tool Truck • Small (<100hp) Excavator • Tractor Trailer Delivery Truck • 10 Yard Dump Truck	1,295 Feet (Residential)	**51.2**	*75 dBA*	**No**	*60 dBA*	**No**
		606 Feet (Industrial)	**57.8**	*85 dBA*	**No**	*70 dBA*	**No**
Bypass Valve							
Flow Control Facility and Power/Communication Line	• ¾ ton Tool Truck • Small (<100hp) Excavator • Tractor Trailer Delivery Truck • 10 Yard Dump Truck • Concrete Delivery Truck • 48" Trencher	1,295 Feet (Residential)	**53.9**	*75 dBA*	**No**	*60 dBA*	**No**
		606 Feet (Industrial)	**60.7**	*85 dBA*	**No**	*70 dBA*	**No**
Pipeline Outfall							
Discharge Headwall and Rip Rap	• ¾ ton Tool Truck • Small (<100hp) Excavator • Tractor Trailer Delivery Truck • 10 Yard Dump Truck • Concrete Delivery Truck • Tree Chipper	1,295 Feet (Residential)	**53.0**	*75 dBA*	**No**	*60 dBA*	**No**
		606 Feet (Industrial)	**59.6**	*85 dBA*	**No**	*70 dBA*	**No**

Source: Construction noise levels were calculated by ECORP Consulting, Inc. using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to *Appendix 3.9-A* for Model Data Outputs.
Notes: Construction equipment assumptions were based on construction-related information provided in Section 2.0.

As shown in Table 3.9-5, no component of construction would exceed the 75 dBA County construction noise threshold at the nearest residential receptor, nor the 85-dBA threshold at the nearest industrial receptors (Rector Dam Water Treatment Facility). There are no commercial receptors in the Project vicinity.

Project construction would result in minimal additional traffic on adjacent roadways over the time period that construction occurs. According to the CalEEMod model, which is used to predict air pollutant emissions associated with Project construction, including those generated by worker commute trips and material haul truck trips, the maximum number of construction workers and haul trucks traveling to and from the Project site on a single day would be during the Diversion Pipeline phase with 97 total daily trips (35 worker trips and 62 haul truck trips). According to the Napa County Department of Public Works *Traffic Volumes* (2017), the average daily trips (ADT) on the roadway segment of Silverado Trail Road traversing the Project site northbound and southbound is 4,443 and 5,791, respectively. According to the California Department of Transportation (Caltrans) *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). The Project construction would not result in a doubling of traffic on any roadway, and therefore its contribution to existing traffic noise would not be perceptible.

Thus, Project construction activities would not exceed the recommended threshold. This impact is ***less than significant***.

Project Operation

As previously discussed, the Project seeks to allow for a sufficient water supply to the fish population in Rector Creek, downstream of the Rector Dam, while also maintaining the other purposes of the dam's operations. Post-construction activities of the Project would not include the use of any equipment that would emit any perceivable levels of noise that would have an effect on the existing ambient environment, nor would it contribute to existing noise levels produced by the existing valves at the Rector Dam Valve House or from Rector Creek itself. The impact of noise associated with Project operation, therefore, is ***less than significant***.

Mitigation Measures

None required.

Impact 3.9-2: Project construction activities could generate groundborne vibration or groundborne noise levels.
Impact Determination: *less than significant*.

Threshold:	*Excessive groundborne vibration or groundborne noise levels.*

Project Construction

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to f the Project would be associated with short-term construction-related activities. Construction required for Project implementation would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Proposed Project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with typical construction equipment are summarized in Table 3.9-6.

Table 3.9-6. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Hoe Ram	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: FTA 2018; Caltrans 2020

The County of Napa does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020b) recommended standard of 0.2 inch per second PPV, which is a standard to prevent structural damage for older residential buildings, is used as a threshold. 0.2 inch per second PPV is also the level at which vibrations may begin to annoy people in buildings. The nearest structure of concern, measured from the approximate center of the Proposed Project site, includes an outbuilding associated with the CAL FIRE training facility located approximately 100 feet north of the site. Based on the representative vibration levels presented in Table 3.9-6 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential vibration levels with the following equation provided by the FTA:

$$[PPVequip = PPVref \times (25/D)^{1.5}]$$

Table 3.9-7 presents the expected Project-related vibration levels at a distance of 100 feet.

Table 3.9-7. Construction Vibration Levels at 100 Feet

Receiver PPV Levels (in/sec)[1]					Peak Vibration	Threshold	Exceed Threshold
Small Bulldozer	Jackhammer	Loaded Trucks	Large Bulldozer/ Caisson Drilling/Hoe Ram	Vibratory Roller			
0.000	0.004	0.010	0.011	0.026	**0.026**	*0.2*	**No**

Notes: [1]Based on the Vibration Source Levels of Construction Equipment included on Table 3.9-8 (FTA 2018). Distance to the nearest structure is approximately 100 feet measured from the center of the Project site.

Vibration as a result of construction activities would not exceed 0.2 PPV at the nearest structure. Thus, Proposed Project construction would not exceed the recommended threshold. This impact is ***less than significant***.

Project Operation

As previously described, the Proposed Project seeks to allow for a sufficient water supply to the fish population in Rector Creek, downstream of the Rector Dam, while also maintaining the other purposes of the dam's operations. Post-construction activities of the Proposed Project would not include the use of any large-scale stationary equipment that would result in excessive vibration levels. This impact is ***less than significant***.

Mitigation Measures

None required.

Impact 3.9-3: Result in exposing individuals residing or working in the Project area to excessive airport noise levels.
Impact Determination: *less than significant*.

Threshold:	*Would expose people residing or working in the project area to excessive airport noise levels.*

The Project site is located approximately 5.7 miles southeast of the Inglenook Ranch Airport, 7.8 miles west of the Moskowite Airport, and 16.0 miles north of the Napa County Airport. The Napa County Airport Land Use Commission has established a set of land use compatibility criteria for lands surrounding the airports in Napa County in the Napa County Airport Land Use Compatibility Plan (1999). Figure 3-A of the Napa County Airport Land Use Compatibility Plan shows that the Proposed Project site lays outside of the noise contours of the Napa County Airport. Thus, the Project would not expose residents to excessive airport noise. The impact is ***less than significant***.

Mitigation Measures

None required.

Cumulative Impact

Impact 3.9-4: Result in a considerable contribution to cumulative noise and vibration impacts. Impact Determination: *less than considerable*.

Threshold:	*Would result in significant noise and vibration impacts in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

No other local projects are known to occur or anticipated during the expected period of construction for the Project. Construction activities associated with the Project and other construction or maintenance activities in the area may overlap, resulting in construction-type noise in the area. However, such noise impacts primarily affect the areas immediately adjacent to the construction site. Construction-type noise for the Project was determined to be less than significant. Cumulative development in the vicinity of the Project site could result in elevated construction noise levels at noise receptors in the Project area. However, all potential projects would be required to comply with the applicable Municipal Code limitations on construction. For these reasons, the Project' contribution to noise-generated cumulative impact would be ***less than considerable.***

Mitigation Measures

None required.

3.9.6 References

ANSI. 2013. Standard 12.9-2013/Part 3: Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present.

Caltrans. 2020. Transportation- and Construction-Induced Vibration Guidance Manual.

_____. 2002. California Airport Land Use Planning Handbook.

FHWA. 2011. Effective Noise Control During Nighttime Construction. http://ops.fhwa.dot.gov/wz/workshops/accessible/schexnayder_paper.htm.

_______. 2006. Roadway Construction Noise Model.

FTA. 2018. Transit Noise and Vibration Impact Assessment.

HMMH. 2006. Transit Noise and Vibration Impact Assessment, Final Report.

Napa, County of. 2020. Napa County Code.

_____. 2017. Napa County Department of Public Works Traffic Volumes Summary.

_____. 1999. Napa County Airport Land Use Compatibility Plan.

Poje, Anton & Spinelli, Raffaele & Magagnotti, Natascia & Mihelic, Matevz. (2015). Exposure to noise in wood chipping operations under the conditions of agro-forestry. *International Journal of Industrial Ergonomics*. 50. 151-157. 10.1016/j.ergon.2015.08.006.

State of California OPR. 2003. California General Plan Guidelines.

WEAL. 2000. Sound Transmission Sound Test Laboratory Report No. TL 96-186.

3.10 Tribal Cultural Resources

This section describes the affected environment and regulatory setting and considers and evaluates the impacts of the Project on Tribal Cultural Resources (TCRs) in the Project Area. The following analysis of the environmental impacts related to TCRs is derived primarily from the following sources and agencies:

- California NAHC Sacred Lands File Search, October 13, 2020;
- ECORP's 2021 Cultural Resources Inventory and Evaluation for the Rector Reservoir Bypass Valve Project, Napa County, California;
- Ethnographic overviews of the Hill Patwin (Foster 1995; Johnson 1978; Kroeber 1976; Loeb 1933; Powers 1976); and
- Informal tribal consultation between DGS and the Mishewal-Wappo Tribe of Alexander Valley.

Regional pre-contact information of the California Native Americans has been previously discussed in *Section 3.4, Cultural Resources*. The reader is referred to that section for further information on California Native Americans during the pre-contact time period.

3.10.1 Environmental Setting

Ethnographic, Religious, and Cultural Context

The information in this section is derived from the ethnographic overview provided in the technical study by ECORP (2021). Ethnographically, the Project Area is in the central portion of the territory occupied by the Penutian-speaking Hill Patwin. The Patwin territory included both the River and Hill Patwin and extended from the southern portion of the Sacramento River Valley to the west of the river, from the town of Princeton south to San Pablo and Suisun bays. As a language, Patwin (meaning "people") for part of the Wintu linguistic family, has three main groups: Southern or Patwin; Central, of Glenn and Tehama counties; and the Northern, of the upper Sacramento, lower Pit, and the upper Trinity drainages. The Hill Patwin territory includes the lower hills of the eastern Coast Range mountain slope (Long, Indian, Bear, Capay, Cortina, and Napa Valley). Between there and the foothills, the grassy plains were largely unsettled, used mainly as a foraging ground by both valley and hill groups. Patwin pre-contact population numbers are not precise, but Kroeber (1976, as cited in ECORP 2021) estimates 12,500 for the Wintu, *Nomlaki*, and Patwin groups. These numbers reflect groups prior to the 1833 malaria epidemic.

Politically, the Patwin were divided into "tribelets," made up of a primary village and a series of outlying hamlets, presided over by a more-or-less hereditary chief. Villages typically included family dwellings, acorn granaries, a sweathouse, and a dance house, owned by the chief. The chief had unrestricted power and presided over economic and ceremonial decisions. Individual and extended families "owned" hunting and gathering grounds, and trespassing was discouraged without permission. Residence and marriage were generally matrilocal, but unrestricted.

Subsistence activities centered around hunting and fishing of deer, Tule elk, antelope, bear, ducks, geese, quail, turtles, fish, and other small animals. Hunting of deer often took the form of communal drives, with the actual killing of the deer performed by individuals or groups. Decoys were used for attracting such game as deer and ducks. Nets and holding pens were used for fishing, which was also an important part of normal subsistence activities. Types of fish included sturgeon, salmon, perch, chub, sucker, hardhead, pike, trout, steelhead and mussels. Although acorns were the staple of the Patwin diet, they also harvested sunflower, alfilaria, clover, bunchgrass, wild oak, and yellow flower, which was parched or dried, then pounded into a meal. Buckeye, Pine nuts, juniper berries, manzanita berries, blackberries, wild grapes, brodiaea bulbs, and tule roots were also collected. Each village had its own locations for these food sources, and the village chief was in charge of assigning particular families to each collecting area. Game was prepared by roasting, baking, or drying of the meat. Tobacco was collected along the river and inhaled, but not cultivated. Salt was scraped off rocks (in the Cortina region) or by burning a grass found in the plains.

Patwin houses were built in the form of a dome, using tree branches for the framing, then covered with thatch and earth. House floors were typically dug out and the walls were built up as a mound, with the entrance to the building made through the roof.

One of the most distinctive aspects of the Patwin culture was the cult system, found throughout northern central California. The main feature of the cult was the occurrence of one or more secret societies, whose membership was by strict initiation, each with its own series of dances and rituals. Patwin culture is most distinctive in that it possessed three secret societies: the ghost, *Hesi*, and *Kuksu*. These involved elaborate ceremonial activities consisting of singing and dancing. Membership included mostly males, beginning around the ages of eight to 16, but on limited occasions, included high status women. Everyday Patwin life centered on the rituals performed within the secret societies. Details involving the ceremonies varied, but most had sacred dances requiring careful preparation, costume and music. These dances could last several days. Detailed summaries are provided by Kroeber (1932) and Loeb (1933).

The earliest historical accounts of the Project Area begin with Spanish mission registers of baptisms, marriages, and deaths of Indians. By 1800, Native Americans were taken from the Patwin settlement of *Aguastos* in the south-central area, and from other villages, by emissaries of Mission Dolores. In addition, missions San Jose and Sonoma actively proselytized the southern Patwin. Between the 1830s and 1840s, both Mexicans and Americans rapidly overtook the Patwin territory under the authority of the Mexican government.

The Spanish arrived on the central California coast in 1769, and by 1776 it had been explored by José Canizares. In 1808, Gabriel Moraga crossed into the territory, and in 1813 a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River. In 1833, an epidemic most likely to be malaria raged through the Sacramento Valley, killing an estimated 75 percent of the native population. The discovery of gold in 1848 at Sutter's Mill, near the Nisenan village of *Colluma* (now Coloma) on the South Fork of the American River, drew thousands of miners into the area, and led to widespread killing and the virtual destruction of traditional Native American cultures.

After the missionization and disease epidemics, descendants of the ethnographic Patwin (including Hill, Nomlaki, and Wintun groups) and neighboring tribes such as the Nisenan (or Southern Pomo), Wappo, and Miwok had been largely displaced from their traditional territories, and surviving members of various tribes were grouped together onto Rancherias and reservations by the federal government in the twentieth century. In the 1950s, federal government efforts to assimilate surviving Native Americans led to stripping them of their tribal sovereignty. In the 1970s, tribes began combining efforts to regain sovereignty by suing the federal government, which led to federal recognition of certain tribal groups as sovereign nations. Due to the historic displacement, mixing, and combining efforts between decedents of multiple tribes, most federally recognized tribes in California are made up of members descended from several tribes from different traditional areas. Four tribal groups are traditionally associated with the Project Area, made up of descendants of the ethnographic Miwok, Pomo, Wappo, and Patwin groups. These are the Kletsel Dehe Band of Wintun Indians (Wintun/Patwin), Middletown Rancheria (Pomo/Lake Miwok); Mishewal-Wappo Tribe of Alexander Valley (Wappo); and the Yocha Dehe Wintun Nation (Wintun/Patwin).

3.10.2 Regulatory Framework

Federal

National Historic Preservation Act

As described in the Cultural Resources Section, the NHPA mandates protection of historic properties, or cultural resources listed or eligible for listing on the NRHP. Through amendments to the NRHP in 1992 and their implementing regulations, federal responsibilities for consultations with interested parties, and especially Indian tribes, during the Section 106 process were expanded. The result has been a more focused effort by federal agencies to involve interested parties in identifying historic properties of cultural significance and, if warranted, in considering effects that may result from a federal undertaking. Traditional Cultural Properties (TCPs) are more often identified as resources during these consultation efforts.

The NRHP guidelines describe a type of cultural significance for which properties such as TCPs may be eligible for inclusion in the NRHP. A property with traditional cultural significance will be found eligible for the NRHP because it is associated with cultural practices or beliefs of a living community that:

a) are rooted in that community's history, and
b) are important in maintaining the continuity of the cultural identity of the community.

This type of significance is grounded in the cultural patterns of thought and behavior of a living community and refers specifically to the association between their cultural traditions and a historic property.

State

California Environmental Quality Act

Effective July 1, 2015, AB 52 amended CEQA to require that: 1) a lead agency provide notice to those California Native American tribes that requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include TCRs, the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the Public Resources Code defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the PRC defines TCRs for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

   a. included or determined to be eligible for inclusion in the CRHR; and/or
   b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
   c. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of a Historical Resource under CEQA, a TCR may also require additional consideration as a Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact on the environment under CEQA, consultation is used to develop appropriate mitigation measures.

In accordance with Public Resource Code Section 21082.3(c)(1), "… information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with subdivision (r) of Section 6254 of, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the CCR, without the prior consent of the tribe that provided the information." Therefore, the details of tribal consultation summarized herein are provided in a confidential administrative record and not available for public disclosure without written permission from the tribes.

Local

Napa County General Plan

The Proposed Project is a State project on State owned land and as such is not subject to local Napa County General Plan goals, policies, or ordinances protecting tribal resources. While the Project is not required to comply with County goals, policies, or ordinances or obtain related County permits, the following discussion is provided as background to demonstrate how the Project is being designed and implemented consistent with the intent of County policy.

The Napa County General Plan (June 2008, updated 2013) is the official policy statement of the County Board of Supervisors and serves as a broad framework for planning the future of Napa County. It guides public and private development in the County. In the course of preserving agricultural land and open space, cultural (archaeological) resources have been retained. Cultural resources include archaeological resources of the pre-contact are addressed in the Community Character element of the General Plan. Identified sites include those associated with habitation, grave sites, camping/hunting sites, and places where resources such as obsidian from Glass Mountain were procured. Future archaeological research in Napa County and the region has the potential to yield still more important information about prehistory and history, particularly in the eastern portion of the county. The General Plan presents policies and action items intended to ensure the long-term preservation of such resources.

The following County goals and policies relate to tribal cultural resources:

Goal CC-4: *Identify and preserve Napa County's irreplaceable cultural and historic resources for present and future generations to appreciate and enjoy.*

Policy CC-17: Significant cultural resources are sites that are listed in or eligible for listing in either the National Register of Historic Places or the California Register of Historic Resources due to their potential to yield new information regarding prehistoric or historic people and events or due to their intrinsic or traditional cultural value.

Policy CC-23: The County supports continued research into and documentation of the county's history and prehistory, and shall protect significant cultural resources from inadvertent damage during grading, excavation, and construction activities.

Action Item CC-23.1: In areas identified in the Baseline Data Report as having a significant potential for containing significant archaeological resources, require completion of an archival study and, if warranted by the archival study, a detailed on-site survey or other work as part of the environmental review process for discretionary projects.

Action Item CC-23.2: Impose the following conditions on all discretionary projects in areas which do not have a significant potential for containing archaeological or paleontological resources:

- "The Planning Department shall be notified immediately if any prehistoric, archaeologic, or paleontologic artifact is uncovered during construction. All construction must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action."
- "All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed."

3.10.3 Methods of Analysis

Summary of Tribal Consultation

AB 52 consultation requirements went into effect on July 1, 2015 for all projects that have not already published a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration or published a Notice of Preparation of an EIR (Section 11 [c]). At the time the NOP was published, neither CalVet or DGS had received written requests from any California Native American Tribes to receive notifications and therefore, the procedures specified in Public Resources Code Sections 21080.3. 1(d) and 21080.3.2 do not apply and no tribal consultation under AB 52 is required.

In June of 2020, DGS sent an NOP for the Project to the NAHC. The NAHC responded to DGS via letter on July 2, 2020, listing the laws with which DGS is expected to comply with regards to tribal consultation. The letter did not include a list of individual tribal contacts. On behalf of DGS and CalVet, ECORP subsequently sent a Sacred Lands File search request to NAHC on October 7, 2020. The NAHC responded on October 13, 2020 with a list of tribal contacts. These tribal contacts included:

- Charlie Write, Chairperson of the Cortina Rancheria - Kletsel Dehe Band of Wintun Indians (Wintun/Patwin);
- Jose Simon, Chairperson of the Middletown Rancheria (Pomo/Lake Miwok);
- Scott Gabaldon, Chairperson of the of the Mishewal-Wappo Tribe of Alexander Valley (Wappo); and
- Anthony Roberts, Chairperson of the Yocha Dehe Wintun Nation (Wintun/Patwin).

On July 30, 2020, individual outreach letters were sent to each of these tribal contacts. On August 5, 2020, the Yocha Dehe Wintun Nation responded that the Project was not in the tribe's territory and asked that correspondence be referred to Middletown Rancheria. DGS had already sent Middletown Rancheria a notification letter about the Project. Neither Middletown Rancheria, nor any of the other tribes, responded to the July 30, 2020 letter.

On August 27, 2020, on behalf of DGS, ECORP made follow-up phone calls to each of the three other tribes and left phone messages. Only Scott Gabaldon of the Mishewal-Wappo Tribe responded. Consultation is summarized below.

Mishewal-Wappo Tribe of Alexander Valley

On August 27, 2020 ECORP spoke with Chairperson Scott Gabaldon about the project. Mr. Gabaldon indicated the tribe would probably want a monitor for Project construction because of the proximity to the water reservoir. On August 28, 2020, DGS emailed Mr. Gabaldon the site plans and offered the tribe the opportunity to participate in a site visit during the cultural field survey. The site plans showed that the proposed trenching is outside of the reservoir, close to the dam's spillway, and also between the stream and the water treatment facility on the property. In the email, DGS explained that all areas have been highly disturbed through the years, and that the proposed outfall is to be located in an area of the stream that has also been highly eroded due to spillway action events. No response was received to the August 28, 2020 email. ECORP contacted Mr. Gabaldon on October 7, 2020 and left a phone message indicating the field survey would take place on October 9, 2020, and again offered the tribe an opportunity to join. No response was received by the scheduled field survey and no tribal representatives were present during the survey. DGS has not received any subsequent responses from Mr. Gabaldon as of the preparation of this report.

To date, the Mishewal-Wappo has not provided any information on TCRs to DGS.

3.10.4 Tribal Cultural Resources

Information about impacts to TCRs was drawn from: 1) the results of a search of the Sacred Lands File of the NAHC; 2) existing ethnographic information about pre-contact lifeways and settlement patterns; 3) information on archaeological site records obtained from surveys of the Project area and the California Historical Recourse Information System (as relayed in ECORP 2021); and 4) the informal tribal consultation record for the Project between DGS and the Mishewal-Wappo Tribe of Alexander Valley.

Sacred Lands File Search

A search of the NAHC Sacred Lands File was requested on October 7, 2020. The NAHC responded on October 13, 2020 that the search was positive for the presence of sacred lands in the vicinity. The NAHC included a list of suggested tribal representatives to contact who may have more information. The tribal contacts on that list had already been contacted about the project, including the Mishewal-Wappo Tribe of Alexander Valley, as summarized above.

Ethnographic Information

The ethnographic information reviewed for the Project, including ethnographic maps (Johnson 1978) lists the nearest Native American villages as *Napato* and *Tulukai*. Both villages are located on the banks of the Napa River within five miles southeast of the Project Area.

Ethnographic literature from Johnson (1978), Kroeber (1976), and Powers (1976) indicated that most of the pre-contact habitation sites in the Napa Valley were located along waterways. Known villages are located within five miles of the Project Area along the Napa River. The Project Area is adjacent to Rector Creek, which flows from the east side of the Napa Valley and is a tributary to Conn Creek, which is a tributary to the Napa River. Although there is nothing in the ethnographic literature that suggests that the Project location is known to have ethnographic villages or resources within its boundaries, the land and water changes over time may have obscured or obliterated small unmapped or unrecorded habitation sites.

Archaeological Site Records

The entire Project Area was subjected to an archaeological survey and records search review, and no Native American sites were identified within its boundaries. Approximately 25 percent of the area within a 0.5-mile radius surrounding the Project Area has been subject to cultural surveys, and two pre-contact archaeological sites have been previously recorded in the vicinity. A pedestrian survey was completed for the Project Area (ECORP 2020) and identified only two historic period resources related to early transportation. No sites associated with Native American culture were found during the survey. Additional information about these non-Native American cultural resources can be found in Chapter 3.4 of this DEIR.

Tribal Consultation Results

No TCRs were identified within the Project Area by any of the tribes contacted for this Project. However, based on the information provided by the Mishewal-Wappo Tribe of Alexander Valley, there remains a possibility that undiscovered TCRs could become known during construction.

3.10.5 Environmental Impacts and Mitigation Measures

Thresholds of Significance

Following Appendix G of the CEQA Guidelines, TCR impacts are considered to be significant if the project would result in any of the following:

1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC § 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:

    a. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC § 5020.1(k), or

    b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC § 5024.1. In applying the criteria set forth in subdivision (c) of PRC § 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe?

Project Impact Analysis

Impact 3.10-1: Project construction could adversely affect tribal cultural resources: Impact determination: *less than significant with mitigation*.

Threshold:	*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:* • *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* • *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe?*

Project Construction

No TCRs were identified within or immediately adjacent to the Project area and therefore, the proposed project would not result in a significant impact to known TCRs. However, research indicates there are TCRs in the vicinity of the Project Area. The impact to unknown TCRs that could potentially be discovered during project construction is considered significant. With the implementation of Mitigation Measure **TCR-1**, the impact would be reduced to less than significant. The impact, therefore, is ***less than significant with mitigation***.

Project Operation

Implementation of Mitigation Measure **TCR-1** would ensure minimal risk of harm to potential TCRs and address any needed mitigation during Project implementation and operation. Therefore, with implementation of **TCR-1**, this residual impact would be ***less than significant with mitigation***.

<u>Mitigation Measures</u>

TCR-1: Unanticipated Discovery

CalVet and its contractors shall implement the following measures. If any suspected TCRs or any archaeological find that includes Native American or potentially Native American resource that does not include human remains are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find. DGS, and/or the on-site archaeologist (if applicable) shall notify Mishewal-Wappo Tribe of Alexander Valley. The agencies shall consult with the tribe on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Preservation in place is the preferred treatment, if feasible. Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not an Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to their satisfaction. This shall be carried out in congruence with the process outlined in mitigation measure CUL-1.

Human Remains. If the find includes human remains, or remains that are potentially human, the measures outlined in Mitigation Measure CUL-2 shall be followed.

3.10.6 Cumulative Impacts

Impact 3.10-2: Project construction and operation could contribute to cumulative adverse impact on tribal cultural resources. Impact determination: *less than considerable with mitigation*.

Threshold:	*Would Implementation of the proposed project, along with any reasonably foreseeable probable future projects, in the project vicinity, result in cumulative impacts to tribal cultural resources?*

Significant cumulative impacts to tribal cultural resources typically occur when important sites, features, or artifacts are lost, damaged, or destroyed without appropriate mitigation such as recording or data recovery. As these resources are destroyed or displaced, important information is lost and connections to past events, people and cultures are diminished. As activities such as building development and construction expand geographically, tribal cultural resources may be lost. Napa County contains extensive cultural resources, including Native American archaeological sites such as village sites, burial grounds, procurement sites, and lithic scatters. Section 3.10.4.2 Environmental Setting provides an overview of the ethnographic setting of the region. Impacts to these tribal cultural resources are likely to occur as land use changes occur in Napa County.

As discussed under Impact 3.10-1 above, research and informal tribal consultation indicated there exists the possibility that unknown TCRs may be significantly impacted by Project construction. This impact would contribute to a significant cumulative impact on TCRs in Napa County when added to the impacts of other probable future projects. To address this impact, Mitigation Measure **TCR-1** was developed. Implementation of this measure would reduce any potential impact on TCRs to less than significant. Given that any potential impact on TCRs due to the Project would be minimized or avoided through implementation of **TCR-1**, the contribution of the Project to the cumulative impact on Napa County TCRs would be ***less than considerable with mitigation***.

Cumulative Impact Mitigation Measures

Implement Mitigation Measure **TCR-1**.

3.10.7 References

ECORP Consulting, Inc. 2021. *Cultural Resources Inventory Report for the Rector Reservoir Bypass Value Project.* April.

Foster, John W. 1995. *A Cultural Resource Survey and Assessment of the Off-Channel Mining Project Site, Capay, California*. Foothill Archeological Services, Fair Oaks, California. Report on file at the Northwest Information Center, CSU Sonoma.

Johnson, Patti. 1978. Patwin, in R. F. Heizer, ed., *Handbook of North American Indians, Volume 8: California*, pp. 350-360. Smithsonian Institution, Washington.

Kroeber, A. L. 1925 [1976]. Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Washington.

Loeb, Edwin M. 1933. The Western Kuksu Cult. *University of California Publications in American Archaeology and Ethnology* 33(1): 1-137.

Powers, Stephen. 1976. *Tribes of California*. University of California Press, Berkeley. Reprint of 1877 edition.

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3.11 Utilities and Service Systems: Water Supply

This section evaluates the effects of Project construction and operation on utility services, specifically municipal, industrial and agricultural water supply. The existing environmental and regulatory conditions specific to those issues are described and the impact posed by Project construction and operation are addressed. This section does not further address impacts related to other utilities and service systems found to be less than significant in the Initial Study circulated with the Notice of Preparation (NOP) prepared for this project (see *Appendix 1.1-A*). These impacts include potential Project effects on wastewater treatment systems and the handling and disposal of solid waste generated by the Project. Refer to Section 3.1 of this DEIR which provide additional details on issues eliminated from further review in this DEIR.

Information contained in this section is based in part on technical reports and assessments including: *Rector Reservoir Operations Simulation Modeling: Technical Memorandum* (Western Hydrologics, 2021); *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment: Technical Memorandum* (Stillwater Sciences, July 2019); *Rector Creek Water Year Type and Watershed Model Technical Memorandum Rector Reservoir Bypass Valve Project* (Stillwater Sciences, May 2021)*Rector Reservoir Water Yield Study* (DWR 2013); and the *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* (Barber 2017).

3.11.1 Environmental Setting

Hydrology

As described by Stillwater (2019) (see *Appendix 3.3-C* of this DEIR), the Rector Creek watershed above Rector Dam is relatively small (10.7 square miles). Like most other storage reservoirs within California's Mediterranean climate, the reservoir generally fills in the winter and spring, and drains in the summer and fall. Inflow to Rector Reservoir is primarily from the mainstem Rector Creek, which is perennial upstream of the reservoir, but intermittent downstream of the dam. Rector Creek extends approximately 1.7 miles downstream of Rector Dam to the confluence with Conn Creek, a tributary of the Napa River.

Inflow to Rector Reservoir is primarily from the main stem of Rector Creek, which is perennial upstream of the reservoir. Additional inflow into Rector Reservoir is provided by the North Fork and the South Fork (also known as Lorette Creek) of Rector Creek. The main stem, North Fork, and South Fork contain about 77, 10, and 13 percent of the Rector Creek drainage area, respectively. The average annual precipitation in the watershed is approximately 36 inches, and the average annual inflow to Rector Reservoir is estimated at 14,240 acre-feet (AF). The reservoir typically fills and spills during the winter and spring months when most of the precipitation falls (DWR 2013).

Water is stored in Rector Reservoir with inflow to the reservoir occurring primarily during wet winter months (October 1 to May 31). Water is withdrawn from Rector Reservoir through a tower with intake invert elevations of 270, 291, 307, 323, 335, and 339 feet above MSL. A 2000 bathymetric survey of Rector Reservoir conducted by DWR determined that the lowest intake at 270 feet above MSL was buried by sediment, so the lowest operational intake is at 291 feet above MSL (DWR 2000). The 2000 bathymetric survey also calculated stage-surface area and stage-storage volume curves for Rector Reservoir from 245 feet above MSL to 375 feet above MSL (DWR 2013). According to the stage-storage volume relationship, the minimum pool storage which is inaccessible below the lowest operational intake (291 feet above MSL) is approximately 478 AF. At the spillway crest elevation (372.5 feet above MSL), the reservoir storage capacity is approximately 4,535 AF (DWR 2013).

Effective Inflow to Rector Reservoir and Spill Frequency

The effective inflow for Rector Reservoir was calculated by Stillwater (2019) from January 1, 2008 to February 29, 2016, when reservoir stage, Water Treatment Plant (WTP) diversion outflows, CDFW Silverado Fisheries Base (Fisheries Base) outflows, evaporation, and precipitation data were available for Rector Reservoir. The effective inflow usually ranged from approximately 3 to 4 cfs during winter periods to less than 1 cfs during summer periods, but there were substantial variations in the minimum and maximum effective inflow between years. Negative effective inflows were occasionally calculated, but there was no clear trend in when the negative effective inflows occurred. The frequency and magnitude of the peak calculated effective inflows did not completely represent the actual peak inflows to Rector Reservoir. Peak effective inflows captured actual inflows when the reservoir storage was rapidly filling up to spill levels, but the effective inflow did not represent actual inflows once the reservoir spilled. The calculated effective inflow could not include the flow over the spillway once the reservoir was full because no data was available to quantify the actual flow over the reservoir spillway. Since the flow over the spillway was unknown, the peak effective inflows only represented the actual inflow when the reservoir was filling. The calculated effective inflow therefore under-estimated the actual inflows during periods when the reservoir was spilling. (Stillwater 2019).

There was not a strong trend in average effective inflow with water year type, because the difference in the average effective inflow was usually smaller between water year types than the variations in average effective inflow within a water year. No average effective inflow was determined for Above Normal water years since no Above Normal water years occurred between Jan 1, 2008 and Feb 29, 2016 in the Sacramento Valley Index. During multiple periods, the average effective inflow was higher in a drier water year than a wetter water year, because more frequent reservoir spilling in wetter years resulted in the average effective inflow more frequently underestimating the actual inflow. In January, the average effective inflow during Dry water years was lower than Critical water years, but the difference between the Dry and Critical average effective inflow was usually less than 0.5 cfs, excluding periods when the average effective inflow peaked. Peak effective inflows occurred more frequently during drier water year types than wetter water year types since the reservoir refilled more before spilling during drier water year types. During wetter water years, the effective inflow was equal to the outflows to the water treatment plant, the CDFW Silverado Fisheries Base , and evaporation minus any inflow from precipitation when the reservoir was full.

During summer periods when spilling did not occur, the calculated effective inflow better characterized the actual inflow to Rector Reservoir and the patterns of the natural hydrograph in Rector Creek at the dam location. There was not a strong trend in the summer average effective inflow with water year type, but this may be due to natural hydrologic variability or uncertainty from using the Sacramento Valley Index water year types in the Rector Creek watershed. The average effective inflow in August for both a

Wet and Critical water year was typically around 1 cfs. The average effective inflow for a Wet water year in August ranged from approximately 2 cfs to 0.25 cfs, while the average effective inflow for a Critical water year in August ranged from approximately 1.5 cfs to 0.5 cfs. The range of average effective inflows provides an initial estimate of the range of flows that would occur in the natural hydrograph in Rector Creek downstream of the Rector Dam during the summer period.

CalVet Water Rights

SWRCB issued License 10911 to CalVet on November 2, 1970. The license allows a maximum diversion from Rector Creek of 3,518 AF per water year, at a maximum rate of 5.55 cubic feet per second for direct use year-round. It also allows a diversion of up to 1,767 AF to storage in Rector Reservoir from October 1 to May 31 for use at a later time. Water use is limited to domestic use at the Napa State Hospital and the Veterans Home, domestic and fish culture uses at the Fisheries Base , municipal use at the Town of Yountville, and irrigation of approximately 552 acres of land.

The license contains five constraints on water use:

1. Direct diversion (deliveries minus withdrawals of collection to storage) cannot exceed 5.55 cubic feet per second (4,018 AFY if 5.55 cubic feet per second is diverted all year).
2. Storage collection can be from October 1 to May 31; but cannot exceed 1,767 AF.
3. Total from source (direct diversion plus collection to storage) cannot exceed 3,518 acre-feet/water year.
4. Storage withdrawal cannot exceed 1,767 AF/water year.
5. Reservoir storage cannot exceed 4,400 AF.

Water Delivery Agreements

CalVet has water delivery agreements with CDFW and the Town of Yountville which were signed on June 12, 2007 and July 7, 2004, respectively. The CDFW agreement provides for delivery of potable water not to exceed 500 gallons/minute or 10 AF annually. The agreement also provides for delivery of 970 AF of untreated water annually (700 acre- feet plus an additional 270 AF for the volume of water that is impounded by the 2.5-foot spillway raise). The Town of Yountville agreement provides for delivery of 500 AF of potable water annually but can be more if surplus water is available. Deliveries are not to exceed 1,500 gallons/minute. Yountville must purchase at least 250 AF of potable water annually, except in dry years when 250 AF is not available. (DWR 2013).

Each year, CalVet monitors water type years as published by DWR's California Data Exchange Center, local rainfall and reservoir elevation. Based on this information, CalVet projects reservoir elevations based on average demands and its existing delivery agreements to determine if reservoir levels could drop below a level that would preclude refill and spill in a given year. In years when this may occur, CalVet has made recommendations for conservation to users of the system including the Veterans Home and the Town of Yountville. For example, in response to the 2019-2020 and 2020-2021 water years being below average, CalVet is requesting conservation. CalVet informed the Town of Yountville that it can only guarantee 80% of their normal 500 AF of delivered water beginning July 1. CalVet is also working with the Veterans Home to reduce consumption by 20%. CalVet will also review the needs of the Fisheries Base and look for ways to reduce water delivered for their operations. CalVet has contractual obligations for the Town of Yountville and the Fisheries Base, but those contracts contain language that gives CalVet latitude to reduce deliveries during a drought. (CalVet 2021)

Current and Future Water Deliveries

The current water consumption stakeholders include the City of Yountville, Napa State Hospital, CalVet retirement and treatment facilities, the CDFW Fisheries Base and Bay-Delta Region Office, Napa County Corporation yard, and local wineries. During winter and spring, untreated water from the reservoir is directed through the CDFW Fisheries Base and released into Rector Creek approximately 0.25 mile downstream of the spillway. A raw water fisheries base flow of up to 970 AFY (when available) is covered by a 2007 MOU between the Veterans Home of California and the Department of Fish and Game and typically ceases operations during the summer, during which the only water drawn from the reservoir is for consumptive use. Cal Fire also operates a small training facility nearby, though recorded draw is negligible. (Stillwater 2019).

Table 3.11-1 shows modest future delivery request increases to the Veterans Home and small irrigators, such as commercial wineries (Western Hydrologics 2021). It also shows a large future delivery request increase to Napa State Hospital, which has not received Rector water since the Atlas Peak fire in 1981. The hospital could opt for future Rector deliveries if the price of water, including wheeling charges, becomes less than the price the hospital now pays to the City of Napa. Finally, the table shows no delivery request changes to the Town of Yountville. Yountville is almost completely built-out, so the population and water use would remain stable.

Table 3.11-1. Fisheries Base Diversions and Consumptive Demands[1] (AF/yr)

Contractor	Existing	Build out
Raw Water Pass-through		
Fisheries Base Diversions	970	970
Consumptive Demand		
CDF&W Potable	1.9	10
WTP Process Water	136	167
Vyborny (winery)	3.6	5
Duckhorn (winery)	3.7	5
Napa County Corp Yard	1.9	3
Town of Yountville	500	500
Museum	1	1
Veterans Home	600	650
Golf Course	2.5	3
Napa State Hospital	0	500/0
Total	**2,220.6**	**2,314[2]/2,814[3]**

Source: Western Hydrologics 2021

1. Existing and Buildout demands derived from 2013 DWR Yield Study with guidance from a Rector Reservoir Operator. Buildout scenarios were evaluated with and without Napa State Hospital demand. Although Napa State Hospital can take water from Rector Reservoir, no diversions have been made since 1981.
2. Full Build out demands.
3. Build out demands without Napa State Hospital.

3.11.2 Regulatory Framework

State

California Fish and Game Code 5937

As described in Section 2 of this DEIR, neither CalVet's license to operate Rector Reservoir nor its water rights supporting those operations include specific instream flow release requirements. As such, CalVet has never established a year-round schedule of releases to Rector Creek below the dam. This historical practice has been alleged to be inconsistent[1] with California Fish and Game Code 5937, which states:

> :The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam. During the minimum flow of water in any river or stream, permission may be granted by the department to the owner of any dam to allow sufficient water to pass through a culvert, waste gate, or over or around the dam, to keep in good condition any fish that may be planted or exist below the dam, when, in the judgment of the department, it is impracticable or detrimental to the owner to pass the water through the fishway.:

California Government Code Section 14715

Section 14715 of California Government Code establishes that the Veterans Home "shall have the first and prior right to all available water stored in Rector Dam." It further states that this right "shall be prior to any allocation of said waters for the use of any other state institutions, including the Fisheries Base and the Napa State Hospital."

Local

Napa County

The Napa County General Plan Conservation Element (updated June 2009) contains the following goals and policies pertaining to water supply:

Goal CON-13: Promote the development of additional water resources to improve water supply reliability and sustainability in Napa County, including imported water supplies and recycled water projects.

Policies:

CON-41: The County will work to protect Napa County's watersheds and public and private water reservoirs to provide for the following purposes: a)

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[1] On November 15, 2016, California Water Audit (Water Audit) filed a complaint and petition alleging that CalVet operates Rector Dam and Rector Reservoir in violation of California Fish and Game Code section 5937 and the Public Trust and calling for CalVet to establish and maintain minimum flow releases from Rector Reservoir. Since filing the original complaint, the Water Audit has twice amended the complaint and petition.

Clean drinking water for public health and safety; b) Municipal uses, including commercial, industrial and domestic uses; c) Support of the eco-systems; d) Agricultural water supply; e) Recreation and open space; and f) Scenic beauty.

CON-42 (h): The County shall work to improve and maintain the vitality and health of its watersheds. Specifically, the County shall: (h) Recognize that efforts to protect and preserve water for wildlife habitat and watershed health in Napa County can have long term benefits related to adequate water supplies and water quality.

CON-44 (c): The County shall identify, improve, and conserve Napa County's surface water resources through the following measures: c) Promote a balanced approach to managing reservoir outflows, particularly municipal supply reservoirs, through coordination with cities and town to maintain a reliable water supply for domestic uses, minimize flooding, and preserve fish habitat and riparian vegetation.

3.11.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the Project would have a significant adverse impact on water supply if it would do any of the following:

- Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects;
- Result in insufficient water supplies available to meet current water demand during normal, dry and multiple dry years; or
- Result in insufficient water supplies available to meet current water demand and demand due to reasonably foreseeable future development during normal, dry and multiple dry years.

Project Impact Analysis

Impact 3.11-1: The project would construct new water conveyance facilities which could adversely affect environmental resources. Impact Determination: *less than significant with mitigation*.

Threshold:	*Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.*

As described in the preceding sections (3.2 through 3.10) of this DEIR, Project construction activities including site staging area preparation, vegetation removal along the north channel bank, bypass valve pad construction, trenching activities for pipeline and electrical conduit installation, outfall construction and rip rap placement could adversely affect a variety of environmental resources. The potential for significant impacts was identified for various resources including biological resources, cultural resources, geology and soils, hydrology and water quality, and tribal cultural resources. As addressed in the preceding sections, mitigation for all impacts identified as "significant" is identified that would reduce each impact to less than significant. With implementation of all of the listed mitigation measures, Impact 3.11-1 is found to be ***less than significant with mitigation***.

Mitigation Measures

Implement all mitigation measures contained in Sections 3.2-3.10 and listed in Table ES-2 above.

Impact 3.11-2: Implementation of the Proposed Project Release Schedule could result in the inability of CalVet to meet current water delivery commitments to its customers. Impact Determination: *less than significant.*

Threshold:	*Result in insufficient water supplies available to meet current water demand during normal, dry and multiple dry years.*

In order to assess the effect of the Project on current and future CalVet potable and untreated water deliveries, an operations simulation model was conducted by Western Hydrologics and the results presented in the *Rector Reservoir Operations Simulation Modeling: Technical Memorandum*, included as *Appendix 3.3-D* of this DEIR and summarized below. The model tests the ability of the Rector Reservoir System to meet current and future (build out) demand under various minimum instream flow regimes. These scenarios were tested over the 2008-2019 study period to include the hydrologic variability which occurs in the basin. These scenarios were tested with both historic and climate change hydrology. Table 3.11-2 provides a guide to the studies performed for this effort.

Table 3.11-2. Simulation Model Scenario Summary

Scenario	Hydrology	Study Period	Demand	Environmental Flows
Existing Conditions	Historic	2008-2019	Current	Existing
Existing Conditions with Project	Historic	2008-2019	Current	Proposed Project Flows
Future Conditions No Project	2070 Climate Change	2008-2019 modified by climate change factors	Build Out[1]	Existing
Future Conditions with Project	2070 Climate Change	2008-2019 modified by climate change factors	Build Out[1]	Proposed Project flows

[1]Build out demands in the Future condition were evaluated both with and without the Napa State Hospital demand of 500 acre-feet per year (AFY). The DWR Yield study states the Napa State Hospital has not received Rector Water since the Atlas Peak fire in 1981. The hospital could opt for future Rector deliveries if the price of water, including wheeling charges, becomes less than the price the hospital now pays to the City of Napa. According to Section 14715 of California Government Code, the Veterans Home shall have the first and prior right to water stored at Rector Dam.

Hydrology

As part of the model development, two hydrology datasets were evaluated. The first data set was developed by the California Department of Water Resources as part of a Yield Study of Rector Reservoir in 2013 (DWR 2013). The hydrology developed for the Yield Study used a monthly timestep with a 1916 – 2011 period of record. The second dataset was developed by Stillwater Sciences to support the determination of minimum instream flows (Stillwater Sciences 2021). The Stillwater hydrology dataset uses a daily time step with a 2008 – 2019 period of record. Both data sets were evaluated the Stillwater hydrology was selected as the best available data and was chosen for the analysis of this project. Results of the review of the hydrology indicates the methods used by Stillwater produced a dataset more representative of the Rector Creek watershed than the DWR dataset. Although the record is short there is significant hydrologic variability within the record enabling testing of the full range of Proposed Project flows. The details of this evaluation and rationale for selection of the Stillwater data set are presented in *Appendix 3.3-D* of this DEIR (Western Hydrologics 2021).

Climate Change Hydrology

Climate change adjusted hydrology was developed using the data products from the California Water Commission's dataset for Water Storage Investment Program applications (California Water Commission 2021). These data products include the results from statewide Variable Infiltration Capacity (VIC) watershed runoff models performed with historical meteorology and climate change adjusted meteorology using climate change assumptions centered at the year 2070. These VIC models are better suited to be used in a comparative manner rather than predictive, and for this reason a ratio is taken of climate change adjusted VIC model output to historic meteorology VIC model output. These ratios are applied to historical hydrology for the 2008 – 2019 period to estimate the climate change adjusted hydrology.

In order to approximate unimpaired flows for the 2012-2019 period, the 1916-2011 record was searched to find similar water years. Data from the historic record were then used to estimate unimpaired flows for the 2012-2019 period. Climate change factors were then applied to the estimated unimpaired flow data from those similar years to 2012 – 2019 historic unimpaired flow data. The hydrology dataset was developed for the Rector Creek watershed and is consistent with Commission methods on a daily time step. *Appendix 3.3-D* (Western Hydrologics 2021) of this DEIR provides a detailed description of the analysis and results.

Water Year Types

The water year types and associated minimum instream flow regime proposed by the Stillwater team was tested over a range of hydrologic conditions using the 2008-2019 period at both the historic and 2070 climate conditions.

Water years types used by the model are determined using cumulative precipitation as measured by the Atlas Peak Gage. However it should be noted that when the interim flows were developed, there were no water year types available and the Sacramento Valley Index had to be used. After the interim flows were developed, a study was conducted to determine the Rector Creek watershed water year types (Stillwater

Sciences 2021). The analysis by Western Hydrologics (2021) used the results of the Stillwater Sciences (2021) water year type analysis and the methodology to dynamically assign the water year type during the water year, so its analysis of storage conditions took into account the Rector Creek watershed water year types. The method for determining the water year type is as follows:

1) October is automatically assigned the same water year type as the previous month (September).
2) At the beginning of each month (except October), the total monthly precipitation and the current water year cumulative precipitation are calculated.
3) The current water year cumulative precipitation is compared with the average cumulative precipitation thresholds for the previous month for the very dry, dry, average, wet, and very wet water years (see Table 3.11-3, below). The current water year for the upcoming month is equal to highest average cumulative precipitation threshold exceeded by the current water year cumulative precipitation. For example, if the current water year cumulative precipitation on November 1 is 1.5 inches, it is compared with the average cumulative precipitation thresholds for October (Very Dry = 0.99, Dry = 1.21, Average = 1.87, Wet = 2.52, Very Wet = 2.85), and the current water year for the upcoming month is equal to "Dry" since the current water cumulative precipitation exceeds the "Dry" threshold for October.

Table 3.11-3. Average Cumulative Precipitation (Inches)

Month	Very Dry	Dry	Average	Wet	Very Wet
Oct	0.99	1.21	1.87	2.52	2.85
Nov	2.12	3.99	6.55	7.85	8.21
Dec	5.27	7.77	12.89	17.29	19.39
Jan	7.44	13.39	19.45	28.92	32.50
Feb	11.56	17.95	25.37	37.46	43.29
Mar	14.41	21.57	30.30	42.86	49.85
Apr	15.86	22.82	32.62	44.95	54.86
May	16.33	23.73	33.41	46.02	55.69
Jun	16.69	23.96	33.60	46.31	56.17
Jul	16.69	23.97	33.62	46.38	56.18
Aug	16.93	24.02	33.68	46.39	56.27
Sep	17.52	24.53	33.91	46.91	56.65

4) Total monthly precipitation is compared with the water month exceedance probabilities thresholds for that month to estimate the water year type for the upcoming month (see Table 3.11-4). The water month type for the upcoming month is equal to highest water month exceedance probabilities threshold exceeded by the total monthly precipitation for the previous month. For example, if the total monthly precipitation for October is 1.5 inches, it is compared with the water month exceedance probabilities thresholds for

October (Very Dry < 0, Dry < 0.44, Average < 2,16, Wet < 4.97, Very Wet > 4.97), and the water year type for the upcoming month is equal to "Average" since the total monthly precipitation for October was greater than the "Dry" threshold, but less than the "Average" threshold.

Table 3.11-4. Monthly Precipitation Exceedance Probability (Inches of Rainfall)

Month	90% (Very Dry)	66% (Dry)	33% (Average)	10% (Wet and Very Wet)
Oct	0.00	0.44	2.16	4.97
Nov	0.00	1.51	4.81	9.79
Dec	0.76	3.26	8.12	14.04
Jan	0.47	4.44	8.55	16.85
Feb	0.60	3.22	8.29	15.47
Mar	0.07	2.65	5.45	9.82
Apr	0.00	0.81	2.32	5.88
May	0.00	0.00	0.83	2.60
Jun	0.00	0.00	0.02	0.80
Jul	0.00	0.00	0.00	0.00
Aug	0.00	0.00	0.00	0.22
Sep	0.00	0.00	0.11	1.15

5) The water year type estimated using the current water year cumulative precipitation and the total monthly precipitation are compared and the drier water year type is chosen as the overall water year type for the upcoming month. For example, cumulative precipitation predicted a "Dry" water year and total monthly precipitation estimated an "Average" water year, so the overall is estimated to be "Dry".

Minimum Flow Requirements

The minimum release requirements for all year types used for the studies without the Valve Replacement project are an average of the 2008 – 2016 historical releases shown in Table 3.11-5. These releases are used for all year types in the no project scenarios delivered through the Fisheries Base, then released to Rector Creek. For the Future condition scenarios, in addition to the deliveries to the Fisheries Base, the "with project" studies include the year type based interim flow proposal shown in Table 3.11-6. These releases would be made through the new valve directly to the creek at the base of the Rector Dam Spillway. Approximate total releases from Rector Reservoir to the creek is shown in Table 3.11-7. Converted to volumes, the releases to the creek are shown in Table 3.11-8 below.

Table 3.11-5. Average Minimum Flow Requirement

Water Year Type	Historic Average Fisheries Base Discharge (cfs)														
	Oct	Nov	Dec 1-15	Dec 16-31	Jan	Feb 1-15	Feb 16-30	Mar 1-15	Mar 16-31	Apr	May	Jun	Jul	Aug	Sep
All	0.2	0.3	0.8	0.8	1.6	2.0	2.0	2.6	2.6	2.3	1.7	0.5	0.0	0.0	0.0

Table 3.11-6. Proposed Environmental Release Schedule (Bypass Valve Only)

Water Year Type	Minimum Environmental Flow Releases (cfs)														
	Oct	Nov	Dec 1-15	Dec 16-31	Jan	Feb 1-15	Feb 16-30	Mar 1-15	Mar 16-31	Apr	May	Jun	Jul	Aug	Sep
Very Wet	0.6	0.5	0.7	1.7	1.9	2.0	2.0	1.9	1.9	0.2	0.8	0.5	0.8	0.8	0.8
Wet	0.5	0.4	0.5	0.5	1.9	2.0	2.0	1.9	0.4	0.2	0.8	0.5	0.5	0.5	0.5
Average	0.5	0.4	0.5	0.5	0.9	0.5	2.0	0.9	0.4	0.2	0.8	0.5	0.5	0.5	0.5
Dry	0.2	0.2	0.2	0.2	0.4	0.5	0.5	0.4	0.4	0.2	0.2	0.5	0.25	0.25	0.25
Very Dry	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.25	0.25	0.25

Table 3.11-7. Proposed Total Environmental Release Schedule (Fisheries Base and Bypass Valve)

Water Year Type	Minimum Environmental Flow Releases (cfs)														
	Oct	Nov	Dec 1-15	Dec 16-31	Jan	Feb 1-15	Feb 16-30	Mar 1-15	Mar 16-31	Apr	May	Jun	Jul	Aug	Sep
Very Wet	0.8	0.8	1.5	2.5	3.5	4.0	4.0	4.5	4.5	2.5	2.5	1.0	0.8	0.8	0.8
Wet	0.7	0.7	1.3	1.3	3.5	4.0	4.0	4.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Average	0.7	0.7	1.3	1.3	2.5	2.5	4.0	3.5	3.0	2.5	2.5	1.0	0.5	0.5	0.5
Dry	0.25	0.5	1.0	1.0	2.0	2.5	2.5	3.0	3.0	2.5	1.5	1.0	0.25	0.25	0.25
Very Dry	0.25	0.50	1.0	1.0	2.0	2.2	2.2	2.8	2.8	2.5	1.0	0.5	0.25	0.25	0.25

Table 3.11-8. Summary of CDFW Silverado Fisheries Base (Hatchery) and Proposed Interim Releases		
Water Year Type	**Existing Releases (AF)**	**Proposed Interim Releases (AF)**
Very Wet	720	1,444
Wet	720	1,285
Average	720	1,152
Dry	720	900
Very Dry	720	810

Consumptive Demands

Another factor affecting on the Rector Reservoir water supply is the buildout consumptive demands. Existing consumptive and future buildout demands are listed in Table 3.11-1, above. As shown in the table, buildout demands (1,841 AF) would be 613 AFY more than the existing annual demand of 1,228 -feet including 500 -feet for Napa State Hospital. Future demand at buildout is projected to be 1,341 -feet without the Napa State Hospital demand, which is 113 -feet more than existing annual demand.

Results

The results of the studies described above and detailed in *Appendix 3.3-D* of this DEIR are split into Existing Conditions (using an existing conditions baseline) and Future Conditions (using a future conditions baseline).

Existing Conditions

Existing condition studies represent current historic hydrology and existing demands. Table 3.11-9, below, summarizes the assumptions for both studies.

Table 3.11-9. Current Level Studies				
Scenario	**Hydrology**	**Study Period**	**Demand**	**Environmental Flows**
Existing Conditions	Historic	2008-2019	Current	Existing (2008-2016 Average Minimum Flow Requirement)
Existing Conditions with Project	Historic	2008-2019	Current	Proposed Project Flows

The only difference between these studies is the addition of the Proposed Project flows.

Figure 3.11-1 shows the increased releases to the creek as prescribed by Proposed Project. The additional releases have an impact on Rector Reservoir storage as shown in Figure 3.11-2. The storage deficit accumulates over the 3-year drought period from 2014 – 2016. Once the reservoir fills and spills the storage deficit resets.

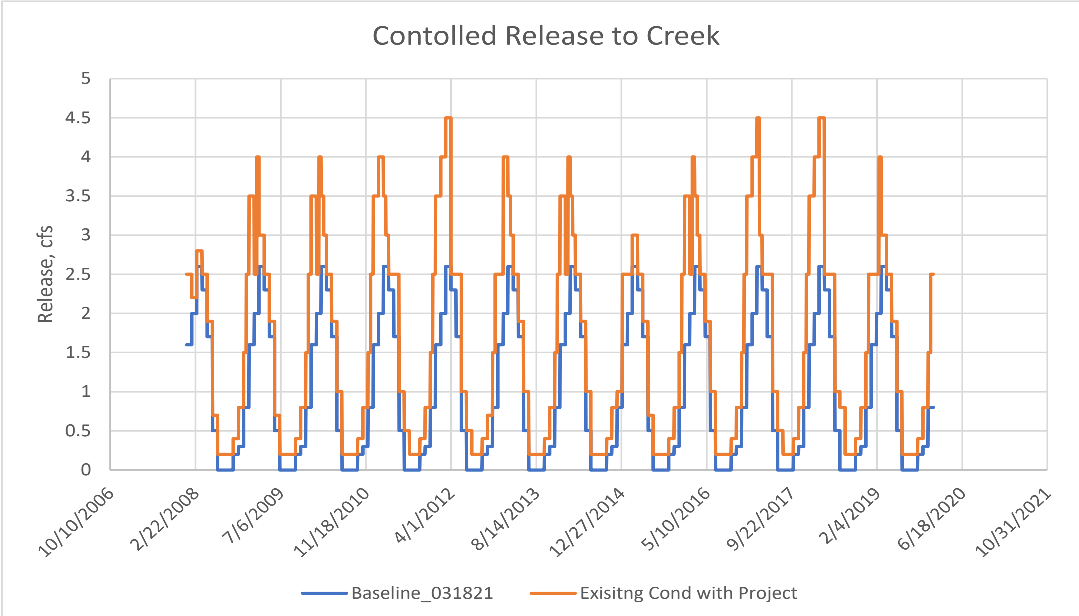


Figure 3.11-1. Controlled Release to Creek

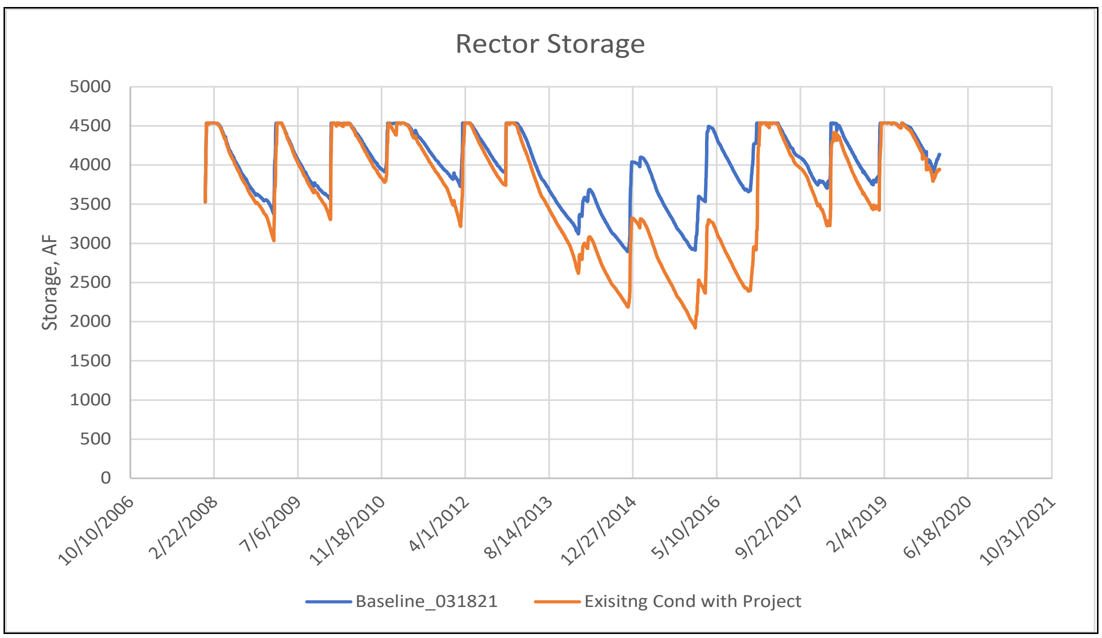


Figure 3.11-2. Existing Condition Rector Storage Comparison

The increased releases also cause a slight change to spills. As the reservoir is drawn down to accommodate the Proposed Project, spills, during the next fill cycle are generally reduced. Figure 3.11-3 shows the comparison of spills. In Figure 3.11-3, Blue lines visible above the orange illustrate spill rates that would be reduced with the Project. Where no or very little blue is evident, spills under the Project would be identical or similar to those that would occur without the Project.

Full consumptive deliveries of 1,228 AF were made in each year of the simulation as shown in Figure 3.11-4.

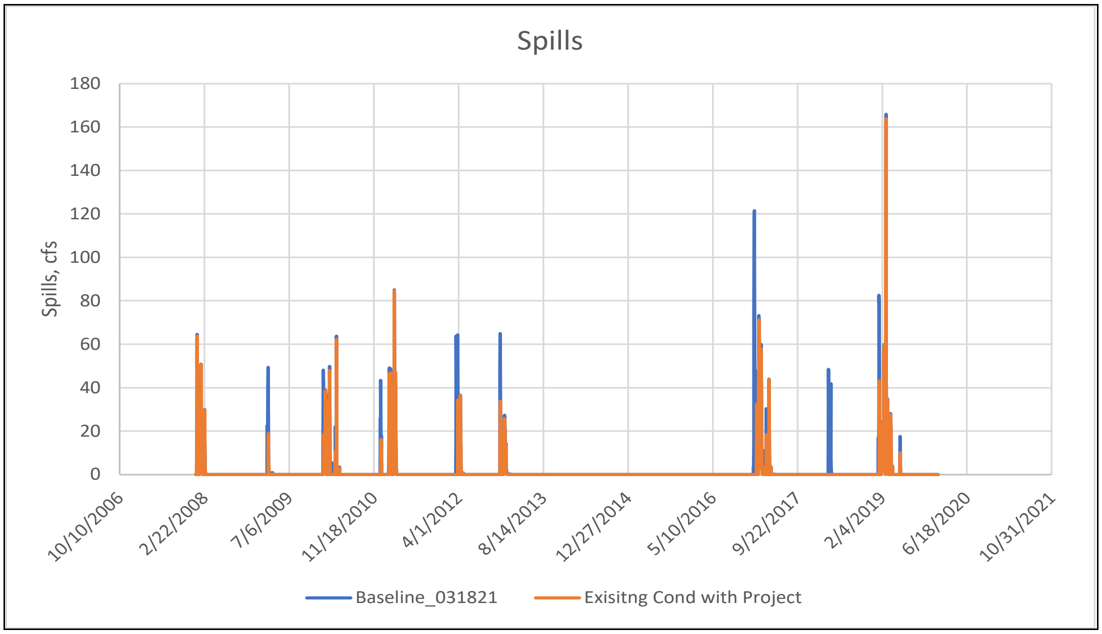


Figure 3.11-3. Existing Condition spill comparison

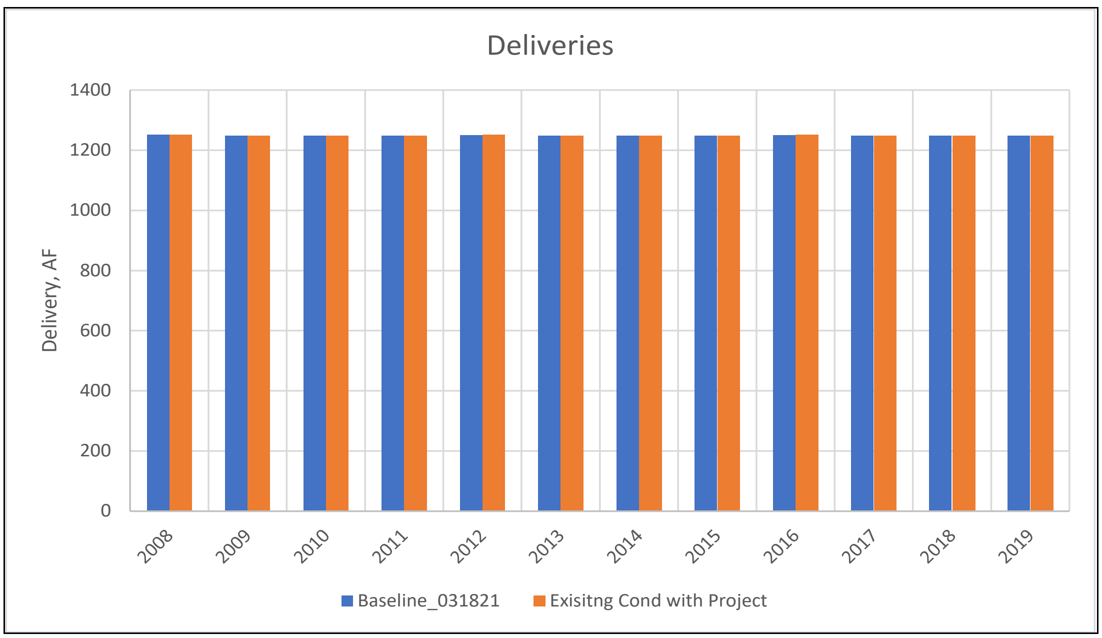


Figure 3.11-4. Deliveries

3.11.4 Conclusion

Based on the results presented above, the Rector Reservoir System could accommodate the Proposed Project release schedule at the existing level of water demand. Under these conditions, the system can operate within the normal storage range while meeting the existing system demand. While CalVet does typically request increased conservation and reductions in deliveries during critically dry years, this was not included as a factor in assessing the Project’s impact on system operations. Even without these potential reductions, however, the analysis above determined the system could operate within normal storage range while meeting demand, and CalVet would be able to meet current water delivery commitments to its customers. For these reasons, the Project's impact on water supply is ***less than significant***.

<u>Mitigation Measures</u>

None required.

3.11.5 Cumulative Impact

Impact 3.11-3: Project construction activities could contribute to the cumulative impact on significant environmental resources. Impact Determination: *cumulatively less than considerable with mitigation*.

Threshold:	*Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.*

Impact 3.11-1 above, addresses construction-related impacts of the Project water facilities and refers to the preceding sections (3.2 through 3.10) of this DEIR that identify significant impacts on environmental resources. As noted, with mitigation, those impacts are reduced to less than significant. Those sections also consider the Project contribution to the cumulative impact on each of the environmental resource areas associated with past, ongoing and foreseeable future probable projects. With proposed mitigation, the Project contribution to the cumulative impact on environmental resources addressed in the preceding sections is found to be ***less than considerable***.

Impact 3.11-4: Implementation of the Proposed Project Release Schedule could result in the inability of CalVet to meet future water delivery commitments to its customers. Impact Determination: *less than cumulatively considerable with mitigation.*

Threshold:	*Result in insufficient water supplies available to meet current water demand and demand due to reasonably foreseeable future development during normal, dry and multiple dry years.*

Impact 3.11-2 above, addresses whether implementation of the Proposed Project release schedule could result in the inability of CalVet to meet current water delivery commitments to its existing customers given the existing Project demand. As presented in Table 3.11-9, consumptive demand would increase with buildout of existing uses and the potential addition of new users. Additionally, the impact of future conditions on water supply would also be influenced by climate change.

The following analysis was prepared by Western Hydrologics (2021) (see *Appendix 3.3-D* of this DEIR) and addresses the cumulative impact of the Project on water supply taking into consideration reasonably foreseeable future development and climate change.

Future Condition

The Future Condition studies evaluate impacts to the Rector Reservoir operation using climate change hydrology. These studies also assume that consumptive demands have increased to a Build out level. This set of assumptions increases demands on the system. Results indicate that the Rector Reservoir System cannot meet the Project and Build out demands. Since Napa State Hospital has not requested water from Rector Reservoir since 1981 and they have another reliable source from the City of Napa, a second set of Future Condition studies were performed eliminating the 500 AF Napa State Hospital future demand. Table 3.11-10 illustrates key assumptions for each study.

Table 3.11-10. Future Level Studies

Scenario	Hydrology	Study Period	Demand	Environmental Flows
Future Conditions No Project	2070 Climate Change	2008-2019 modified by climate change factors	Build Out	Existing
Future Conditions No Project no NSH	2070 Climate Change	2008-2019 modified by climate change factors	Build Out without NSH Demand	Existing
Future Conditions with Project	2070 Climate Change	2008-2019 modified by climate change factors	Build Out	Proposed Project Flows
Future Conditions with Project no NSH	2070 Climate Change	2008-2019 modified by climate change factors	Build Out without NSH Demand	Proposed Project Flows

Future Condition - Build Out Demands with Napa State Hospital

The first set of Future condition studies performed includes full build out demands with climate change hydrology. These scenarios are known as the Future Condition No Project and the Future Condition with Project. Basic assumptions are listed in Table 3.11-11. The key difference between these two studies is the Proposed Project releases. Figure 3.11-5 illustrates the difference between the existing releases and the Proposed Project releases.

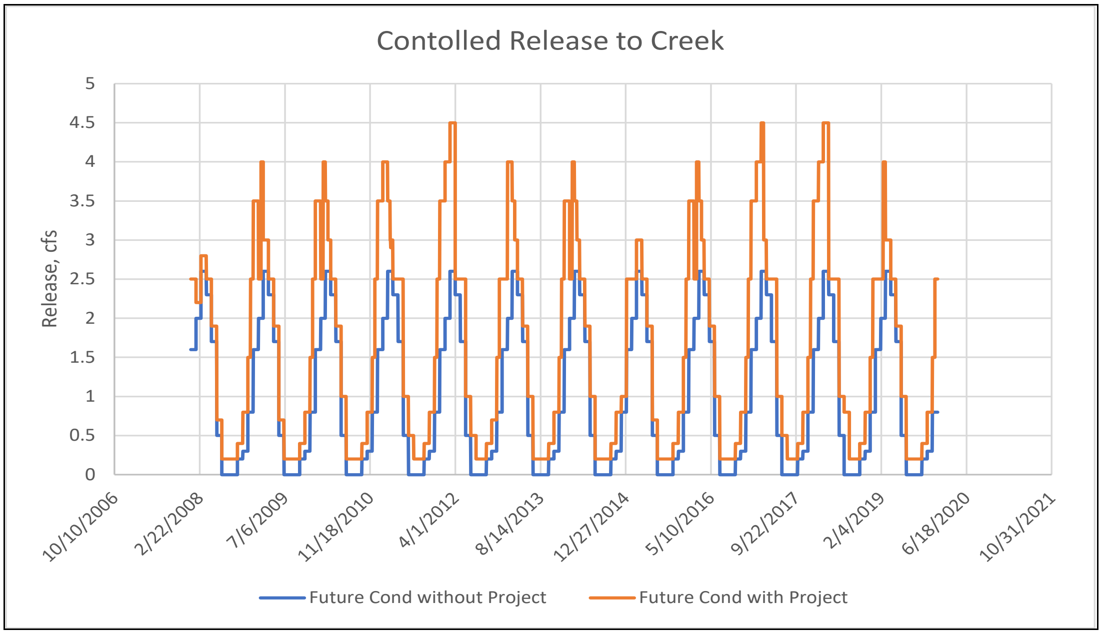


Figure 3.11-5. Future Condition Controlled Releases

Figure 3.11 6 illustrates the changes in storage. The additional delivery to meet build out demands and the increased Proposed Project releases cause Rector storage to drop to dead storage (478 AF) as shown by the Future Condition with Project study in orange. In addition, this operation would violate the water rights license by drawing down the reservoir by more than 1,767 AF in a one-year period during 2013.

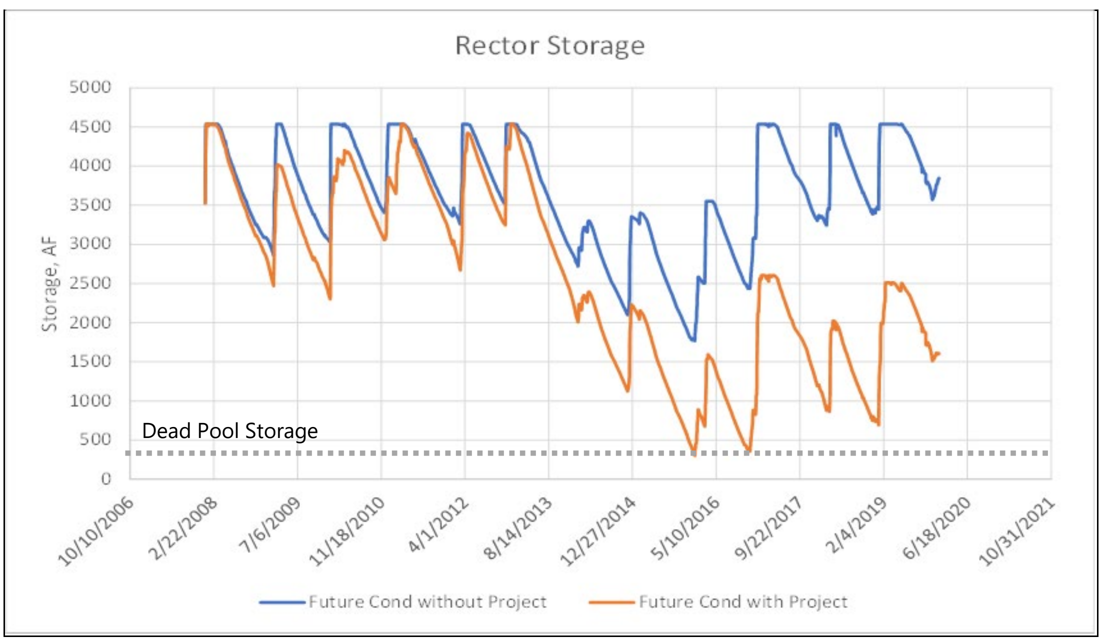


Figure 3.11-6. Rector Storage Comparison

With increasingly less storage, spills are further reduced in the Future Condition with Project study. See Figure 3.11-7. Full consumptive deliveries of 1,840 AF are assumed to be made in each year of the simulation as shown in Figure 3.11-8. However, the ability to actually make these deliveries is doubtful because water right limitations would likely be violated and the reservoir storage would be drawn down to dead storage in the event of a recurrence of conditions experienced during the 2013 -2015 drought.

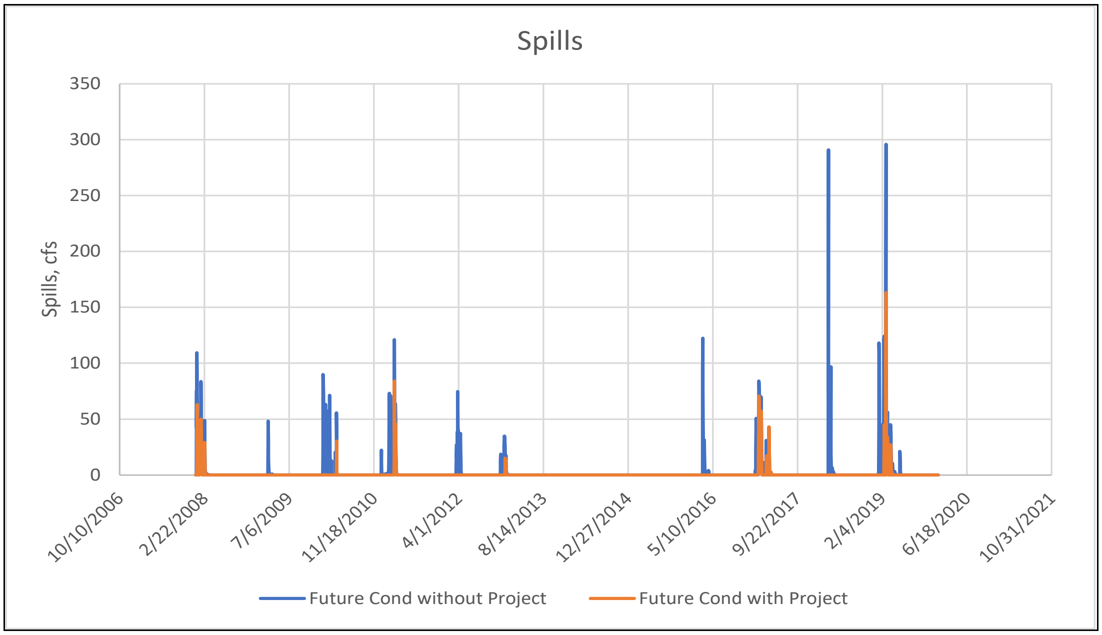


Figure 3.11-7. Spill Comparison

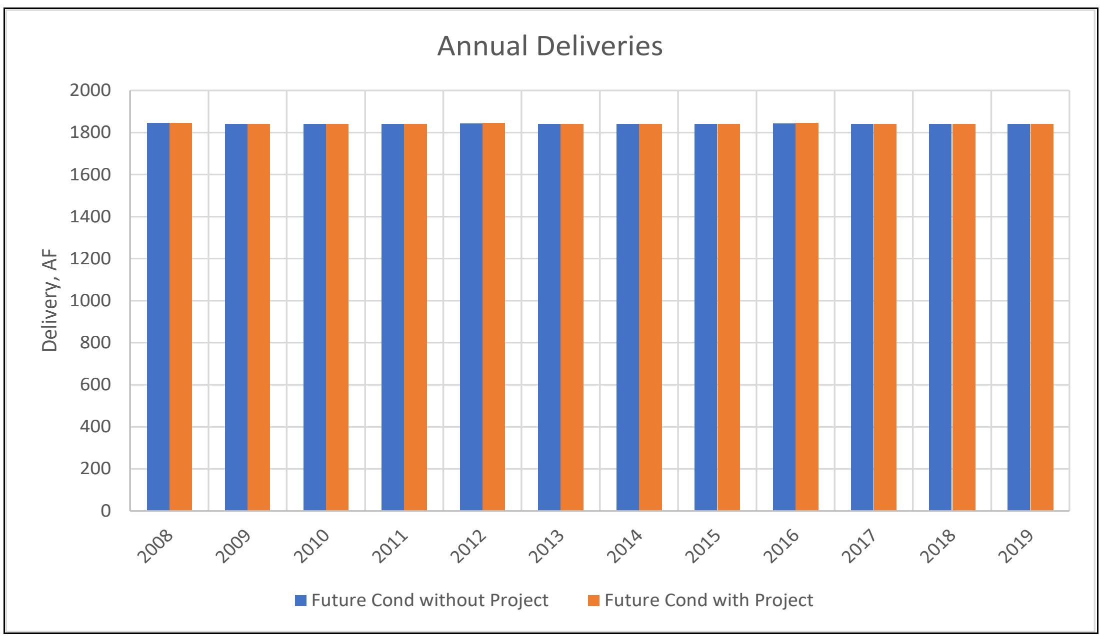


Figure 3.11-81. Deliveries

Future Condition - No Napa State Hospital Demand

The second set of Future Condition studies is identical to the first set with one exception. The Napa State Hospital demand of 500 AF has been eliminated.

Figure 3.11-8 illustrates the difference in releases to the creek. Those differences result in an additional draw down of Rector Reservoir as shown in Figure 3.11-10.

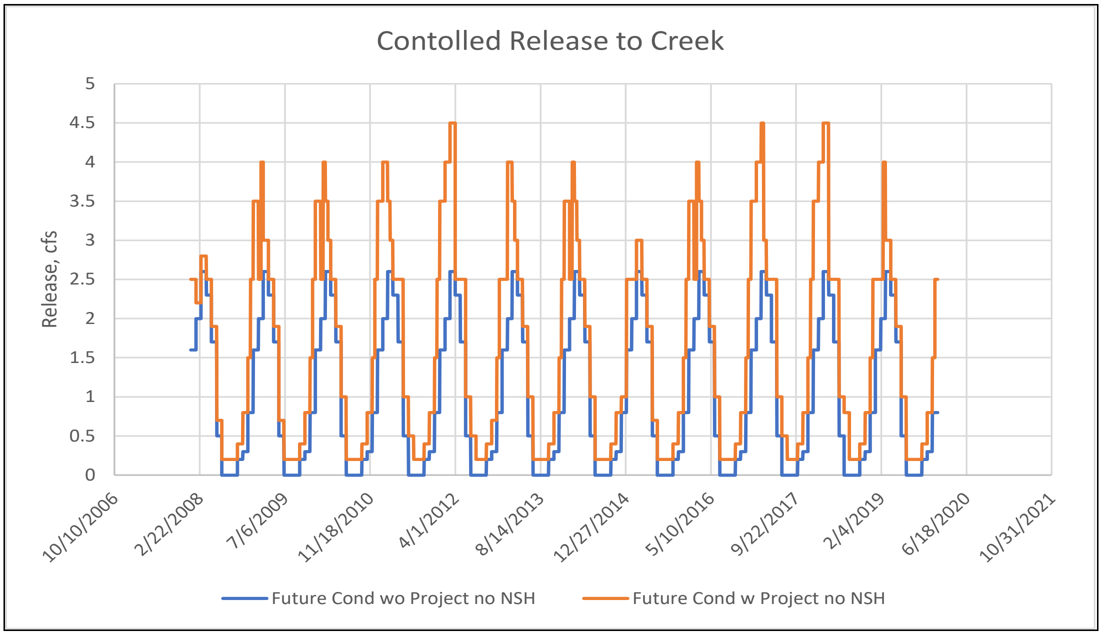


Figure 3.11-9. Controlled Releases

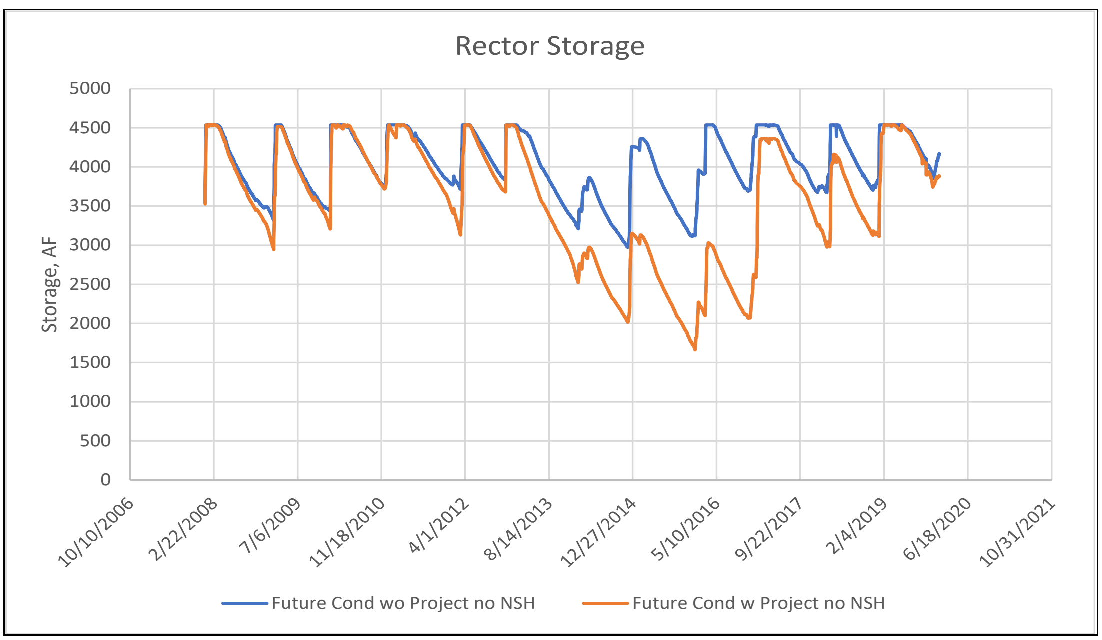


Figure 3.11-10. Storage Comparison

As in the other studies, the spills, shown in Figure 3.11-11, are reduced in the Future Condition under the Project no NSH scenario. Full consumptive deliveries of 1,341 AF are made in each year of the simulation as shown in Figure 3.11-12.

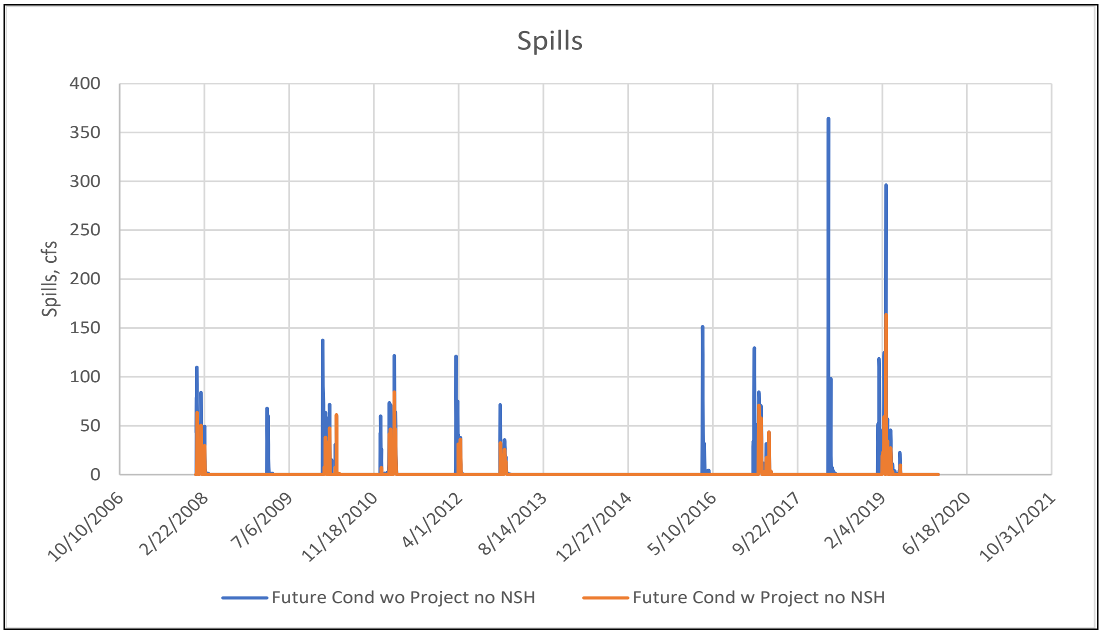


Figure 3.11-11. Spills

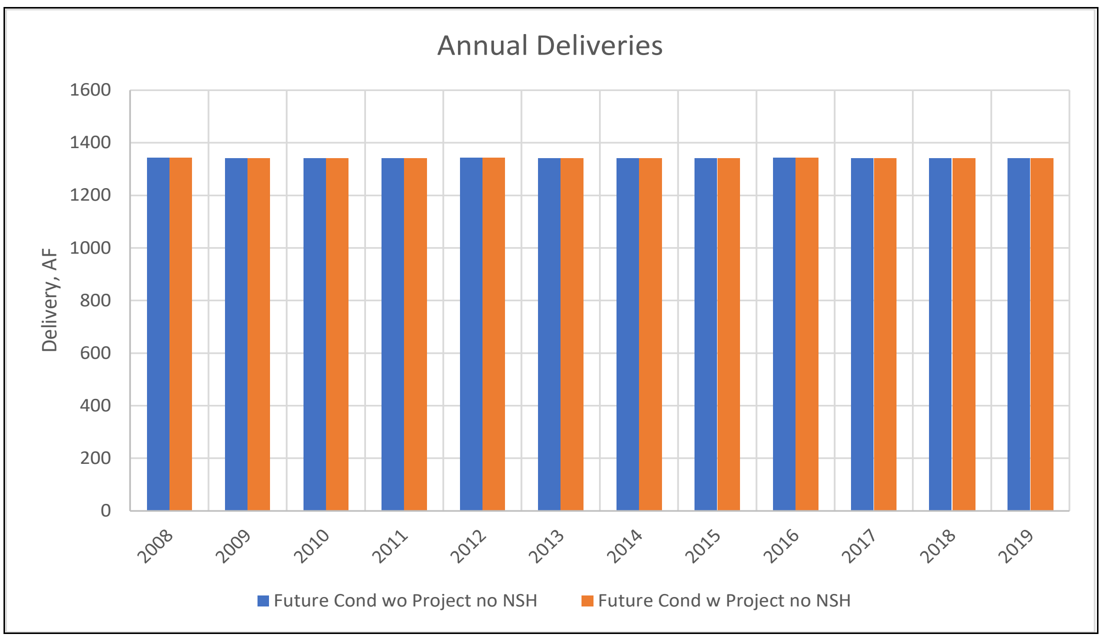


Figure 3.11-12. Deliveries

Conclusion

Based on the results presented above, the impact of future buildout and climate change on the Rector Reservoir system would have significant adverse effects on water supply with implementation of the proposed minimum environmental flow release schedule. The combination of full build out demand and the Project implementation would adversely affect reservoir operations and result in the inability of CalVet to meet future water delivery commitments to its customers. Water right limitations would likely be violated and the reservoir storage drawn down to dead storage in the event of a recurrence of conditions experienced during the 2013 -2015 drought assuming that future demand includes 500 AF/yr delivered to the Napa State Hospital. As such, the cumulative impact on water supply would be significant, and Project's contribution to the future impact on water supply would be cumulatively considerable. By eliminating the Napa State Hospital demand through mitigation, however, demands s on the system would be sufficiently eased, allowing the reservoir to operate within a normal range. For this reason, the Project's contribution is ***less than cumulatively considerable with mitigation***.

Mitigation Measure

UTIL-1: Alternate Water Supply to Napa State Hospital.

In the event that Napa State Hospital pursues a future agreement with CalVet to provide the hospital with up to 500 AF/yr of potable water, CalVet shall assess its water supply availability taking into account its interim or long-term environmental release schedule, whichever is in effect at the time, and its current consumptive water demand from existing customers. If CalVet determines such an agreement would adversely affect Rector Reservoir operations and result in infringement on the conditions of its water rights license and/or its ability to meet the consumptive water demand of its current customers, CalVet shall not enter into a new agreement with Napa State Hospital. CalVet shall then work with the hospital to identify and secure feasible alternative sources of potable water to meet its demand. An alternate water source includes, but, is not limited to, the City of Napa which currently supplies the hospital with potable water.

3.11.6 References

Barber, Teri Jo. 2017. *Veterans Home of California at Yountville Rector Reservoir Watershed Survey Update* July 23. Prepared by Teri Jo Barber, Professional Surface Water Hydrologist #00H-1535 American Institute of Hydrology, Professional Storm Water Design and Practitioner and QSD/P #21493. Prepared for Veterans Home and Rector Reservoir Surface Water Treatment Plant, California Department of Health Services Drinking Water Division.

California Water Commission 2021. Climate Change Projections for Water Storage Investment Program Open Data Portal as accessed via: https://data.ca.gov/dataset/climate-change-projections-for-water-storage-investment-program-wsip.

CalVet 2021. Personal communication. Email from D. Collison, CalVet, to C. Stabenfeldt, ECORP Consulting, Inc. April 27.

DWR 2013. *Rector Reservoir Water Yield Study, Napa County, California*. Prepared for the California Department of Veterans Affairs, Veterans Home of California, Yountville, California.

Stillwater Sciences 2021. Rector Creek Stream Fish Technical Memorandum.

_____. 2019. *Rector Creek Preliminary Instream Flow and Stream Habitat Assessment: Technical Memorandum*. July.

Western Hydrologics 2021. *Technical Memorandum: Rector Reservoir Operations Simulation Modeling.* Prepared for ECORP Consulting, Inc. by Jeff Meyer, Western Hydrologics. April.

4.0 ALTERNATIVES TO THE PROPOSED PROJECT

4.1 Introduction

The CEQA Guidelines specify that an Environmental Impact Report (EIR) must describe a reasonable range of alternatives to the project, or to the location of the project, which could feasibly attain most of the basic project objectives (Guidelines §15126.6(a)). The alternatives analysis must focus on alternatives that are capable of eliminating or substantially reducing the significant adverse impacts caused by the project (Guidelines §15126.6(c)), and alternatives to the "whole of the project" rather than the project's component parts. An EIR must include an alternatives analysis even if the EIR concludes that the project would not cause any significant adverse impacts.

The "no project" alternative, which considers impacts that would occur if existing conditions continue, must be considered (Guidelines §15126.6(e)), and the EIR must also identify the environmentally superior alternative. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The EIR should not consider alternatives "whose effect cannot be reasonably ascertained and whose implementation is remote and speculative." An EIR need not evaluate an alternative that is considered speculative, theoretical, or unreasonable. Not every potentially feasible alternative need be considered; rather, the relevant test is whether a "reasonable range" of feasible alternatives is considered for that particular project (Guidelines §15126.6(a)).

As discussed in Section 2.3, the primary purpose of the Proposed Project is to comply with state requirements under California Fish and Game Code 5937 to allow sufficient water to pass through Rector Dam to Rector Creek to keep fish resources below the dam in good condition while avoiding adverse impacts on all lawful users of water sourced from Rector Reservoir. Specifically, CalVet seeks to develop a flow regime with two stated goals:

1. Compliance Goal: To allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition, and prevent unlawful take of federally or state designated protected species; and

2. Water Management Goal: To maintain the other purposes of the dam's operations while accomplishing the Compliance Goal, specifically to reduce or avoid adverse water supply impacts to all lawful users of water sourced from Rector Creek that may result from environmental flow releases.

Based on the CEQA Guidelines, several factors need to be considered in determining the range of alternatives analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) significant impacts of the proposed project; (2) the ability of alternatives to avoid or substantially lessen the significant impacts attributable to the project; and (3) the feasibility of the alternatives. While not the determining factor, part of an element of selecting an alternative for consideration in an EIR is that alternative's ability to meet the objectives of the project.

The impact analyses presented in this DEIR indicate that the project would result in significant impacts on various resources. However, all of the significant impacts of the Project could be avoided or reduced to less than significant through implementation of mitigation measures identified in Chapter 3, and all mitigation measures identified in Chapter 3 are considered feasible. Therefore, with implementation of mitigation, the Project would not result in any significant or potentially significant impacts. Nevertheless, in keeping with CEQA requirements that an EIR must evaluate a reasonable range of project alternatives. This section also describes alternatives to the Project that were considered but eliminated from further analysis. Lastly, this section presents a detailed comparative analysis of three alternatives to the Project, including a "No Project Alternative" as required under Section 15126.6 of the CEQA Guidelines.

4.2 Alternatives Selected for Analysis

For purposes of this DEIR, three alternatives to the Project, including the No Project Alternative, were selected for further analysis. Section 4.3, below, discusses alternatives considered but eliminated from further analysis. The selection of alternatives for review in this DEIR meets CEQA requirements for the comparative analysis of alternatives to be presented in the EIR and constitute a reasonable range of alternatives for comparison to the Project. However, and as discussed further below, while these alternatives are considered to represent appropriate alternatives for compliance with CEQA, the alternatives would not necessarily achieve all of the project objectives and would not necessarily avoid or reduce significant effects of the Project (as noted above, the Project would not result in any significant or potential significant impacts with the implementation of mitigation measures identified herein). The alternatives selected for further analysis in this EIR consist of the following and each is described below:

- No Project Alternative;
- Alternative 1: Alternate Pipeline Alignment and Outfall Location; and
- Alternative 2: Enhanced Interim Environmental Release Schedule.

4.2.1 No Project Alternative

CEQA requires evaluation of the No Project Alternative. Under the No Project Alternative, the Rector Reservoir Bypass Valve Project would not be implemented. Specifically, Project facilities, i.e., the proposed "hot tap" connection, bypass pipeline, bypass valve, underground electrical/communications line, Rector Creek outfall, and erosion control features would not be constructed. Additionally, the proposed schedule of interim minimum environmental releases from Rector Reservoir to Rector Creek would not be implemented. CalVet would continue to operate Rector Reservoir as it has historically as summarized in Section 2.1, above, and as described in greater detail in Section 3.11. Under the No Project Alternative, CalVet would accommodate future anticipated increases in water deliveries as water demand for existing users increases with expected buildout of those uses as described in Section 3.11 above.

4.2.2 Alternative 1: Alternate Pipeline Alignment and Outfall Location

Early in the design development of the proposed Project and prior to the completion of the Wood Rodgers design report and 100% drawings, CalVet considered placement of the proposed Rector Creek outfall bypass pipeline outfall approximately 500 feet downstream of the Project outfall location (see

Figure 4-1). For purposes of this review, Alternative 1 would construct an outfall structure at that location connecting to an underground bypass water line placed within the alignment shown in Figure 4-1, below. Under Alternative 1 the bypass pipeline from the hot tap to the outfall structure would be approximately 1,200 feet in length. The Alternative 1 pipeline alignment would be approximately 760 feet longer than that proposed for the Project. The Project pipeline would be approximately 440 feet in length between the hot tap and outfall.

Aside from the location of the Alternative 1 outfall and the alignment of the pipeline connecting the outfall with the bypass valve, other features of the alternative, i.e., the bypass valve, electrical/communications line, hot tap and diversion pipeline would similar or identical to those of the Project. An evaluation of the potential for bank erosion at the Alternative 1 outfall site was not done and, thus, the need for the placement of riprap or other erosion control features to protect the outfall during high-flow events for Alternative 1 is unknown. For purposes of this evaluation, we assume that the placement of riprap at the Alternative 1 outfall location would be similar in quantity and aerial extent to that of the Project.

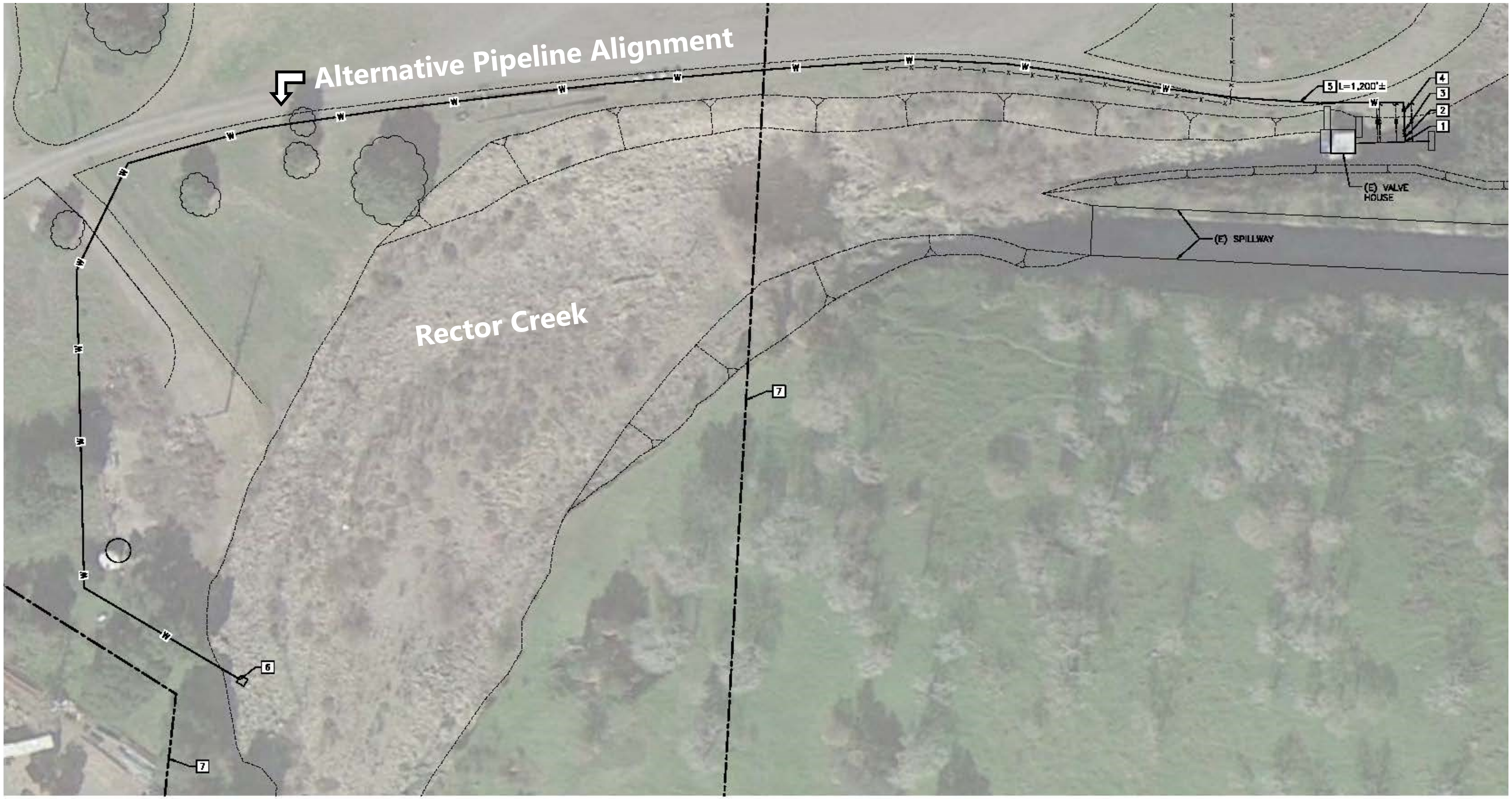
Under Alternative 1, the interim minimum environmental release schedule would be identical to that of the Project.

4.2.3 Alternative 2: Expanded Interim Minimum Environmental Release Schedule

Under Alternative 2 (Expanded Interim Minimum Environmental Release Schedule), releases from Rector Reservoir under the Project release schedule would be increased. The comparative assessment of Alternative 2 considers the potential benefit of increased releases to Rector Creek fish resources below Rector Dam relative to the interim release schedule proposed for the Project. This assessment also considers the Alternative’s effect on Rector Reservoir operations and water supply necessary to meet existing and future consumptive water demand for CalVet water users.

For purposes of this comparison, the proposed release rates from the Project bypass valve and outfall would be doubled under Alternative 2. Table 4-1 below, shows the Project interim release schedule from Table 3.11-7 above. Proposed Project release rates are shown in black font. The increased release rates that would be implemented under Alternative 2 are shown in red font. Releases shown in Table 4-1 would be made through the bypass valve and outfall structure, only. Releases to Rector Creek that would pass through the CDFW Hatcheries Base would continue as they have historically under both the Project and Alternative 2. Under Alternative 2, facilities construction to implement the alternative, i.e., the hot tap, bypass valve, water pipeline, electrical/communications line, outfall and erosion control, would be identical to those proposed for the Project.

Table 4-2 below lists the annual volumes of water released through the bypass outfall under the Project and Alternative 2.



NEW WORK KEYNOTES

1. CONNECT NEW 8"⌀ PIPE TO EXISTING 30"⌀ MAIN.
2. INSTALL NEW 8"⌀ GATE VALVE
3. INSTALL NEW METER WITH REMOTE READOUT
4. INSTALL NEW VALVE BOX WITH (2) CONSTANT FLOW VALVES
5. INSTALL NEW 8"⌀ UNDERGROUND WATER PIPE
6. PIPE OUTLET
7. ASSESSOR MAP PARCEL BOUNDRY

SITE PLAN - OPTION 2

SCALE: 0 7.5 15 30 FEET 60

1" = 30'

N

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 4-1. Alternative Pipeline Alignment and Outfall Location

2018-116.011 Rector Reservoir Bypass Valve Project

Table 4-1. Proposed and Alternative Environmental Release Schedule (Bypass Valve Only)

Water Year Type	Minimum Environmental Flow Releases (cfs)														
	Oct	Nov	Dec 1-15	Dec 16-31	Jan	Feb 1-15	Feb 16-30	Mar 1-15	Mar 16-31	Apr	May	Jun	Jul	Aug	Sep
Very Wet (Alt 2)	0.6 1.2	0.5 1.0	0.7 1.4	1.7 3.4	1.9 3.8	2.0 4.0	2.0 4.0	1.9 3.8	1.9 3.8	0.2 0.4	0.8 1.6	0.5 1.0	0.8 1.6	0.8 1.6	0.8 1.6
Wet (Alt 2)	0.5 1.0	0.4 0.8	0.5 1.0	0.5 1.0	1.9 3.8	2.0 4.0	2.0 4.0	1.9 3.8	0.4 0.8	0.2 0.4	0.8 1.6	0.5 1.0	0.5 1.0	0.5 1.0	0.5 1.0
Average (Alt 2)	0.5 1.0	0.4 0.8	0.5 1.0	0.5 1.0	0.9 1.8	0.5 1.0	2.0 4.0	0.9 1.8	0.4 0.8	0.2 0.2	0.8 1.6	0.5 1.0	0.5 1.0	0.5 1.0	0.5 1.0
Dry (Alt 2)	0.2 0.4	0.2 0.4	0.2 0.4	0.2 0.4	0.4 0.8	0.5 1.0	0.5 1.0	0.4 0.8	0.4 0.8	0.2 0.4	0.2 0.4	0.5 1.0	0.25 0.5	0.25 0.5	0.25 0.5
Very Dry (Alt 2)	0.2 0.4	0.2 0.4	0.2 0.4	0.2 0.4	0.4 0.8	0.2 0.4	0.2 0.4	0.2 0.4	0.2 0.4	0.2 0.4	0.2 0.4	0.2 0.4	0.25 0.5	0.25 0.5	0.25 0.5

Table 4-2. Summary of CDFW Silverado Fisheries Base (Hatchery) and Environmental Releases

Water Year Type	Existing Releases (AF)	Proposed Interim Releases (AF)	Alternative 2 Interim Releases (AF)
Very Wet	720	1,444	2,168
Wet	720	1,285	1,850
Average	720	1,152	1,584
Dry	720	900	1,080
Very Dry	720	810	900

4.3 Alternatives Considered but Eliminated from Further Analysis in this DEIR

Section 15126.6(a) of the CEQA Guidelines states:

> "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason."

In developing its approach to addressing the complaint by Water Audit and to fully comply with Fish and Game Code Section 5937, CalVet considered using existing facilities to implement its minimum environmental release schedule and, thus, avoid the need to construct a new bypass valve, pipeline, and outfall. This approach would use its existing diversion pipeline to the CDFW Fisheries Base to release water to Rector Creek at the base. Ongoing diversions to the base would be supplemented as needed to achieve the minimum environmental release schedule. This approach, however, was determined to be impractical for a number of reasons. Primarily, CDFW was unwilling to consent to use of its facilities to implement the expanded releases. Additionally, CalVet was concerned that the reliance on existing facilities would limit its ability to precisely monitor and manage releases it would implement under the new schedule.

4.4 Comparative Analysis of Project Alternatives

4.4.1 Introduction

This section examines the potential environmental impacts associated with each alternative relative to the Project. Through comparison of these alternatives to the Project, the relative environmental advantages and disadvantages of each are evaluated. The section is organized by environmental resource area in the same order as presented in Section 3 of this DEIR. Under each resource area, the comparative environmental advantage/disadvantage of each alternative relative to the Project is assessed.

4.4.2 Air Quality

4.4.2.1 No Project Alternative

Under the No Project Alternative, CalVet would not construct new bypass facilities and would not implement the proposed environmental release schedule. As such, the alternative would have no impact on air emissions relative to existing conditions.

4.4.2.2 Alternative 1

Air pollutant emissions associated with construction of the Project are detailed in Section 3.2 of this DEIR. Construction activities for the Project would result in the emission of air pollutants and odors from various sources including, but not limited to, the operation of construction equipment, haul trucks, construction personnel transport, and vegetation removal. Projected emissions were quantified based on anticipated construction activities and duration and found to be less than significant, as discussed in Section 3.3 of this DEIR.

As with the Project, construction activities for Alternative 1 (Alternate Pipeline Alignment) would result in the emission of air pollutants via a number of sources including but not limited to the operation of construction equipment, haul trucks, construction personnel transport, and vegetation removal. Air emissions for the Project were quantified and presented in Section 3.2. As shown in Table 3.2-6 (Construction-Related Emissions), Project construction emissions would be within established BAAQMD significance thresholds and, therefore, the impact would be less than significant.

Construction activities for Alternative 1 would be similar to and, in some cases (i.e., hot tap and bypass valve installation) identical to that of the Project. Pipeline construction between the bypass valve and outfall, however, would cover approximately 1,200 linear feet for the alternative relative to approximately 440 feet for the Project. This extension would extend the 10-day construction period projected for the

Project pipeline. We estimate the pipeline construction period could be extended by a minimum of five days.

As discussed in Section 2.2.1 of this DEIR, we estimate that 160 yards of native soil would be exported from the Project site and 160 yards or engineered fill would be imported to the site to accommodate pipeline construction. The extension of the Project pipeline by approximately 760 feet under Alternative 1 would require the export of an additional 275 yards of native soils and the import of 275 additional yards of engineered fill relative to the Project.

As discussed in Section 3.2, construction-related air emissions due to the Project would be temporary and consistent with existing policies and plans. Impacts of the Project on air quality were found to be less than significant without implementation of mitigation. While emissions due to pipeline construction activities under Alternative 1 would be of longer duration than the Project, daily emissions during construction would be similar. As such, Alternative 2 construction-related emissions, as with the Project, likely would not exceed daily maximum emission thresholds.

As noted above, long-term operation of Alternative 2 would be identical to that of the Project and, thus, any effects of project operations on air quality would be the same as those of the Project.

4.4.2.3 Alternative 2

As noted, Project construction activities under Alternative 2 would be identical to those of the Project. The analysis and findings related to air emissions during construction described in Section 3.2 of this DEIR, therefore, would also apply to Alternative 2.

As described in Section 3.2 above, the Project would not include the provision of new permanent stationary or mobile sources of criteria air pollutant emissions, and therefore, would not generate quantifiable criteria emissions from Project operations. Thus, there would be no operational impacts concerning air pollutant emissions. This finding also applies to long-term operations under Alternative 2.

4.4.3 Biological Resources

4.4.3.1 No Project Alternative

Under the No Project Alternative, Project construction activities would not occur. Thus, significant impact on biological resources due to construction under the Project would be avoided.

Under the No Project Alternative, releases to Rector Creek under the proposed interim minimum environmental release schedule would not occur. As such, the Project objective to comply with California Fish and Game Code 5937 and "to allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition and prevent unlawful take of federally or state designated protected species" would not be realized.

4.4.3.2 Alternative 1

The potential for significant construction-related Project impacts on biological resources is described in Section 3.3 of this DEIR. Significant impacts on various sensitive resources including special status wildlife resources (Impact 3.3-1), riparian habitat and other sensitive natural communities (Impact 3.3-2), waters of the U. S. and State (Impact 3.3-3), and consistency with local policies or ordinances (Impact 3.3-5). With the implementation of mitigation measures listed in Section 3.3, these impacts would be reduced to less than significant.

No biological surveys were conducted for portions of the Alternative 1 pipeline alignment and outfall location that extend beyond the Project alignment and the presence or absence of sensitive biological resources in those areas has not been quantified. Based on the close proximity of the Alternative 1 pipeline and outfall location however, it is reasonable to assume that potential effects of Project construction on species and habitat would be similar to that of the Project. Construction of Alternative 1, however, would require the construction of an additional 760 feet (approximately) of pipeline between the proposed bypass valve and outfall than would be constructed under the Project. As shown in Figure 4-1 above, much of the additional footage would be constructed adjacent to, and north of the streambank. Based on reviews of aerial photograph of this area and casual observations during the 2020 Project site visit by ECORP, this area is transected by an unpaved road/path which is bordered by areas of ruderal vegetation and riparian woodland.

There is no evidence to suggest that any significant Project impact identified in Section 3.3 of this DEIR would be avoided under Alternative 1. Implementation of all mitigation measures recommended for the Project in Section 3.3 would also apply to this alternative. The expanded length of pipeline construction under Alternative 2 and the pipeline location in undeveloped areas immediately north of the Rector Creek streambank suggest the requirement for mitigation for Alternative 1 would be greater than that for the Project, particularly for Impact 3.3-2 (riparian habitat and other sensitive natural communities), although that has not been verified.

4.4.3.3 Alternative 2

As noted, construction activities under Alternative 2 would be identical to those of the Project. The impacts of Alternative 2 construction, therefore, would be the same for the Project.

As described in Section 4.2.3 and shown in Table 4-1 above, Alternative 2 would increase interim minimum environmental release rates. As shown in Table 4-2, the total annual volume of release to Rector Creek would also increase under Alternative 2 relative to the Project. In most cases, the effect of long-term operations under Alternative 2 on sensitive environmental resources would be identical or similar to that of the Project. Increases in releases to Rector Creek under this alternative could, however, enhance the beneficial effect on Rector Creek fish resources that would occur under the Project.

By increasing releases as shown in Table 4-1, the primary benefit to fish is the potential improvements to water quality in isolated pools used by native fish during the dry summer months. As described in Section 3.3.3 above, lower Rector Creek is a low gradient stream traversing a coarse-grained alluvial fan with high infiltration rates, resulting in intermittent pools and connected run habitats during the dry season. Water quality is generally good, consisting of cool and highly oxygenated water that provides suitable conditions for native fish residing in isolated pools during the dry summer months. Spawning habitat for steelhead and other salmonids is limited, with very few deposits of suitable sized gravels and limited recruitment of gravels from upstream due to the presence of Rector Dam. Large boulders and woody material are scarce within the channel. The isolated pools are generally 2-2.5 ft in depth; however, a large pool upstream of Silverado Trail is approximately 8 ft deep. Riparian conditions in lower Rector Creek range from sparsely vegetated with no overstory to densely vegetated with overhead canopy and riparian understory.

Given this description of lower Rector Creek above, increases in releases of the magnitude proposed for Alternative 2 would not substantially improve stream connectivity and ability of fish to move along the stream channel relative to the Project. This is most evident during the dry summer months when proposed releases will do little to establish connections between isolated pools within which resident species reside in summer. Releases to the lower creek would enhance flows for mitigation and spawning during the wet season, but this effect would be overshadowed by spill flows from Rector Dam and would be of limited benefit given the low quality of salmonid spawning and rearing habitat in Rector Creek below the Dam.

The primary beneficial effect of the increased reservoir releases to Rector Creek, relative to the Project, is the likely improved water quality, i.e., reduced water temperatures in isolated pools downstream of the dam. This effect has not been modeled or quantified, but it is reasonable to conclude that, based on analysis presented in Stillwater (2018) and the discussion above, increased releases to the creek could reduce temperatures in downstream isolated pools. As such, the benefit of Alternative 2 to resident and migratory fish in lower Rector Creek would be equal to, or greater than, that of the Project.

4.4.4 Cultural Resources

4.4.4.1 No Project Alternative

Under the No Project Alternative, the construction of new facilities would not occur. As such, there would be no impact on known or unknow significant cultural resources that could occur with Project construction. No potential impact on cultural resources would occur due to long-term Project operation and none would occur under the No Project Alternative.

4.4.4.2 Alternative 1

As described above, Alternative 1 would relocate the proposed outfall to a location approximately 500 feet downstream of the Project location. Under Alternative 1, the pipeline connecting the bypass valve to the outfall would be run approximately 1,200 feet, roughly 760 feet longer than the Proposed Project pipeline. Aside from the outfall location, erosion control for the outfall structure, and extended pipeline alignment. All other construction features of Alternative 1 would be identical or similar to the Project.

As discussed in Section 3.4, literature and data base searches in combination with cultural resource surveys of the Project Site identified no resources of historical significance or unique archaeological resources on the Project site. The analysis, however, recognized the potential for Project excavation activities to uncover previously unknown significant historical and/or archaeological resources. This is considered a significant impact, but mitigable to less than significant with implementation of mitigation measure CUL-1. Additionally, with implementation of mitigation measure CUL-2, the potential impacts related to the discovery of human remains would be reduced to less than significant.

Segments of the Alternative 1 pipeline alignment that are common with the Project were surveyed and evaluated as described in Section 3.4. The Alternative 1 outfall/erosion control site and the segment of pipeline that would be placed west of the Project alignment, however, were not surveyed for historical or archeological resources. The presence or absence of known resources in these areas therefore is unknown. The potential for Alternative 1 excavation activities to uncovered previously unknown significant historical or archeological resources, or human remains, would be similar to that identified for the Project and require implementation of mitigation measures **CUL-1** and **CUL-2** to reduce those impacts to less than significant.

4.4.4.3 Alternative 2

As noted, construction activities under Alternative 2 would be identical to those of the Project. Therefore, potential impacts on known and unknown historical and archaeological resources due to construction would be identical to those identified for the Project, as would the requirements for impact mitigation.

As described in Section 3.4, Project operations would not result in significant impact on cultural resources. Alternative 2 would increase releases to Rector Creek relative to the Project, but these increases also have no impact.

4.4.5 Geology, Soils and Paleontological Resources

4.4.5.1 No Project Alternative

Under the No Project Alternative, the construction of new facilities would be avoided, and no impacts on geological, soils or paleontological resources would occur.

4.4.5.2 Alternative 1

As with the Project, construction activities required to implement Alternative 1 would result in no impact on unique geological resources. As noted previously, many of the activities associated with the construction of this alternative (i.e., hot tap installation, diversion pipeline installation, bypass valve construction, and electrical/communication line installation) would be identical to the Project. However, the location proposed for outfall construction under Alternative 1 would require the installation of approximately 760 feet of additional pipeline relative to the Project. As such, Alternative 1 would require more on-ground disturbance than the Project and, thus, a higher potential for project site storm-induced erosion and sedimentation transport from the construction site to Rector Creek. Nevertheless, all construction activities for the Project and Alternative 1 would require conformance with applicable federal and state regulations pertaining to grading and erosion control measures described in Section 3.5 and the impact for both would be less than significant with mitigation.

As described in Section 3.5 above, a search of the UCMP data base failed to indicate the presence of paleontological resources in the areas potentially affected by construction activities. Additionally, soils mapped in the project area are too young to be fossiliferous. Furthermore, as there are no older sedimentary units mapped in the vicinity, the adjacent andesite flow breccias continue in the subsurface directly below the Holocene layer and that particular lithology in the Sonoma Volcanics is not known, nor is it likely, to preserve fossils. As indicated, this determination applied to the general vicinity of the Project, which includes areas affected by Alternative 1 construction activities. For this reason, both the Project and Alternative 1 would have no impact on paleontological resources.

4.4.5.3 Alternative 2

Section 3.5 of this DEIR addresses only the impact of construction-related activities on storm-generated erosion and sedimentation. As construction activities for the Project and Alternative 2 would be identical, the impact of Alternative 2 on geology, soils and paleontological resources would be identical to those of Project described in Section 3.5 above.

The potential for Project and Alternative 2 modifications to stream flow and channel morphology including bank erosion and sedimentation are addressed in Section 3.8 (Hydrology and Water Quality) above. A comparative assessment of the Project impact relative to Alternative 2 release increases is addressed in Section 4.4.8, below.

4.4.6 Greenhouse Gas Emissions and Climate Change

4.4.6.1 No Project Alternative

Under the No Project Alternative, the construction of new facilities would not occur and construction-related GHG emissions would not occur.

4.4.6.2 Alternative 1

As with the Project, construction activities associated with Alternative 1 would result in the emission of GHG during construction. GHG emissions for the Project were quantified and presented in Section 3.6 of this DEIR and both construction-related and operations emissions are considered to be less than significant. While many of the activities associated with the construction of Alternative 1 (i.e., hot tap installation, bypass valve installation, outfall/erosion control placement) would be similar or identical to that of the Project, overall construction emissions would be higher under Alternative 1 due to the extended length of pipeline construction under the alternative.

As shown in Section 3.6 of this DEIR, Project construction would result in the generation of approximately 129 metric tons of CO_2e over the course of construction, of which, only 15 tons would be generated by pipeline construction. Once construction is complete, the generation of these GHG emissions would cease. As modeled, the Project would not exceed the significance threshold of 660 metric tons of GHG emissions per year. Even with the expansion of pipeline construction activities under Alternative 1, for the reasons presented above, GHG emissions would be well below the 660 metric ton annual threshold.

4.4.6.3 Alternative 2

As noted above, GHG emissions due to the project would be due to construction activities, only. As construction activities under Alternative 2 would be identical to Project construction activities, so too would GHG emissions.

4.4.7 Hazards and Hazardous Materials

4.4.7.1 No Project Alternative

The construction of new facilities would not occur under the No Project Alternative thus, any potential impact on the environment due to the transport, handling and storage of hazardous materials during construction would be avoided.

4.4.7.2 Alternative 1

As with the Project, construction activities associated with Alternative 1 would involve the transport, storage, and use of hazardous materials such as gasoline, diesel fuel, and various other construction materials. Protections are required by regulation to mitigate the potential for the accidental release of chemicals, fuels, lubricants, and other potentially hazardous materials during project construction. Hazardous materials must be stored in designated areas designed to prevent accidental release to the environment. CBC requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards.

As a result of existing hazardous materials regulations discussed above and described in detail in Section 3.7 above, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. These standards would also apply to construction of Alternative 1. Given that the transport, storage and use of materials under Alternative 1 would not be substantially different than the Project, the impact too would be considered less than significant.

4.4.7.3 Alternative 2

Under Alternative 2, construction activities, and the transport, use and storage of hazardous materials during construction would be identical to that of the Project.

4.4.8 Hydrology and Water Quality

4.4.8.1 No Project Alternative

Under the No Project Alternative, proposed construction of bypass and outfall facilities would not occur. Releases to Rector Creek from Rector Reservoir will continue to be limited to spills, occasional discharge from the Rector Dam Valve House, and flow through from the CDFW Fisheries Base. The proposed interim minimum environmental release schedule would not be implemented. As such, the Project objective to comply with California Fish and Game Code 5937 and "to allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition and prevent unlawful take of federally or state designated protected species" would not be realized.

4.4.8.2 Alternative 1

Section 3.8 of this DEIR addresses the impact of the Project on water quality and hydrology due to the construction and operation activities related to the alteration of Rector Creek. Under Alternative 1, construction activities associated with the Project would be expanded to extend the proposed water pipeline by approximately 760 feet relative to the Project and relocate the proposed outfall to a location on the north bank of Rector Creek approximately 500 feet downstream of the proposed Project outfall. Under both project scenarios, the potential impact from construction activities would be significant and require mitigation. With implementation of mitigation measure **HYD-1**, the potential construction-related impacts would be reduced to less than significant.

Long-term operations of Alternative 1, specifically, implementation of the interim minimum environmental release schedule, would be identical to that of the Project.

As described in Section 3.8, the placement of the Project outfall and its operation within the north bank of Rector Creek could result in increased erosion due to alteration of the course of Rector Creek during high flow conditions and/or as a result of outfall discharges. This impact, however, was found to be less than significant with features included in the Project design which include the placement of erosion controls, i.e., riprap, upstream and downstream of the outfall location.

As noted, Alternative 1 would place the outfall approximately 500 feet downstream of the Project location. Although placement of the Alternative 1 outfall at that location has not been subject to detailed design review, it is reasonable to assume that erosion control, including the placement of riprap in quantities similar to that of the Project and of similar aerial extent would be adequate to avoid significant impact due to streambank erosion.

4.4.8.3 Alternative 2

As noted, construction activities under Alternative 2 would be identical to those of the Project. Therefore, the potential impact of Alternative 2 construction activities on erosion and water quality would be identical to that of the Project.

As described in Section 3.8, implementation of the interim environmental release schedule would result in discharges at the proposed outfall structure of up to a maximum of 4.5 cfs. Implementation of the minimum release schedule in combination with continued discharges from the CDFW Fisheries Base, however, would limit discharges from the proposed bypass outfall to a maximum of 2.0 cfs in very wet years and a minimum of 0.25 cfs in critically dry years. Maximum discharges under the Project would occur in March during “Wet” and “Above Normal” water years. The upper physical limit of the proposed bypass valve as proposed is shown in Section 2 of this DEIR and described in Wood Rodgers (2020) is 9.01 cfs. As shown in Table 4-1 above, the maximum discharge at the outfall under Alternative 2 would be 4.0 cfs.

At the pipeline terminus, a concrete headwall with a check valve would be installed. Immediately downstream of the headwall, riprap or engineered energy dissipation/slope protection would be constructed to dissipate the energy of water released from the outfall and avoid potential streambed incision and sediment transport that could result from such incision. The extent (square footage, depth, and rock size) of the proposed rip rap is determined by the velocity of the water. The proposed design of the energy dissipation structure is based on a maximum flow rate of 10 cfs, yielding a velocity of just over 12 feet/second (fps). To accommodate this velocity without significant streambed erosion or sediment transport, a riprap apron approximately 8 feet wide by 10 feet long, and 3.5 ft deep, utilizing ½ ton rock is proposed. For purposes of this analysis, we assume final design of the Alternative 2 outfall structure would employ the same design criteria for the outfall structure and erosion control as was used for the Project. As designed, the impact of outfall discharges on the streambed adjacent to the outfall under both the Project and Alternative 2 would be less than significant.

4.4.9 Noise

4.4.9.1 No Project Alternative

Under the No Project Alternative, the construction of new facilities would be avoided. As such, the alternative would have no impact on noise generation due to construction.

4.4.9.2 Alternative 1

Noise generated by Project construction and operations is assessed in Section 3.9 of this DEIR. That analysis found that Project construction noise during construction activities and as a result of increased traffic in support of those activities would be well below local noise standards.

As previous described, Alternative 2 would construct a longer pipeline than the Project. Additionally, the western extent of the project site would be approximately 500 feet closer to the residence on the west side of Silverado Trail. While the duration of construction activities for pipeline construction would be longer under Alternative 1 daily activities, including materials deliveries are not expected to be substantially different. As such, noise generated by Alternative 1 construction would not exceed local standards and, as with the Project, would be considered a less-than-significant impact.

Operation of the Alternative 1, as with the Project, would not be a substantial source of noise.

4.4.9.3 Alternative 2

As noted, construction activities under Alternative 2 would be identical to those of the Project. Therefore, the potential impact of noise generated during construction of Alternative 2 would be identical to that of the Project. Project operations under the Project or Alternative 2 would not generate any new sources of noise.

4.4.10 Tribal Cultural Resources

No Project Alternative

No construction or operational changes would occur under the No Project Alternative. Thus, the alternative would have no impact on TCRs.

4.4.10.1 Alternative 1:

Project impact on TCRs were assessed in preparing this DEIR and the results presented in Section 3.10 above. No TCRs were identified within or immediately adjacent to the Project area and therefore, the Project would not result in a significant impact to known TCRs. However, research indicates there are TCRs in the vicinity of the Project Area, and these may be unearthed during construction. Project contactors and construction personnel are often not briefed on how to identify such resources when they are uncovered.

The impact on unknown TCRs that may be discovered during project construction, therefore, is considered significant. With the implementation of mitigation measures **TCR-1** and **TCR-2**, however, the impact of the Project would be reduced to less than significant.

As discussed previously, Alternative 1 would relocate the proposed outfall location to a location approximately 500 feet downstream of the proposed location. Connection to the outfall would require construction of an additional 760 of pipeline compared to the Project. Because the entirety of the Alternative 1 pipeline alignment was not included in Project site surveys, it is unknown if TCRs are present within the alternative pipeline alignment. The presence of subsurface resources is also a possibility as has been identified for the Project. As with the Project, implementation of mitigation measures **TCR-1** and **TCR-2** would reduce the potential impact of Alternative 1 construction on TCRs.

4.4.10.2 Alternative 2

Under Alternative 2, construction activities would be identical to those of the Project. Therefore, the potential impact on TCR's would be identical to that of the Project.

4.4.11 Utilities and Service Systems: Water Supply

4.4.11.1 No Project Alternative

Under the No Project Alternative, no new facilities construction would occur on the Project Site and the proposed interim minimum environmental release schedule would not be implemented. The No Project Alternative would have no impact on CalVet's ability to meet consumptive water demand.

4.4.11.2 Alternative 1

Alternative 1 would construct the proposed bypass pipeline and outfall in alternate locations relative to the Project but would implement the same interim minimum environmental release schedule as proposed for the Project. Section 3.11 of this DEIR addresses the potential effects of implementation of the release schedule on Rector Reservoir operations and water supply, i.e., CalVet's ability to continue to meet the consumptive demand of its water customers. Given that the release schedule implemented under Alternative 1 would be identical to the Project, the impact of Alternative 1 on reservoir operations and water supply would be identical to that of the Project.

4.4.11.3 Alternative 2

As noted, Section 3.11 of this DEIR addresses the effects of implementing the proposed environmental release schedule on Rector Reservoir operations and CalVet water supply. Under Alternative 2, the proposed release rates would be doubled (see Table 4-1 above). As a result, the total volumes of releases from Rector Reservoir through the bypass outfall during various water-year types would also be doubled (see Table 4-2, above).

Based on the results presented in Section 3.11, the Rector Reservoir System could accommodate the Proposed Project release schedule at the existing level of water demand. Under these conditions, the system can operate within the normal storage range while meeting the existing system demand. While CalVet does typically request increased conservation and reductions in deliveries during critically dry years, this was not included as a factor in assessing the Project's impact on system operations. Even without these potential reductions, however, the analysis determined the system could operate within normal storage range while meeting demand, and CalVet would be able to meet current water delivery commitments to its customers.

Section 3.8 also addresses the impact of future projected increases in consumptive demand and climate change on the Rector Reservoir system could result in significant adverse effects on water supply with implementation of the proposed minimum environmental flow release schedule. The combination of full build out demand and the Project implementation would adversely affect reservoir operations and result in the inability of CalVet to meet future water delivery commitments to its customers. Water right limitations would likely be violated, and the reservoir storage would be drawn down to dead storage in the event of a recurrence of conditions experienced during the 2013 -2015 drought.

Implementation of Alternative 2 would increase environmental releases proposed for the Project by as much as 724 AF per year during Very Wet years and 90 AF during very dry years. This would exacerbate the potential cumulative effect on water supply and reservoir operations identified for the Project. The effectiveness of mitigation identified for the Project to reduce the potential impact of Alternative 2 has not been modeled.

4.5 CEQA Environmentally Superior Alternative

CEQA Guidelines Section 15126.6 provides that an EIR should identify the "environmentally superior" alternative. "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." The following sections summarize information and the comparative impact analyses presented in above and identify the environmentally superior alternative in keeping with CEQA requirements.

4.5.1 No Project Alternative

Under the No Project Alternative, construction of proposed Project facilities would not occur. Thus, any and all impacts related to Project and Alternatives construction activities would be avoided.

Under the No Project Alternative, the interim environmental release schedules for the Project and Alternatives 1 and 2 would not be implemented. CalVet would continue to operate Rector Reservoir as it has historically as summarized in Section 2.1 and as described in greater detail in Section 3.11. Under the No Project Alternative, CalVet would accommodate future anticipated increases in water deliveries as water demand for existing users increases with expected buildout of those uses as described in Section 3.11 above.

Under the No Project Alternative, releases to Rector Creek under the proposed interim minimum environmental release schedule would not occur. As such, the Project objective to comply with California Fish and Game Code 5937 and "to allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition and prevent unlawful take of federally or state designated protected species" would not be realized. Any benefits to lower Rector Creek resident and migratory fish populations due to increased releases under the Project or Alternatives 1 and 2 would not occur with the No Project Alternative.

4.5.2 Alternative 1: Alternate Pipeline Alignment and Outfall Location

As discussed above, Alternative 1 would place the proposed Rector Creek outfall bypass pipeline outfall approximately 500 feet downstream of the Project outfall location. This would require the construction of a bypass pipeline that would be approximately 760 feet longer than the Proposed Project. The total length of the Alternative 1 pipeline would be 1,200 feet total. Under Alternative 1 the bypass pipeline from the hot tap to the outfall structure would be approximately 1,200 feet in length compared to the Project which proposes an approximately 440-foot pipeline between the hot tap and outfall.

Due to the increased length of Alternative 1 pipeline construction, impacts to various resource issues, i.e., air quality, biological resources, cultural resources, greenhouse gas emissions, noise and tribal cultural issues would be of greater magnitude for Alternative 1 relative to the Project. In no instance, however, was it determined that Alternative 1 would result in significant impact where the Project would require substantially greater mitigation (relative to the Project) to reduce a significant impact to less than significant. Likewise, the analysis presented above found no instance where Alternative 1 would avoid or substantially lessen a potentially significant impact of the Proposed Project.

Long-term operations under Alternative 1 would be identical to those of the Proposed Project. Thus, impacts or benefits associated with future project operations would also be identical.

4.5.3 Alternative 2: Expanded Interim Minimum Environmental Release Schedule

As described above, Alternative 2 would implement an environmental release schedule which would double monthly release rates of the schedule proposed for the Project. Facilities construction to facilitate future releases under this schedule would be identical to that proposed for the Project. Resource areas for which the benefit/impact would be substantially different between the Project and Alternative 2 include Biological Resources, specifically fish resources, and Utilities, specifically water supply.

Alternative 2 would increase interim minimum environmental release rates and annual volumes relative to the Project. For reasons detailed in Section 3.3 and summarized above, the primary benefit of this increased release for fish would be limited to water quality improvement in isolated pools used by native fish during the dry summer months. Increases in releases of the magnitude proposed for Alternative 2 would not substantially improve stream connectivity and the ability of fish to move along the stream channel relative to the Project. This is most evident during the dry summer months when proposed releases will do little to establish connections between isolated pools within which resident species reside in summer.

The primary beneficial effect of the increased reservoir releases to Rector Creek, relative to the Project, is the likely improved water quality, i.e., reduced water temperatures in isolated pools downstream of the dam. This effect has not been modeled or quantified, but it is reasonable to conclude that, based on analysis presented in Stillwater (2018) and the discussion above, increased releases to the creek could reduce temperatures in downstream isolated pools. As such, the benefit of Alternative 2 to resident and migratory fish in lower Rector Creek would be equal to, or greater than, that of the Project.

As described in Section 3.11, the impact of future buildout and climate change on the Rector Reservoir system would have potentially significant adverse effects on water supply with implementation of the proposed minimum environmental flow release schedule. Increases in release flows under Alternative 2 would exacerbate this effect. The combination of full build out demand and the release schedule implementation would adversely affect reservoir operations and the ability of CalVet to meet future water demand for its customers. Water right limitations would likely be violated, and the reservoir storage is drawn down to dead storage in the event of a recurrence of conditions experienced during the 2013 - 2015 drought assuming that future demand includes 500 AF/yr delivered to the Napa State Hospital.

4.5.4 Environmentally Superior Alternative Determination

Section 15126.6(e)(2) states in relevant part that, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." For reasons presented above, the No Project Alternative is not considered the environmentally superior alternative.

Although the No Project Alternative would not cause any construction or operational impacts, the benefit to downstream fish populations associated with proposed implementation of environmental release schedules under the Project and Alternatives 1 and 2 would not occur. As noted above, under the No Project Alternative, the Project objective to comply with California Fish and Game Code 5937 and "to allow sufficient water ("environmental flows") to pass over, around, or through Rector Dam to keep fish below the dam in good condition" would not be realized.

Based on the comparative analysis presented above, the Project is considered environmentally superior to Alternative 1 because impacts associated with construction of pipeline facilities would be slightly greater than the Project. Additionally, due to the lack of biological and cultural resources surveys of the entire Alternative 1 pipeline alignment, there is greater uncertainty regarding potentially significant impacts on those resources compared to the Project.

Alternative 2 would provide additional benefit to lower Rector Creek resident fish populations by improving water quality, i.e., lowering summer water temperatures in isolated pools downstream of Rector Dam. Implementation of Alternative 2, however, would exacerbate the potential cumulative effect on water supply and reservoir operations identified for the Project. The effectiveness of mitigation identified for the Project to reduce the potential impact of Alternative 2 has not been modeled.

Given that the benefit of Alternative 2 relative to the Project is anticipated to be limited and given that Alternative 2 would exacerbate a potentially considerable cumulative Project impact on water supply, the Project is found to be the environmentally superior alternative to those considered in this DEIR.

5.0 OTHER CEQA ANALYSIS

This section discusses additional topics statutorily required by CEQA, including growth inducement and irreversible changes.

5.1 Growth-Inducing Impacts

The CEQA Guidelines Section 15126.2(d) require that an EIR "discuss the ways in which the Proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Growth-inducing impacts can occur in a variety of ways, including the construction of new homes and businesses, and the extension of urban services, such as utilities and improved roads, to previously undeveloped areas.

A project can have direct and/or indirect growth inducement potential. Direct growth inducement would result if a project, for example, involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or if it would involve a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as a project providing the extension of water supply lines to an in an area where the lack of water service historically limited the growth in the area.

CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed project. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and conversion of agricultural and open space land to developed uses.

CEQA Guidelines Section 15126.2[d]) states that it is not assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment. However, growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service. A project that would induce "disorderly" growth (growth that conflicts with local land use plans) could indirectly cause additional adverse environmental impacts and other public services impacts. Thus, to assess whether a growth-inducing project would result in adverse secondary effects, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

The Proposed Project would construct facilities to facilitate direct and controlled releases from Rector Reservoir to Rector Creek. Future releases would conform to an interim minimum environmental release schedule that would be implemented as part of the Project. These releases would be made to allow sufficient water to pass over, around, or through Rector Dam to keep fish below the dam in good condition and prevent the unlawful take of federally or state designated protected species.

The Project is not expected to have growth-inducing impacts as it will not attract new permanent residents to the area by providing additional housing. Additionally, the Project would not result in an increase in employment opportunities which may result in increased growth in the area as no commercial or industrial development is a part of the Project. Construction of the Project would not bring any public services to the area that are not already available in the Project vicinity. No new public roadways or public infrastructure is proposed or needed for development of this Project. For these reasons, the Project would not result in growth inducement.

5.2 Significant Irreversible Environmental Changes

CEQA Guidelines require that an EIR identify and focus on significant environmental effects, including significant irreversible environmental changes that would be caused by the project should the project be implemented.

CEQA Guidelines Section 15126.2 (c) states that "uses of nonrenewable resources during the initial and continued phases of the Proposed Project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts, and particularly secondary impacts (such as highway improvement which provides access to a previously inaccessible area), generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitment of resources should be evaluated to assure that such current consumption is justified."

5.2.1 Nonrenewable Resources

Implementation of the Proposed Project would result in an irretrievable commitment of renewable and nonrenewable resources including land, water, energy resources, and construction materials. Development consistent with the Proposed Project would irretrievably commit materials and energy for the construction of the various alternatives. Nonrenewable and limited resources that would likely be consumed as part of Project development would include, but are not limited to, oil, gasoline and diesel fuel, lumber, sand and gravel, steel, and other materials use in the construction of improvements necessary for implementation of the Project. However, the amount of resources to be committed is not considered to be significant and are comparable to other developments of this type. No special construction materials or resources are anticipated to be needed as part of the Project.

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7.0 ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	Micrograms per cubic meter
AB	Assembly Bill
ADT	Average daily trips
AF	Acre-feet
AFY	Acre-feet per year
ANSI	American National Standards Institute
APCO	Air Pollution Control Officer
ATCM	Airborne toxics control measure
BA	Biological assessment
BAAQMD	Bay Area Air Quality Management District
BCC	Birds of conservation concern
BDR	Baseline Data Report
BLM	Bureau of Land Management
BMI	Benthic macroinvertebrates
BMPs	Best management practices
BO	Biological opinion
BOS	Board of Supervisors
BP	Before present
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CalVet	California Department of Veterans Affairs
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCC	Central California Coast
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife's
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 also called the Superfund Act or
CFR	Code of Federal Regulations
CFR	Code of Federal Regulations [
cfs	Cubic feet per second
CH_4	Methane
CHRIS	California Historical Resources Information System
CIMIS	California Irrigation Management Information System
CLN	Conservation Lands Network
cm	Centimeters
CNDDB	California Natural Diversity Database-

CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalents
CRHR	California Register of Historic Resources
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CTR	California Toxics Rule
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted
dBA	A-weighting
DEIR	Draft Environmental Impact Report
DGS/RESD	California Department of General Services/Real Estate Services Division
DIP	Ductile iron pipe
DPM	Diesel particulate matter
DPS	Distinct Population Segment
DWR	California Department of Water Resources
DWR	Department of Water Resources
ECHRP	Erosion Control and Habitat Restoration Plan
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIR	Environmental Impact Report
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	Endangered Species Act
FEIR	Final EIR
FHWA	Federal Highway Administration
fps	Feet per second
FTA	Federal Transit Administration
FYLF	Foothill yellow-legged frog
General Construction Permit	Order 2009-0009-DWQ, as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ
GHG	Greenhouse gas
GIS	Geographic Information System
GLO	General Land Office
HCP	Habitat Conservation Plan
HMMH	Harris Miller, Miller & Hanson Inc.
HRA	Health risk assessment
in/yr	Inches per year
IPaC	Information, Planning, and Consultation System
IPCC	Intergovernmental Panel on Climate Change
L_{dn}	Day-Night Average
L_{eq}	Equivalent Noise Level
LSA	Lake or Streambed Alteration

mag	Magnetic
MBTA	Migratory Bird Treaty Act
mg/L	Milligrams per liter
MLD	Most likely descendant
MMRP	Mitigation Monitoring and Reporting Program
MSA	1996 Magnuson-Stevens Fishery Conservation and Management Act
MSL	Mean Sea Level
N_2O	Nitrous oxides
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCFCWCD	Napa County Flood Control and Water Conservation District
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	Nitric oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NPS	National Park Service
NRHP	National Register of Historic Places
NTR	National Toxics Rule
NWIC	Northwest Information Center
O_3	Ozone
OES	Office of Emergency Services
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OSHA	Occupational Safety and Health Administration's
PM_{10}	Coarse particulate matter
$PM_{2.5}$	Fine particulate matter
ppm	Parts per million
PPV	Peak particle velocity
PRC	Public Resources Code
Project	Rector Reservoir Bypass Valve Project
PVC	Polyvinyl chloride piping
RCNM	Roadway Construction Noise Model
RMS	Root mean square
ROGs	Reactive organic gases
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCADA	Supervisory control and data acquisition
SCH	State Clearinghouse

SFB	Silverado Fisheries Base
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SOx	Sulfur oxides
SSC	Species of special concern
STC	Sound Transmission Class
Superfund Act	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TCPs	Traditional Cultural Properties
TCRs	Tribal Cultural Resources
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VIC	Variable Infiltration Capacity
VOCs	Volatile organic compounds
Water Audit	California Water Audit
WBWG	Western Bat Working Group
WDR	Waste Discharge Requirements
WDRs	Waste Discharge Requirements
WEAL	Western Electro-Acoustic Laboratory, Inc.
WQT	Water Quality and Tree Protection Ordinance
WTP	Water treatment plant
WTP	Water Treatment Plant
WY	Water year